

JPT LASER GUI SOFTWARE USER GUIDE V2.0

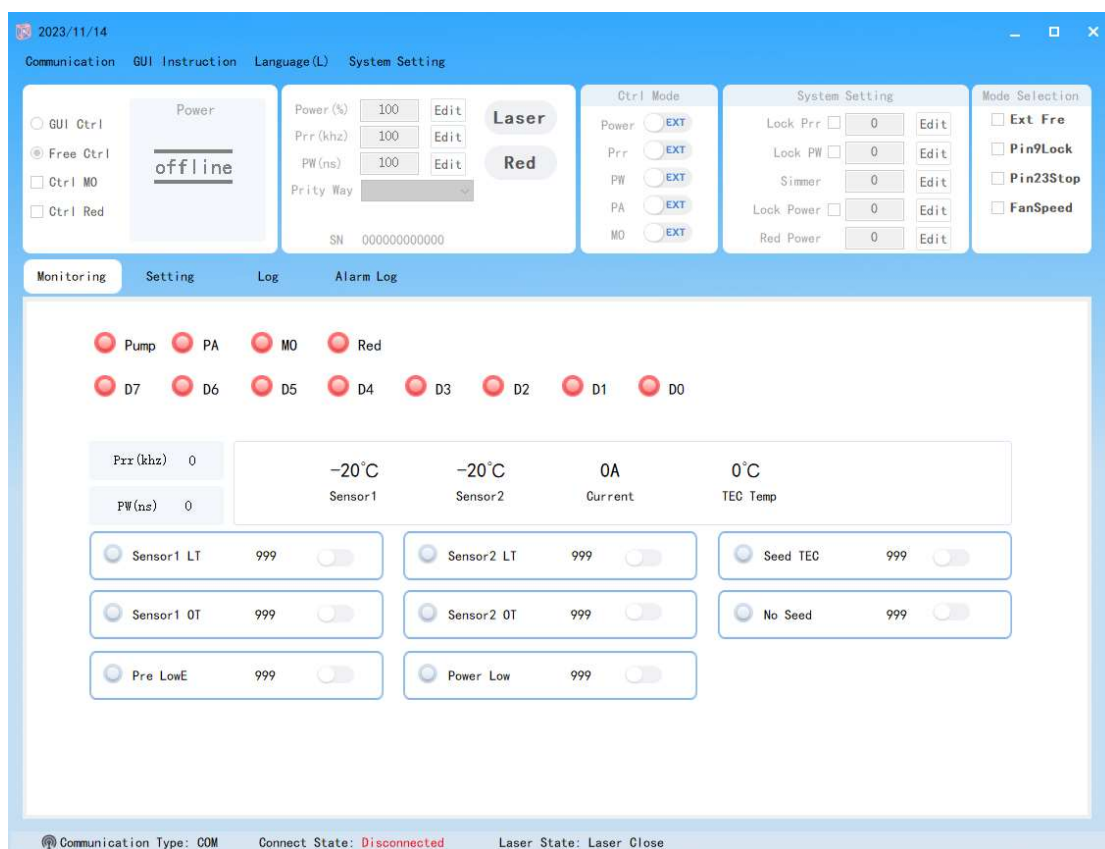
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1 Software Description

The software is a graphical user interface (GUI) measurement and control software specifically developed for YDFLP-E series lasers. functions including laser control, default parameter settings, control mode configuration, alarm monitoring, DB25 interface monitoring, internal parameter monitoring etc.

It is recommended that users utilize this measurement and control software when using YDFLP-E series lasers as it allows adjustment of default parameters along with signal monitoring and troubleshooting during abnormal conditions.



2 Communication Interface Description

2.1 Network port configuration and connection

Please connect the network port of the laser to the network port of the PC, and open the network adapter to check the connection of the network cable. The laser is TCP/Server with IP address 192.168.0.10 and port number 5000.

