Handheld Dual Axis Laser Cleaning System DHCC2000/3000 Easy User Manual V2.2

Usage and Safety Instructions

- Before installing and using this product, please read the contents of this manual carefully. If you have any questions about this manual, please contact the technical personnel for help.
- 1. Safety operation instructions
- Please comply with all safety instructions for laser use (including but not limited to related instructions, reminders and related content in this manual described in the laser, galvanometer, software, control card).
- At any time, please turn on the laser power after turning on the control power of the system. Otherwise, the equipment operator may be at risk of injury due to uncontrolled deflection of the laser beam.
- 2. The safety and use part that the customer is responsible for
- Laser cleaning uses laser as a heat source to vaporize impurities on the surface of the workpiece, and there is a risk of laser damage to personnel. Therefore, all safety instructions regarding laser processing systems should be understood and implemented by the user. The user must strictly abide by the relevant safety operation rules and be responsible for the safe use of the laser system used.
- Safety rules may vary by country or region, and users are responsible for complying with all local safety regulations.
- Before processing the workpiece, please check carefully to confirm whether the welding system is running normally. Software errors can cause the system to stop responding, in which case the laser may be uncontrollable, increasing the risk of laser injury.
- When storing and using this welding system, please avoid the impact of moisture, dust, corrosion and foreign objects on it.
- When storing and using this welding system, please avoid the influence of magnetic field, static electricity, electromagnetic radiation and strong electric power source on it.
- Static electricity is likely to damage the precision electronic components on the circuit board, please be sure to use anti-static packaging bags to store the relevant external control cards. When installing, wear well-grounded anti-static protective gloves or wrist straps.
- When installing, the signal line and power line of this system must be kept a sufficient distance from the high-voltage cables and servo power cables of other systems.
- The shielding layer of the signal line and power line of the system must be well grounded to avoid interference of the signal line and power line.
- Before using this equipment system, please ensure that there are no inflammable and explosive materials within 10 meters of the surrounding area, please drive away irrelevant personnel within 10 meters of the surrounding area,

and users must be trained by the manufacturer before operating the equipment.

- Please ensure that the system is stored in the environment of -20℃ to +60℃, and the normal working environment temperature is 25℃±10℃.

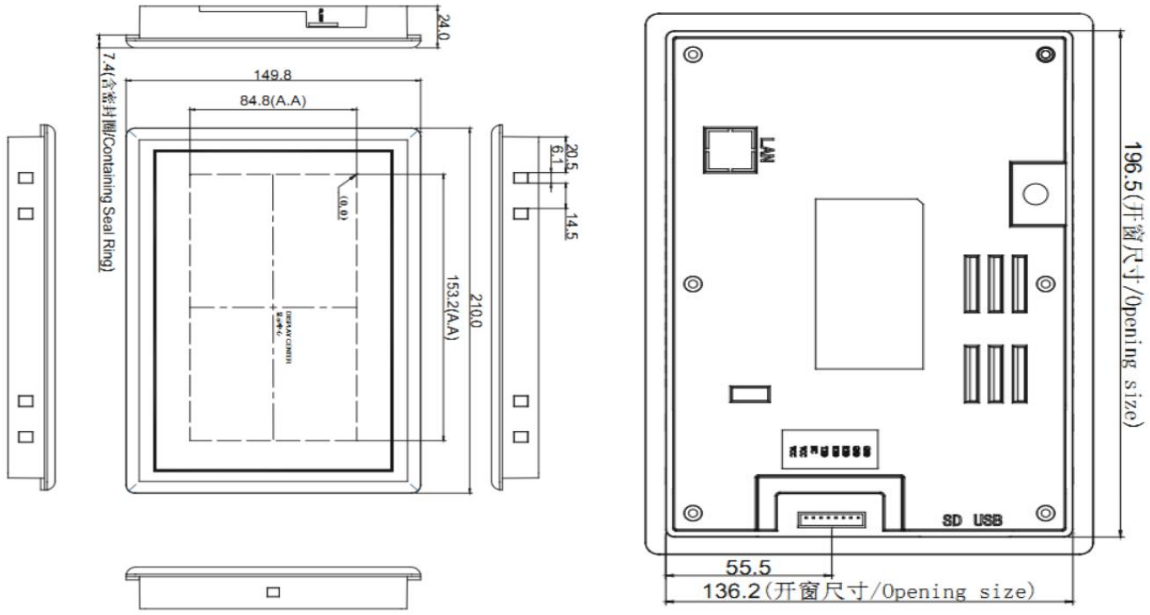
Notice! Notice! Notice!

Before going out, make sure that the surrounding environment is free of flammable and explosive items, and there are no idle people!

