Hotbar Soldering Machine

Instruction Manual

Thank you very much for purchasing our product.

This operation manual describes the features and operation of the machine. Before using, read the manual thoroughly for proper use of the unit. Store the manual in a safe easily accessible place for future reference.

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1 General Notes

1.1 Safety Labels



Caution Electric Shock! Protect yourself against electric shock.

Do not plug or unplug cables when the machine is powered.



Keep hand away from moving parts to avoid injury!



Crush hazard keep hands clear. Lockout / tag out before maintenance.



Mind your head!



High temperature!



Shut off power and air supply at the source before performing maintenance. Failure to observe this can lead to electric shock and other accidents.

NOTE:

- 1. Use original spare parts from QUICK to replace defective ones.
- 2. If the problem occurs on any designated purchasing components, clients can also source the same models from their own purchasing channels.
- 3. Please feel free to contact QUICK if there's any problem during the maintenance.

4. Do not plug or unplug cables with power on.

1.2 General Safety Information

- Machine must be used or stored in an applicable environment: Operating ambient temperature is 0~40°C, relative humidity is 20%~90%(No condensation).
- 2. Follow the steps and drawings to maintenance.

1.3 Hotbar controller Information

In order to ensure the safe operation and optimal performance of the Hotbar controller, please follow all warnings and safety Introductions in this manual during process of controller operation.

1.3.1 Protection Requirement

When the Hotbar controller is turned on and the soldering head is in a high temperature status, do not touch it with your hands to avoid burns. When installing or disassembling, please remember to turn off the system and pull out the power plug to avoid damage to the machine or cause accidents.

1.3.2 Operation Introduction

You should read the following procedures before operating the Hotbar controller.

- 1. Corresponding operators must be trained and examined and know the normal safety information for operating the Hotbar controller.
- 2. Regular inspection and maintenance will prolong its lifetime.
- 3. Never touch the soldering head when the Hotbar controller power is turned on.
- 4. Please do not operate when it's damaged.
- 5. Turn off the system when resting or after completion
- 6. Use rated voltage and frequency. (Please refer to the nameplate on the back of it.)
- 7. Do not modify Hotbar controller without authorization.

1.4 Safety Introductions-Electrical Components

- Maintenance may only be performed by a certified electrician, or by persons who have been instructed in electrical engineering under the direction and supervision of a certified electrician in accordance with standard electrical engineering practice.
- On machines with fixed connection, turn off power switch.
 Note: The power disconnecting device (power switch) itself is then still under voltage (live)! Wait for 120s to maintenance!

- 3. Disconnect the machine from the power supply before performing maintenance on any electrical or opening the switch cabinet (If it has been installed on the machine).
- 4. Disconnect main power plug. Machine is safely isolated from the power supply.
- 5. Check safe isolation from the power supply with suitable measuring instruments (2-pole voltage tester). Only perform maintenance work on the system or machine that is safely isolated from power supply!
- 6. Maintenance work must be performed in accordance with related drawings.

1.4.1 Check Safety Devices

Safety devices may only be disabled by technical persons if absolutely necessary as part of the maintenance work. Safety components such as limit sensors, safety door, light house and emergency stop button must be enabled immediately after maintenance. Check if all safety devices are fully functioned before starting again.

1.4.2 Securing Power Switch OFF

Secure the power disconnecting power switch with a warning sign to prevent it being switched on again. If the power switch needs to be switched on for certain repair jobs, particular care must be taken to ensure that persons cannot be harmed.

NOTE: The power switch must be secured to prevent it being switched on during interruptions in repair work.

1.4.3 Measurements at Live Components

Seek the assistance of a second person if it is necessary to perform measurements on live components. In the case of emergency, the second person can have the ability to lock the switch in the OFF position and disconnect the power plug.

1.4.4 Switch Cabinet

- No fire can occur in the switch cabinet under normal operating conditions.
- Fan is used to extract generated heat and enhance air circulation.
- Immediately replace fan if damaged. Pay attention to the air throughput of the fans. The air throughput must be great in order to dissipate the heat.
- Filter pad must be clean.

• In the case of fire, do not use extinguish with water. Use a carbon dioxide dry powder fire extinguisher in the case of fire!

1.4.5 Electrical Current

- Defective electrical components may be live (under voltage), danger of death on contact with them.
- Molten particles can spray out in the event of short-circuits, risk of burn injuries.
- Defects which found on the electrical components and machine must be changed immediately.
- Check that all electrical connections are made and secure before starting up this machine.