The IP address of the computer Ethernet needs to be configured as a network segment with the server, as shown in Figure 5 below. IP address is 192.168.0.2 (the last bit should not be 1, 10, 255), subnet mask and default gateway refer to Figure 1-2, the mask defaults to 255.255.255.0, the default gateway generally has the same first three bits as IP address, and the last bit is 1.



Figure 1- 1 Network port connection state

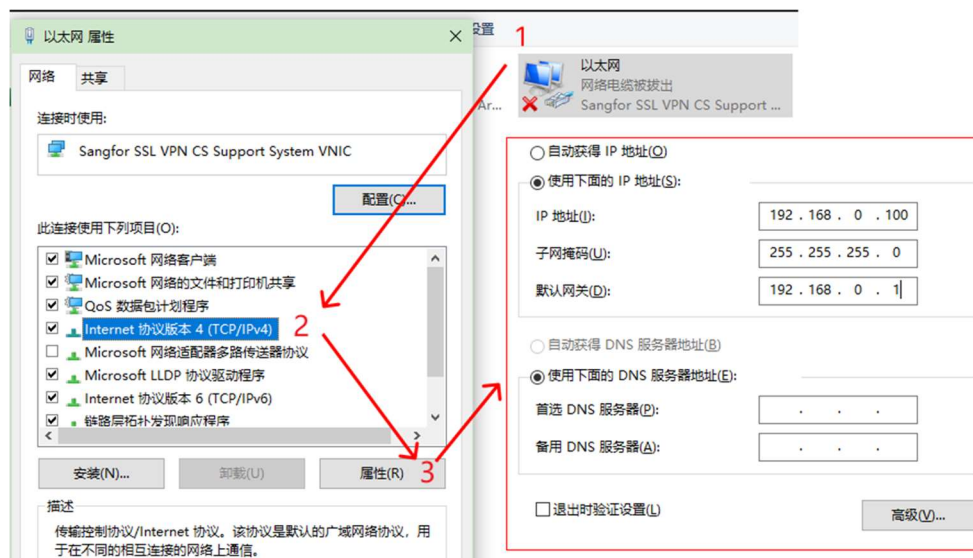


Figure 1- 2 Network port configuration process

Click "JPT_Laser_Refactoring.exe" to open the software, click "System Configuration" in the menu bar, click "Communication mode", and change the communication mode to "network port communication".

Back to the main interface, click "Communication Connection", input the IP of the laser, click Connect, and check the connection status of the laser.

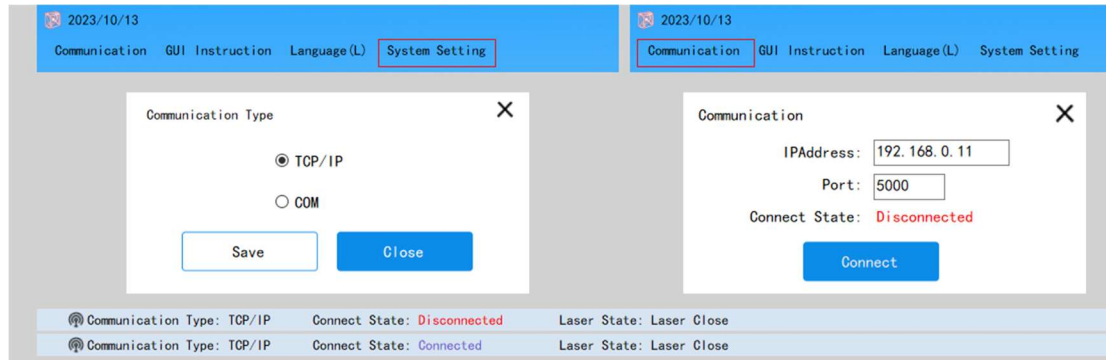


Figure 1- 3 Network port connection status display

2.2 IP address modification of network port laser

If you have multiple laser devices connected to a computer, it is necessary to modify the IP addresses of the lasers in order to ensure that they are different from each other for normal usage.

When using network communication mode, navigate to "System Configuration" -> "IP Address Modification", enter the new IP address and port number, and then click on "Modify IP". This will ensure that the laser devices on the same computer have distinct IP addresses. The port number can remain unchanged. Remember to take note of your new IP address after making these changes so as not to forget it.