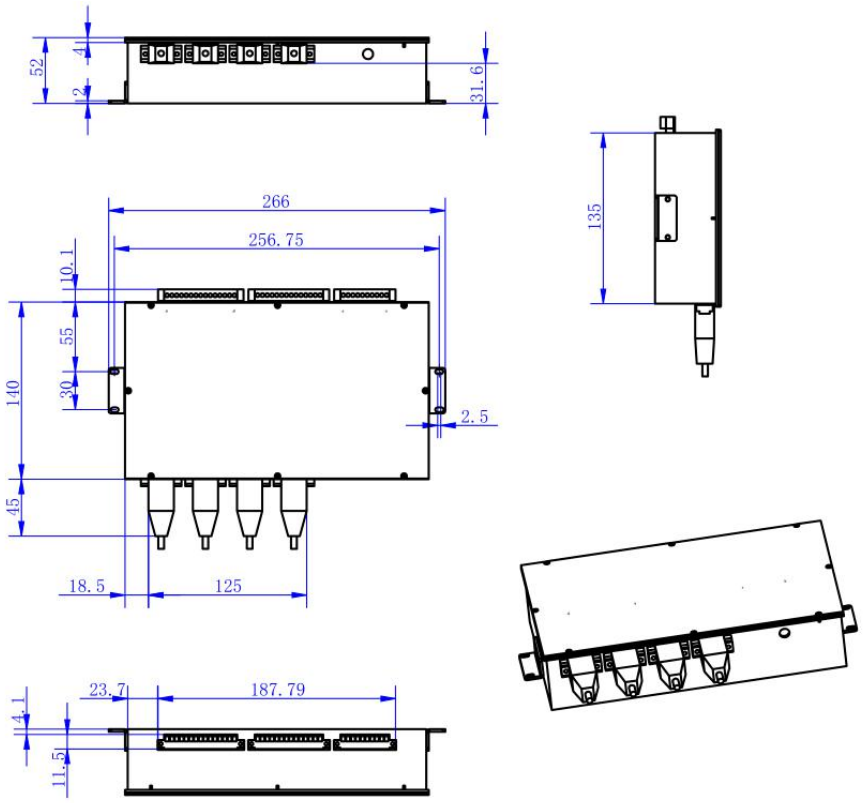
Handheld Cleaning Quick Installation and User Guide

1. **Step 1: According to the structural installation diagram of the display panel control box, fix it to the cabinet. The installation hole map is shown in the following figure:**

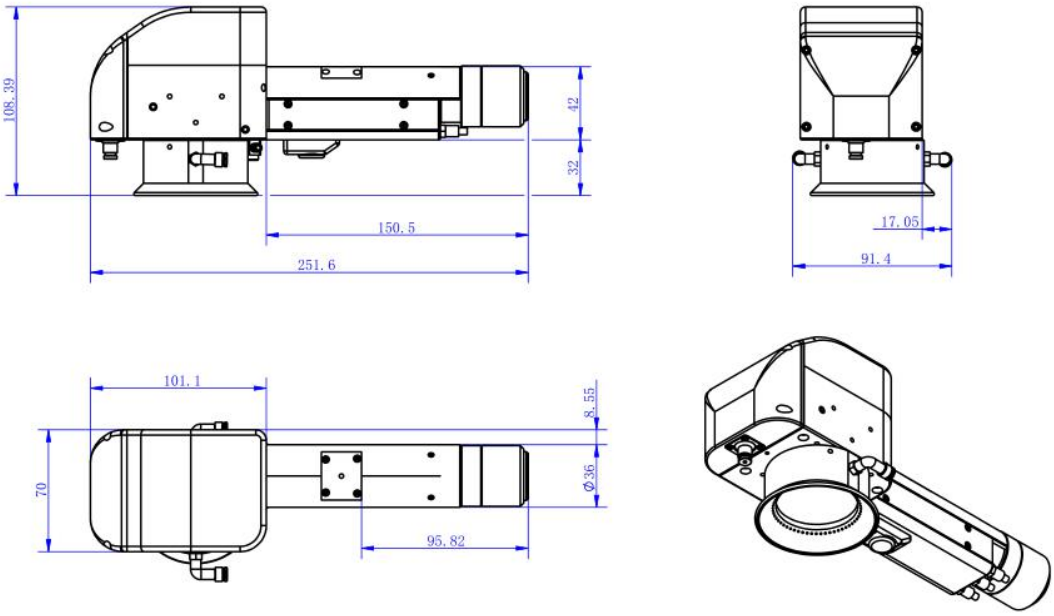
Dimensions of the split screen:



Outer dimension of split control box



Dimensions of cleaning tip:



2. Step 2: Install the water and gas lines

As shown in the picture (bottom-left), connect the water circuit and air circuit, follow the manufacturer's recommendations, and set the temperature of the chiller correctly to avoid condensation. Note: Please confirm the air and water connections before passing water to prevent the core components from being damaged by water.