1.4.6 Emergency Stop Button

Activating the E-Stop button immediately stops the movement of all mechanical parts (include electrical and pneumatic supply) of the machine. After resolving the error, the E-Stop button must be counter clockwise pulled out as acknowledgement. Thereafter the error can be acknowledged on the touch screen.

1.4.7 Turn-On Procedure

Ensure that the machine is supplied with power and compressed air. Please follow this sequence to turn on the machine:

- 1) Connect machine power cord and turn on power switch.
- 2) Connect Hotbar controller power cord and power on it.
- 3) Release the emergency stop button.
- 4) Click on **POWER** key to power movement parts.
- 5) Click on **RESET** key to move all movement parts to home position.

NOTE: After switching off the system always wait for at least 120s before switching it on again.

1.4.8 Turn-Off Procedure

Please follow this sequence to turn off the machine:

- 1) Click on **RESET** key to move all movement parts to home position.
- 2) Turn off the Hotbar controller.
- 3) Turn off power switch
- 4) Slowly plug all power supply cords.

1.5 Pneumatic

- Maintenance on pneumatic parts may only be performed by persons with special knowledge, and experience with pneumatic machine!
- Disconnect the air source before performing any maintenance. Compressed air tube must be depressurized before disconnecting!
- Set the appropriate using pressure, recommended below 0.7Mpa.

1.6 Residual Safety Check

1.6.1 Cleaning

• Hydrocarbons dissociate causing an explosion if contacting Zinc element. In this machine, Zinc plate is used.

• Only use solvents or cleaning agent without hydrocarbons! Before you use a solvent or cleaning agent, check its ingredients!

1.6.2 Safety at the Workplace

- Ensure adequate ventilation of the workplace to protect operator from dangerous fumes and vapors.
- Do not eat and drink at the workplace, keep soldering process away from food-stuff, beverages and feedstuff. The possibility of smoke in the soldering process may be contaminated food and drink.
- Keep workplace clean and tidy is the prerequisite for ensuring soldering.
- Keep safety datasheets for soldering maintenances clearly visible and accessible at the workplace.

1.6.3 Personal Protection

Avoid skin contact or any other body contact to soldering components. This requirement applies both during processing and as well as storage.

2 Technical Data

2.1 Parameter

	ET9H383	Specification
Input voltage		220V/AC 50Hz/60Hz
Axes number		3 axes
Power consumption (Without Hotbar control	ler)	200W
Hotbar controller power	consumption	1500W
	X axis	0~300mm
Movement range	Y axis	0~300mm
	Z axis	0~100mm
Movement speed	X/Y axis	0.1~600 mm/sec
Movement speed	Z axis	0.1~300 mm/sec
Repeatable accuracy	X/Y/Z axis	±0.02mm
Resolution ratio	X/Y/Z axis	0.01mm
Davida ad waisht	Z axis	5 Kg
Payload weight	Y axis	8 Kg
Demo File Qty.		Max 255 files, Max 60000 points
Process File Qty.		Max 128 files
Operation Ambient	Temperature	0∼40°C
Operation Amolent	Humidity	$20\% \sim 90\%$ (No condensation)
Tomporatura	Range	Room temperature-500℃
remperature	Accuracy	±3°C
Dragoure	Range	0-50N
Pressure	Accuracy	± 0.5 N
Thermocouple		K-type
Dimension (W×D×H)		480×530×670mm
Weight		45kg

Remark: Ensure that your power supply data agrees with the information on the nameplate of the machine.

2.2 Dimension Layout

Front view



Left view



Top view



Unit: mm

3 Transport and Installation

3.1 Transport Introduction

3.1.1 General Transport Introduction

- 1) Assemble positioning parts (Red) to lock the movement axis before packing.
- 2) Wrap machine in suitable film to protect it from dust and water.
- 3) Pack machine on pallets for transporting. Place system on pallet and secure on all 4 sides with suitable blocks of wood. The blocks of wood must be screwed to the pallet.
- 4) The machine must be transported in an upright position.
- 5) Do not tilt machine when loading and unloading process.