2.3 Configuration and connection of serial port laser



Figure 1- 4 Serial port and serial cable

The USB TO RS232 data cable is utilized for connecting the USB port of the computer host to the RS-232 control interface of the laser device. After connecting the data cable, please check the serial port number by navigating to My Computer -> Properties -> Hardware -> Device Manager. If an unrecognized device is displayed in the device manager, it indicates that the computer may not have installed the necessary RS. In this case, please install the serial port RS232 driver manually.

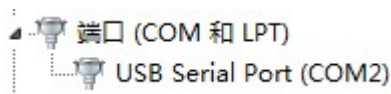


Figure 1- 5 Serial port device in Device Manager

To establish communication with the laser, open the software and click on "Communication mode" to set it as "serial communication". Return to the main interface and click on "Communication connection", then select and connect to correct serial port. Observe connection status within software as shown in Figure 1-5.

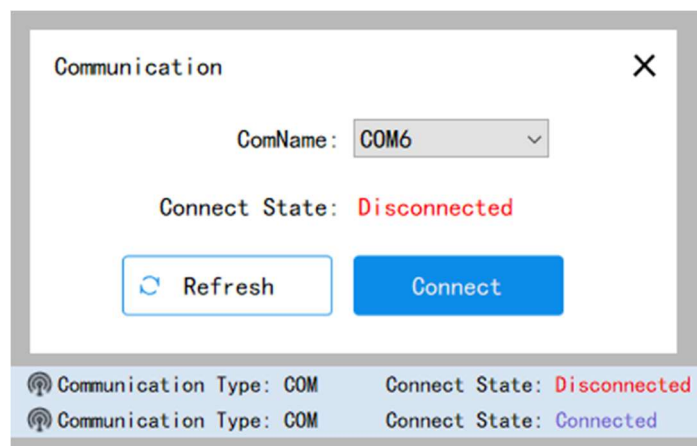


Figure 1- 6 Serial connection status

3 Software function introduction

3.1 Operating environment

Please note that Windows 7 or higher version is required along with .NET framework 4.6.1 and c++ installation.

The general computer will have the above environment, if not the above environment, you can go to the Microsoft official website to download or contact the after-sales installation.

3.2 Control Mode



Figure 2- 1 Control Mode

The laser control is divided into two modes: "internal control" and "external control".

In the internal control mode, the software controls the laser light parameters such as power, frequency, pulse width, MO, and PA. When the user selects "GUI Control", it automatically switches to internal control mode. In this mode, the power, frequency, and pulse width of the laser light are determined by the parameters on the software interface. This mode does not have power-saving function. When closing the connection or exiting the software, it automatically switches to "free control" mode where all parameters in both internal/external control modes are set to external control.

The internal control mode is suitable for testing or debugging equipment. On the other hand, in free control mode users can choose their preferred parameter settings for each parameter in both internal/external control modes. This mode has a power-saving function and retains its settings even when closing or exiting the software.

It is recommended that users choose free control mode when they need to use specific internal controlled parameters. For example, if a user's marking board does not frequency adjustment function but requires setting specific frequencies internally external switching signals along with other external controlled parameters from within "internal/external Control Mode" column.

3.3 Set the laser parameters and switching light

To set parameters and switch lights: After selecting a desired control mode, users can input values for power, frequency and pulse width in respective bars under "parameter setting". Clicking on side button labeled as "Edit" confirms these inputs. Finally clicking on button labeled as "laser" turns on/off light accordingly.

Note: When using TypeE lasers during light output process only power parameter can be while pulse width and frequency remain unmodifiable regardless of any case.