3. Step 3: Install QBH

As shown in the picture (bottom-right), align the QBH head of the laser with the QBH interface inserted into the swing head, and turn the knob clockwise to lock it, and then lock the fixing ring counterclockwise to prevent the QBH knob mechanism from loosening.

Note: After installation, it is recommended to use tape to seal the handle position to

prevent dust from entering and damaging the optics.

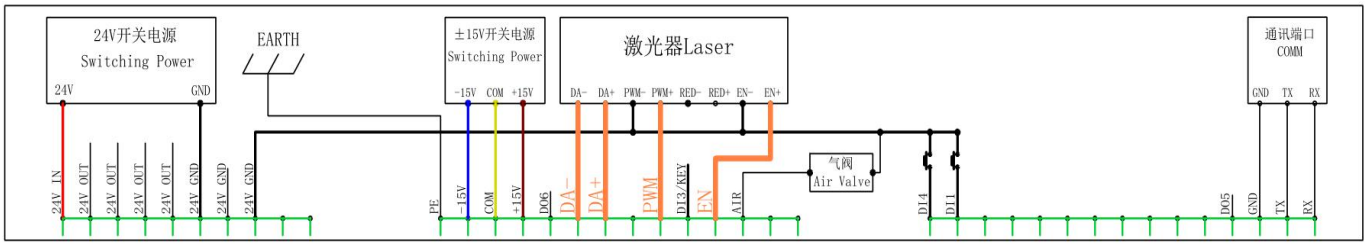
4. Step 4: Connect the control cable between the control box and the cleaning gun, as follows



Note: There are 4 control cables, one end is M12 aviation head , the other end is two DB9 ports, Please wire according to the color and labels (X, Y) of the connectors on the cable. After locking the aviation connectors, it is recommended to use insulating tape for sealing.

5. Step 5: The wiring definition of the control part is shown in the figure below

a) Schematic diagram:



b) Definition of control signal terminals: see the table below

terminal	illustrate
PE	the earth
-15V	Galvanometer motor drive power supply, connected with our switching power supply (± 15V/3A), as shown in the figure 
COM	
+15V	
24V_IN	24V_IN: External switching power supply interface

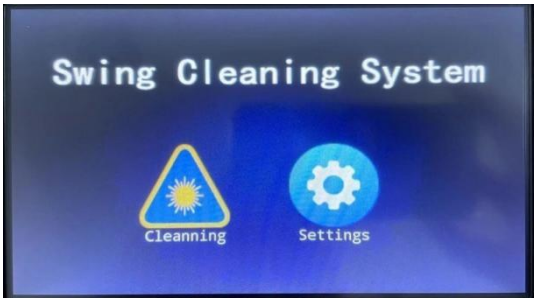
24V_OUT	24V_OUT: Provide 24V power for external devices
24V_GND	24V_GND: 24V power common terminal
EN	Laser enable output signal (connect to laser end EN+, EN- connect to 24V_GND)
PWM	PWM laser control signal (connected to laser PWM+, PWM- connected to 24V_GND)
DA+	Analog (0~10V) power control signal (connected to the laser analog receiving port)
DA-	
AIR	Airlock output control signal, active high (24V)
DO5	Digital output port for outputting system status, etc.
DO6	Note: Enter the IO settings page of the system settings to assign functions to the ports
DI4	Digital input port, used to receive external control signals (such as: automatic control of light output, external equipment alarm, etc.).
DI1	
DI3	DI3: Dedicated test port for buttons on the handheld head (no wiring required in normal use)
	Note: Enter the IO settings page of the system settings to assign functions to the ports
GND	RS232 interface (bus control interface)
TX	
RX	

6. Step 6: Create User

Main page -> System Settings -> Default Password "6" -> User Management -> Set "User Type", "User Name", "Password" and "Fingerprint Registration" in sequence to complete the user creation. (The system has created an account: admin password is number 1)

7. Step 7: Log in to enter the cleaning management page

After entering the cleaning management page with your fingerprint or password, activate the swing and laser buttons to enter the cleaning preparation state.