3.1.2 After Transport

- 1) Remove all packaging before machine installation.
- 2) Check if there's any damage during transportation. Take pictures and send to us immediately if there any.
- 3) Check if the delivery is consistent with the packing list.
- Place machines in dry and clean area and prevent them from dust and corrosion. Damage caused by corrosion is prevented.
- 5) Keep the machines away from thermal sources.
- 6) When lifting the machines, the lifting points should be carefully placed at their gravity centers.
- 7) Place machine on a flat. Ensure stability of machine.
- 8) Keep enough space (suggested 1m) for operating and maintenance.
- 9) Escape routes must be kept free!

NOTE : Detailed information refers to 3.2.2 Install Machine.

3.2 Installation Introduction

3.2.1 Preparing to Remove Machine

• Power off the machine.

NOTE : Secure to prevent it being inadvertently switched on again.

• Disconnect the power cables.

NOTE : Make sure system is safely isolated from the power supply.

• Switch off compressed air supply at the pneumatic unit.

3.2.2 Install Machine

- The machine is to be installed such as to ensure unhindered access to the E-stop button. Care must be taken to ensure that the E-stop button can be reached directly in the case of emergency.
- Before connecting the compressed air, switch off the compressed air supply to the system. After connection, slowly and carefully turn on the compressed air supply while listening for noise of escaping air. Required air pressure: 5 bar.

NOTE:

- 1. Soldering machine weight: 45Kg
- 2. Use only lifting device that carry the weight of machine.



3. Determine the center of gravity and suitable points of the machine for transport by way of trial.



- 4. Never stand near the lifting device, load can move when lifting it!
- 5. We recommend a spare distance of 1m (easy to maintenance and service).
- 6. Remove the positioning parts installed in the machine.

NOTE : Ensure that the positioning parts must be removed before running machine!

4 Commissioning

4.1 Connection

4.1.1 Electrical Connection

Observe the following points for electrical connection.

- 1) Only have qualified electricians connect the power supply.
- 2) Connect power supply cables.
- Connect all cables according the information in the wiring diagrams (if the power supply cables are not connected before delivering).

4.1.2 Pneumatic Connection

Observe the following points for pneumatic connection.

- 1) Before connecting the compressed air, switch off the supply to the system.
- After connection, slowly and carefully turn on the compressed air supply while listening for noise of escaping air.
- 3) Required compressed air pressure is 0.4-0.6 MPa.

4.1.3 Fume Extractor Connection

The fume extractor is not installed in our site, plug the following power inlet module to sockets according to its operation manual.

4.1.4 Checking after Connection

- 1) Make sure that the machine is connected to the required power supply and compressed air supply.
- 2) Transform the electrical current corresponding to system and machine requirements.
- 3) Operate the system only with a suitable transformer. Incorrect voltage and power rating can cause damage.
- 4) Check that all safety devices (power switch, e-stop button) have been installed correctly and are fully functional.
- 5) Use your hands to feel if there is cool air coming from cooling fan.

4.2 Controller User Preference

User preferences are located on the Hotbar controller, you may change these preferences at any time.

NOTE : Changing a preference establishes a new default setting. And the new setting will be in effect until the preference is changed again.

4.2.1 Logging in

- 1. The Login window is displayed when touching the Edit.
- 2. Now the operator can touch the **Input Password** box and the alphanumerical screen will be displayed.
- 3. Enter the default password 666666, comfort by Enter button.

ut Password:	7	8	9
Keep Unloc	4	5	6
et Enter	1	2	3
	0	+	-
	Esc	Tab	Del

4.2.2 Changing Password

The password can be changed when the system is logged. Only access the admin level, you can setup a new password.

1. On the Main menu of the controller, click on **Set** to enter into Setup menu.



2. On the title bar, click on Password to activate the password menu.

IdPassword	Clic	k or	it
ewPassword	7	8	9
Confirm	4	5	6
Reset Enter	1	2	3
	0	+	+
	Esc	Tab	Del

- 3. Enter the old password.
- 4. Enter the new password twice.
- 5. Click on **Enter** to confirm.

4.2.3 Temperature Calibration

Calibration Tool: QUICK191E thermometer

Calibration Method:

1. Connect the thermometer to machine, see following picture.



2. Set calibration temperture 150° C and select debug mode, as shown in follow figure.



3. Enter a constant value which displays on the thermometer in the entry field, as shown in follow figure.



4. Press calibration button

5. Save calibration result.

4.3 Beginning Programming

4.3.1 Creating New File

Do not touch or put your hands on the moving parts when the machine is working!

- Connect all the sockets, power cord and the main air input pipe.
- > Turn the pressure regulating valve for appropriate air pressure.
- > Turn off the Hotbar controller and the solder feeder.
- Creating a new file:
- 1) Using the tutorial block, create and name a new file name.