3.4 MO Control

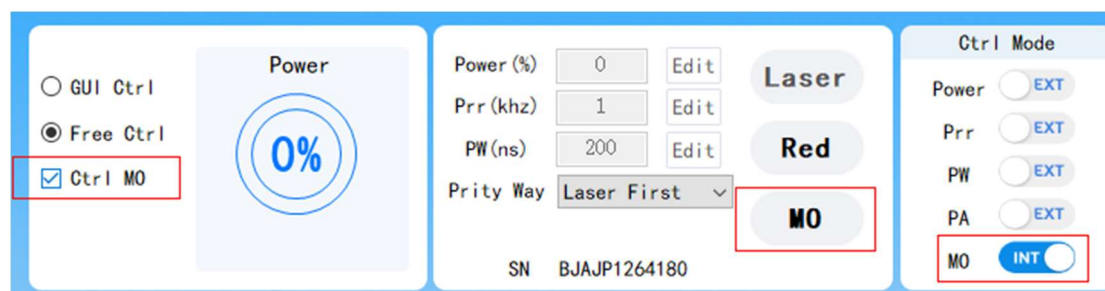


Figure 2- 2 MO Control

Ctrl MO: The “MO” button will be appeared on the interface after selecting Ctrl MO. User can control the switching of MO signal while clicking this button. This setting will not be preserved after power off.

3.5 Default parameter setting and additional parameter setting selection

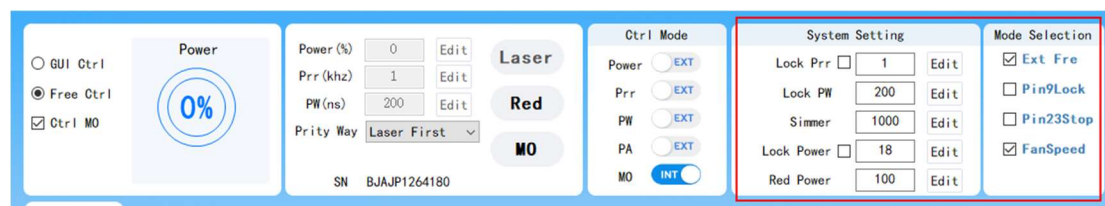


Figure 2- 3 Default parameter setting and

additional parameter setting selection

The software can modify the function of the default parameter setting and additional parameter setting selection of the laser in the "parameter setting" and "parameter selection" options. This setting will not be preserved after power off.

Lock PRR: Laser will lock to GUI setting frequency.

Default pulse: The laser will use GUI default pulse when no pulse width control command received.

Simmer: Can be used for controlling the height of the first pulse, the higher the value, the larger the first pulse. Setting range: 0-1000.

Simmer setting examples:

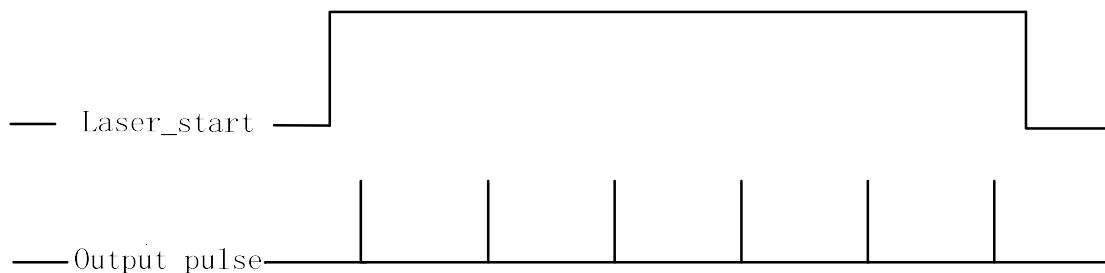


Figure 2- 4 Appropriate Simmer

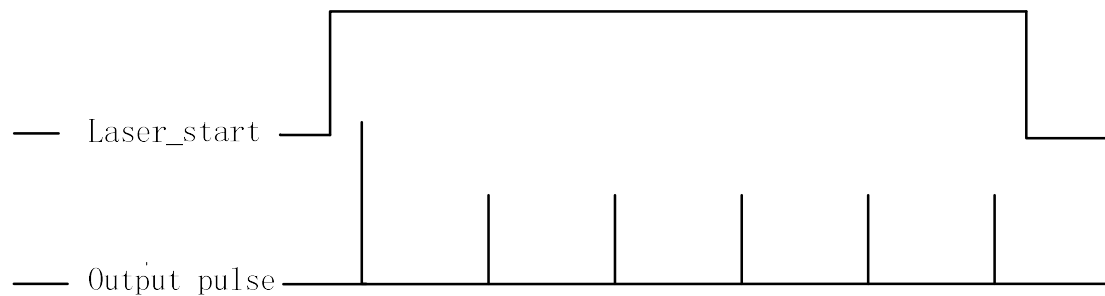


Figure 2- 5 High Simmer



Figure 2- 6 Low Simmer

Lock power: Laser will lock to GUI setting power.

Red Power: Brightness of built-in red pilot(optional) can be adjusted, value range is 0-100.

External frequency: When selecting external frequency mode, the laser output pulse will be synchronized with external frequency signal. When not selecting this option, the laser will use with internal frequency mode. And the laser will calculate external frequency signal in MO and PA delay time. Default setting is internal frequency mode.

External frequency and internal frequency setting examples:

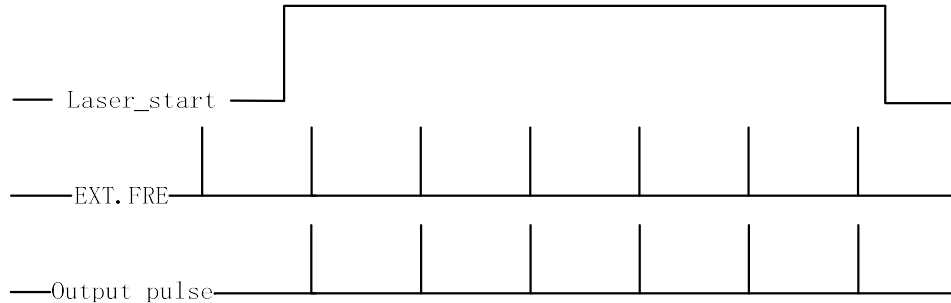


Figure 2- 7 External frequency

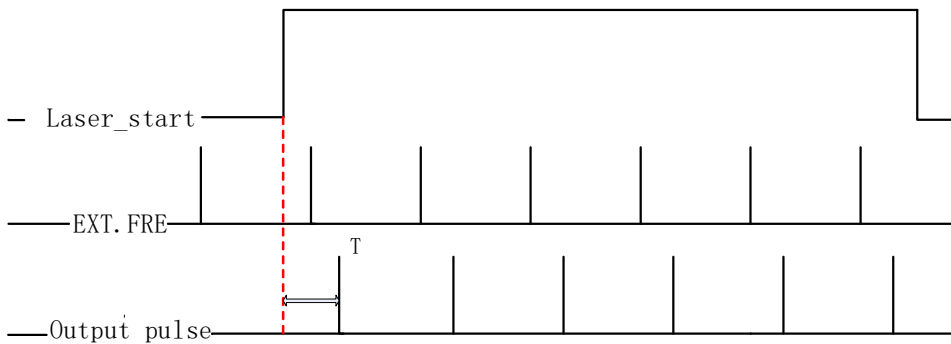


Figure 2- 8 Internal frequency

*T=Duration of pulse period, maximum duration $\leq$ cut off frequency

Pin9Lock: Power latch function is enabled if selected, rising edge is effective. Default setting is not selected.

Pin23Stop: Emergency stop function is enabled if selected, low level is effective. Default setting is not selected.

Fan Speed Control: The laser fan speed will be control according to the value of the built-in temperature sensor. If not selected, the fans will run at full speed. Default setting is selected. Note: The parameter setting of E type software takes effect immediately, no need to restart laser.

StrengMc: Checking "Enhanced Mode" will increase the average power of the laser by 20% while keeping the cut-off frequency unchanged. At this time, it is recommended that the operating environment temperature range is 5~35°C. The laser may trigger a sensor alarm. Please refer to Table 1 for the recommended operating temperature range of the laser in different modes. This mode is not checked by default.