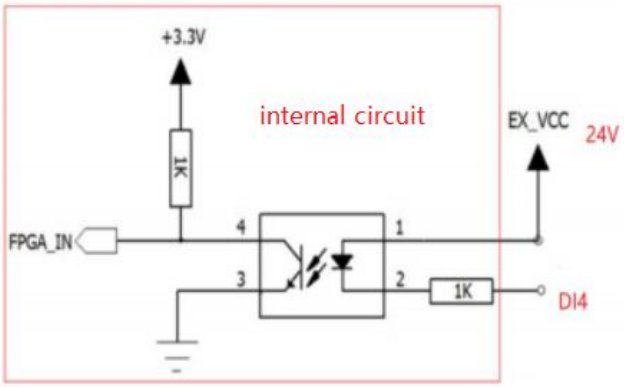
8. Step 8: Get to work

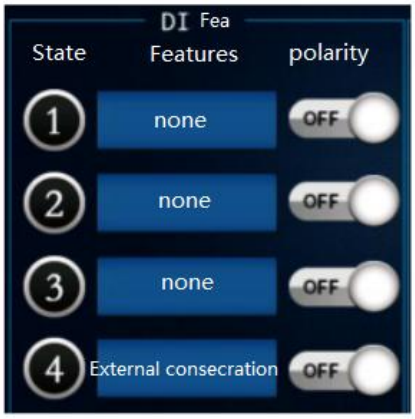
Point the gun head field lens at the target, with an interval of 580mm (F500 field lens), and double-click the button switch of the cleaning gun to emit light for operation.

Note: During the process of using the laser, please vacuum, otherwise the raised smoke will cause damage to the field lens! ! !

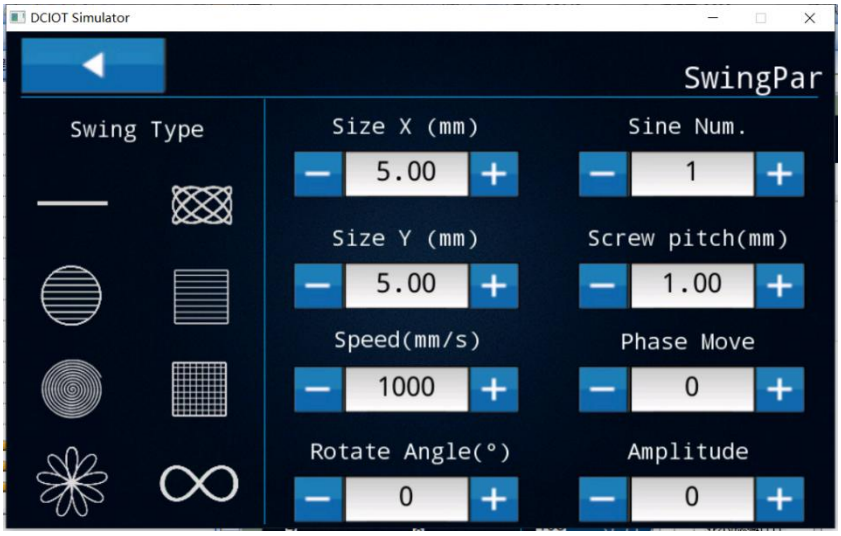
9. External IO trigger control start and stop

1. Connect the external control signal to DI4 (active at low level)
2. Go to System Settings -> IO Settings, assign the function of terminal DI4 to "Remote switch on" as shown in the figure below
3. Return to the cleaning management page and activate the swing and laser buttons to control the cleaning head on/off light through an external signal
4. Note: Before emitting light, make sure that the cleaning head has been fixed firmly to prevent it from falling off; the cleaning head buttons and external control signals cannot be used at the same time.





10. Description of main parameters



Size X: the width of the cleaning head scanning track, 0.01 ~ 500.00mm (field lens limit)

Size Y: the height of the cleaning head scanning track, 0.01 ~ 350.00mm (field lens limit)

Speed: the speed of the cleaning head scanning track, 0～60000mm/s (different track speed limit is different)

Fill Type: Type of elliptical fill and rectangle fill line

Filling interval: The interval between filling lines, the denser the filling, the better the cleaning effect, but the lower the efficiency.

Filling Angle: Filling line inclination angle, which can be set with the "Rotation Angle" parameter.

Rotation angle: The overall rotation angle of the scanned graphic (excluding the fill line angle).

Phase shift: The speed of the phase shift of the sine sweep trace.

Sinusoidal series: The density series of sinusoidal lines.

Power: control the output power of the laser from 0 to 100%

Duty cycle: switch light with pulsed laser control (effective for continuous lasers)

Frequency: For continuous lasers, it is used in conjunction with the duty cycle. When the duty cycle is 100%, this parameter has no effect. When using a pulsed laser, this parameter is set according to the laser's power reduction frequency parameter table.

Pulse width: Pulse laser supports this parameter to control the pulse width of the laser. This parameter is set according to the laser's power reduction frequency parameter table.

Blow in advance: the advance time of the airlock relative to the opening time

Delay Closing: The delay time of the airlock relative to closing the light

warn! warn! warn!

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