2) Press ENT key to save and the new file name will be appeared in the file list.

4.3.2 Setting Soldering Point

Do not touch or put your hands on the moving parts when the machine is working!

- Connect all the sockets, power cord and the air supply tube.
- > Turn on the Hotbar controller and machine.
- > The soldering point setup must be performed after temperature and pressure calibration programs.

To set up soldering point:

Temp. Set Steps:

1) Turn on the controller.



2) Click on **Prog1** to enter **Set** menu.

Temp1 200	RiseTime 01.00 HeatTime 02.00
Temp2 300	RiseTime 01.00 HeatTime 03.00
Temp3 000	RiseTime 00.00 HeatTime 00.00
Temp4 000	RiseTime 00.00 HeatTime 00.00

3) Click on Edit to enter Password menu.



4) Enter the password 666666, and select **Keep Unlock**.

Input Password:	7	8	9
Keep Unloc	4	5	6
leset Enter	1	2	3
	0	+	+
	Esc	Tab	Del

5) Click on **Enter** to enter Set menu.



6) In the **Page1** menu, set Temperatures and RiseTime, Heat Time.

age1 Page2	Page3				
StartTemp	100	PreHeat	150		
Temp1	300	RiseTime	02.00	HeatTim	e 03.00
Temp2	420	RiseTime	02.00	HeatTim	e 04. 🚺
Temp3	000	RiseTime	00.00	HeatTime	e 00.00
Temp4	000	RiseTime	00.00	HeatTim	e 00.00
		R			

7) In the **Page2** menu, set cooling Temperatures, the default temperature is 180° C.

RisePoint1 300	RisePoint2 000	itartDelay 00.00
olidPoint1 000	olidPoint2 180	EndDelay 00.00
itiveError 99	ativeError 99	isionTime 01.00
TempLimit 99]	

8) In the **Page2** menu, set following parameters.

Power Select	Proportion 16	
°x1	Integral 03	<u></u>
• x2 • x3	Derivative 1	· · · · · · · · · ·
ox4	Period 01	A
- 10	InitialPower 2	

9) Click on Save, and the menu will be back to Main, see following picture.

Hot-b	bar					St	atus	Read	y
Ten	p: 26°C								
		3 4.3	Pı	rog1	Set) (Pr	eHON	S	tart

NOTE : Ensure there are no obstacles in the machine before operating.

4.3.3 Program Setup

Program Set Steps:

1	Operation
2	Program
3	USB Disk Edit
4	Test
5	System Info
6	Backup

1) In the Main of teach pendant, click on 2 key.

File List	QTY:001
CH001 1	FINew
	F2Edit
	E4Name
	CMDele

2) Click on F1 key to create.



3) Enter the file name"12", and click on ENT key to save.



4) In the File List menu, click on F2 key.

1 Home Adj	F1Clean Set
2 Array	E2File Edit
Download	F3Data Check
# Backup	F4File Param

5) In the File Params menu, click on F4 key.



6) Click on F1 key to enter Tape menu.



7) Click on SHF to switch Tape status.



8) In the Name menu, click on F2 key to reset machine.



9) The Points List menu will open when reset ends.



10) In the Point List menu, click on F1 key to enter Insert menu.



11) Click on 8 key to insert Out point.



12) Click on F3 key.



13) Click on 3 key.



14) Click on ENT key to insert a preheating point, if the preheater needs.



15) Click on F1 key.

Insert	
1 Point	7 Sub F1Polyline
2Line	8 Out FZORG PT
3 Delay	9 Arc E3 Jump PT
4 Mark	OCircuF4Flag Pt
5 Pause	#Param PT
6Clean	Heat PT

16) Click on 8 key to insert an Out point.

		3	2	20				
mont:	14.	4	D.					
F2Eout:05	1	2	3	4	5	6	7	8
EBEout : 87	1	2	3	4	5	6	7	8
F4Delay:0			ms					

17) Click on F3 key.



18) Click on 4 key.



19) Click on ENT key to insert an out point which is machine ready signal.



20) Click on F1 key.

Insert	
1 Point	7 Sub F1Polyline
3Delay	PArc EJump PT
4 Mark 5 Pause	0 CircuF4 Flag Pt #Param PT
6Clean	Meat PT

21) Click on +/- key to enter into soldering point menu, see following picture.