3.6 GUI Monitor

The monitoring function of the software can observe some operating parameters and alarms. The laser will send the alarm number saved in the system to the GUI software every time it is turned on.

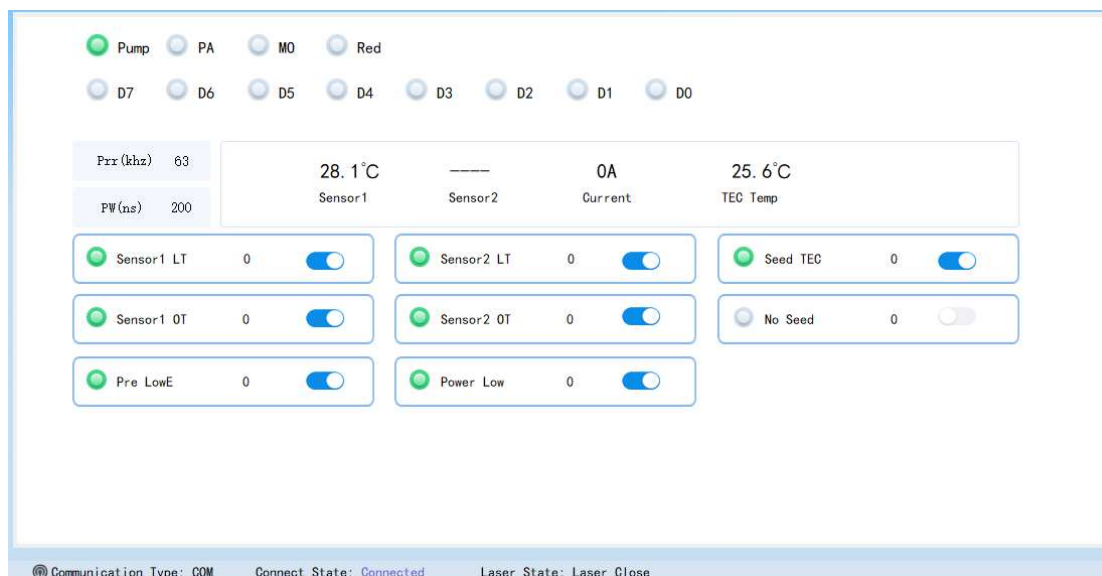


Figure 2- 9 monitoring interface

1) Status monitoring

Pump indicator light: Monitor whether the pump of the laser is currently in normal working state, which is green under normal conditions, and red light if abnormal alarm occurs.

PA、MO、Red indicator light: Monitor the control signal. Green light means signal is effective (high level), and red light means signal is not effective (low level).

D0-D7 indicator light: Monitor the current power signal of the laser, corresponding the 8-bit binary mode, D0 is the lowest and D7 is the highest. Green light means this pin signal is effective (high level), and red light means this pin signal is not effective (low level).

PRR/kHz and PULSE/ns: Monitor the actual laser working frequency and pulse width.

Pump temperature: Monitor the temperature of optical module. Power current: Monitor the post amplifier driving current value of the laser.

System parameter: Internal system parameter setting interface (For JPT internal use only).

Log record: To record the laser setting and alarm.

Alarm record: To record the sequence of the latest 10 laser alarms.

2) Alarm description:

Sensor1 LT: Board temperature is lower than the set temperature.

Sensor1 OT: Board temperature is higher than the set temperature.

Sensor2 LT: Pump temperature is lower than the set temperature.

Sensor2 OT: Pump temperature is higher than the set temperature.

PRE lowE: Pre amplifier low current alarm. Voltage error: Supplying voltage is too low or too high.

Power Low: Supplying voltage is too low.

No pulseE: No seed source backlight signal detected or backlight signal frequency less than 1kHz.

Seed TEC: Seed source temperature is abnormal.

4 Description

Warranty and service terms in User's Manual are for reference only.

Official service and warranty are subject to official contract. For more support, pls contact JPT sales team or service team for more support.