22) Click on SHF key to switch speed, and move the head to required soldering position.

Heat PT	
X 112.65	Low
Y 088.03	문 👔 조
Z 082.10	E
R 026.34	R 🗜 🖪
Z:0.54 MGOrigin	ElParam Bave

23) Click on F4 key to enter Point Param menu, and the head pressure needs to be 0.54KG.



24) Set the parameters in the Point Param menu. And make sure the Z1 value is less than real pressure.

Point Param
Z1_P:0.40kg
Z2_P:0.00kg
Deviation:010.0mm
Distance:005.0mm
Speed:008.0mm/s
LiftHeight:025.0mm
OverTime:050s
OT_Alarm: Close
P Alarm; Anex

25) Click on ENT key when the parameters have been set.



26) Click on ESC key to back to Name menu.



27) Click on ENT key to download file.

Name:12	0000.0s
X 112.65	Status:Stop
Y 088.03	Tally:00000
Z 000.00	EStart EStop
R 026.34	EClean ESt
Z:0.0	MOrg MClear

28) Click on F1 key to run the program after the download is finished.

Note: if you have any problem during operation, please contact us for supporting.

5 Function Introductions

5.1 Safety Device Function

5.1.1 Power Switch

The power switch is installed on the front of the machine and it connects the system to the electrical circuit or disconnects it from circuit. It is a power safety device. The power switch has 2 switch positions: ON positon "I" and OFF position "O".

ON: switch ON power to the machine and the indication light illuminates.

OFF: shut down the machine.

5.1.2 Emergency Stop Button

The emergency stop button is a safety feature device located on the key box, activating it all pressure in the pneumatic system and movement parts are shut down.

5.2 Components Introduction



Parts name description list:

Item	Part Name	Item	Part Name
1	Z axis module	7	Operation panel
2	K-type sensor	8	E-stop button
3	Teach pendant	9	Right Start/Pause button

Item	Part Name	Item	Part Name
4	Hotbar controller	10	Y axis module
5	DB9socket (connect to teach pendant)	11	Head module
6	Left Start/Pause button	12	X axis module

5.2.1 Soldering Principle



Feature:

- 1. Temperature and pressure are controlled by closed loop.
- 2. Temperature can be calibrated by thermometer sensor.
- 3. Temperature and pressure can display in real time and rage is configurable.

Theory of operation:

Power supply converts high voltage into low voltage and generates high current. Joule heat is generated by soldering head, the thermocouple on the soldering head sends the temperature back to controller. Complete the soldering by controlling pressure and time.

5.2.2 Key Box



Machine operation buttons functions list:

Button	Function
	Reset command button. Press and hold it to move all movements to the default home position. "Light flashing" indicates the machine is resetting, and the "light" indicates the machine has reset.
denicy Manuse	Emergency stop command button. In an emergency, activating the button immediately stops the movement of all mechanical parts of the machine but the pneumatic system still activate. After resolving the error, the emergency stop button must be pulled clockwise out as acknowledgement.
	Start command button. Press it to activate processing file.

5.2.3 Rear Operation Panel



- 1. Power switch: connect / disconnect the power to machine.
- 2. Power inlet module: connect 220V AC cable to power inlet module.
- 3. ESD socket: reliable grounding is essential for soldering machine.
- 4. DB9 Socket: connect to Hotbar controller via DB9 cable, pins function refers to **5.2.6 DB9 Socket** Instruction.
- DB37 Socket: Connect to Hotbar controller via DB37 cable, pins function refers to 5.2.8 DB37 Socket Instruction.
- 6. 5-pin socket: reserved, pins function refers to 5.2.4 5-pin Socket Instruction.
- DB15 Socket: connect to Hotbar controller via DB15 cable, pins function refers to 5.2.7 DB15 Socket Instruction.
- 8. 7-pin socket: reserved, pins function refers to 5.2.5 7-pin Socket Instruction.
- 9. 4-pin socket: connect to key box via 4-pin cable, pins function refers to 5.2.3 4-pin Socket Instruction.

5.2.4 4-pin Socket Instruction

4-pin Socket	Pin No.	Pin Name	Function
	4P-1	Min4	Connect to "START/PAUSE" button.
	4P-2	GND	GND
	4P-3	Min1	Connect to "ORG" button.
	4P-4	Min2	Connect to emergency stop button.

4-pin socket is connected to key box, pin's functions refer to following table.

5.2.5 5-pin Socket Instruction

5-pin socket	Pin No.	Pin Name	Function
	5P-1	24V	24V DC
	5P-2	0V	0V
	5P-3	Min 3	Reserved
	5P-4	Ein13	Reserved
	5P-5	Ein14	Reserved

5-pin socket is reserved, pin's functions refer to following table.

5.2.67-pin Socket Instruction

7-pin socket is spare, pin's functions refer to following table.

8-pin socket	Pin No.	Pin Name	Function
	7P-1	24V	24V DC
	7P-2	0V	0V
	7P-3	Mout1	Reserved
	7P-4	Mout4	Reserved
	7P-5	Ein12	Reserved
	7P-6	Mout2	Reserved
	7P-7	Mout5	Reserved

5.2.7 DB9 Socket Instruction

DB9 Socket is reserved, pin's functions refer to following table.

DB9 socket	Pin No.	Pin Name	Function
	9P-1	NC	No connection
$\bigcirc \underbrace{\circ \circ \circ \circ \circ \circ 1}_{\circ \circ \circ \circ \circ 6} \bigcirc$	9P-2	TX	Follows RS232 standard communication protocol.
	9P-3	RX	Follows RS232 standard communication protocol.

9P-4	NC	No connection
9P-5	GND	GND
9P-6	NC	No connection
9P-7	NC	No connection
9P-8	NC	No connection
9P-9	NC	No connection

5.2.8 DB15 Socket Instruction

DB15 Socket is connected to Hotbat controller, pin's functions refer to following table.

DB9 socket	Pin No.	Pin Name	Function
	15P-1	12V-	TEMP 12V-
	15P-2	TR	TEMP-TR
	15P-3	NC	No connection
	15P-4	S2	TEMP-S2
	15P-5	S1	TEMP-S1
	15P-6	12V+	TEMP 12V+
	15P-7	NC	No connection
	15P-8	NC	No connection
	15P-9	NC	No connection
	15P-10	NC	No connection
	15P-11	NC	No connection
	15P-12	NC	No connection
	15P-13	NC	No connection
	15P-14	NC	No connection
	15P-15	NC	No connection

5.2.9 DB37 Socket Instruction

P19 DB37 P01					
P37 P20					
NO.	Pins port	Corresponding I/O window of DB37	NO.	Pins port	Corresponding I/O window of DB37
1	GND	P01	20	GND	P20
2	Eout8	P02	21	Ein8	P21
3	Eout7	P03	22	Ein7	P22
4	Eout6	P04	23	Ein6	P23
5	Eout5	P05	24	Ein5	P24
6	Eout4	P06	25	Ein4	P25
7	Eout3	P07	26	Ein3	P26
8	Eout2	P08	27	Ein2	P27
9	Eout1	P09	28	Ein1	P28
10	24V DC	P10	29	GND	P29
11	GND	P11	30	Ein16	P30
12	Eout16	P12	31	Ein15	P31
13	Eout15	P13	32	Ein14	P32
14	Eout14	P14	33	Ein13	P33
15	Eout13	P15	34	Ein12	P34
16	Eout12	P16	35	Ein11	P35
17	Eout11	P17	36	Ein10	P36
18	Eout10	P18	37	Ein9	P37
19	Eout9	P19			

DB37 socket is connected to Hotbar controller, pins' functions refer to following table.

5.3 I/O Functions

5.3.1 Temperature Board Definition

Board Mode	Port	Function
	12V	12V DC
	T1	Temperature sensor 1 signal
EUSO2E TEMD V1 0	T2	Temperature sensor 2 signal
EH302F-1EMF-V1.0	Т3	No connection
	TR	Trigger temperature detection signal
	GND	GND

Temperature board port functions list:

5.3.2 Pressure Board Definition

Board Mode	Port	Function
	+NI	+NI
	-NI	-NI
	FG	FG
ELIC HO2 DRESCURE VI 1	5V	5V DC
EHS-H02-PRESSURE-V1.1	0V	0V
	GND	GND
	S1	Pressure sensor
	24V	24V DC

Pressure board port functions list:

Note: If you have any problem during reading, contact us for supporting.

6 Troubleshooting

6.1 Overview

If you have difficulty operating machine, use this section to identify a possible solution to the problem. If you have difficulties not listed in this section, or the suggested solution does not correct the problem, contact us for supporting.

6.2 Record Keeping

The type of procedure performed should be recorded in a maintenance record. Dates, picture of replaced parts, changing times and other pertinent information should be recorded.

6.3 Basic Troubleshooting

6.3.1 Machine Power

Malfunction Type	Possible Cause	Correction
	The power switch button is not in "I".	Press the power switch to "I" on the front panel, the white light will illuminate.
	The circuit breaker is "OFF".	Turn on
Machine does not power on	Power supply cable is disconnected	Connect the power supply cable to an AC source.
	E-stop button has been activated.	 Pull the E-stop button counter clockwise until it pops out. Click on POWER key on the front panel.
Machine fails to	The operating mode is manual.	Switch to automatic mode.
start	START key error	Replace a new one

6.3.2 Pneumatic System

Malfunction Type	Possible Cause	Correction
	Compressed air source is not connected.	Check and connection
No air pressure	Hand valve is OFF.	Switch to Supply position.
	Air pressure setting incorrect	Set a proper air pressure.

6.3.3 Machine Startup

Malfunction Type	Possible Cause	Correction
"Communication Error" message appears (Hotbar controller)	Communication failure	 Verify COM port settings Check if the communication cables are attached or not. See if the Main Board is functioning. Check the PLC communication cable.
Axis not motion	No power	Follow the Turn-On Procedure to power.
	Limiting sensor cable disconnected	Connect cable
	Emergency stop button is pressed	Release it
	No click on START key	Press and hold START button for 2s to activate process file.

6.3.4 Limiting Sensor

Malfunction Type	Possible Cause	Correction
Limiting sensor does not power on	The power cable is not plugged in	Check and plug in.
Limiting Sensor does not trigger	Sensor is damaged	Replace, refer to 7.3.5 Limiting Sensor Replacement.
Intermittent function	Loose or frayed cables	 Tighten cable Replace a new

6.3.5 Hprtbar Controller

Malfunction Type	Possible Cause	Correction
Controller does not power	 Power cord is disconnected. The heating controller is shut down. 	 Connect Turn ON it.
Controller is power but no temperature.	K-type sensor error.	Replace a new one.

NOTE: If you have any problem out of list, please contact us for supporting!

7 Maintenance

7.1 Daily Inspection

Safety Introductions:



Risk of electric shock!

Be sure to open the cabinet door after the power off.

Cut off the power supply for 5 minutes and replace the servo unit (including the rectifier) and control the power unit. During this time, please do not touch the terminal!

Risk of electric shock and injury!



After the repair, please do not forget the tool in the switch cabinet (if the machine has installed it), make sure the door of the electric switch cabinet is closed.

The power switch should be labeled "no power supply" during maintenance, so as to prevent non-related personnel from closing the switch.

Daily check:

1) Check if there are flammable or explosive items close to the machine.

- 2) Check if the working voltage is correct.
- 3) Check if pneumatic system is normal, if the air tube is smooth.
- 4) Check if home position of each axis is correct.
- 5) Test the movement and communication performance of the machine.
- 6) Check if the emergency button can be pushed and unscrewed normally.
- 7) Check if the external screws of the machine are screwed well.
- 8) Clean the working environment of machine.
- 9) Write down machine condition in each shift.
- 10) Run a testing program after each shift.

7.1.1 Inspection before ON

Parts	Item	Service	Remarks
Ground cable &	Looseness	Re-tightening	
other cables.	Breaking or damage of wire	Replacement	
Working voltage.	Checking		
Motion platform	Attachment of spatter or dust.	Removal of spatter or dust.	Do not blow them off with compressed air, dust and spatter may enter the clearance or inside the cover, resulting in damage to the machine.
	Looseness	Re-tightening	
Working area	Tidiness		

7.1.2 Inspection after ON

Parts	Item	Service	Remarks
Emergency stop button	Turn off the servo power immediately.	Replacement	Do not use the machine unless the button is repaired.
Motion platform	Each axis makes steady and smooth motions (no abnormal vibration, noise or looseness) in manual and operation mode.		Do not use the machine unless the motion platform is repaired.
Limiting sensor	When the home return is completed, the origin limit sensor is sheltered.	Replacement	
Cooling Fan	Cooling air inlet fan of the switch cabinet. Attachment of dust on the fan.	Clean	Turn off the power before cleaning the fan.
Testing	Run a testing program.		

Note: check that no personnel are present within the working area before turning on the power.

7.2 Parts Maintenance Schedule

7.2.1 Lubrication Chart

Only one axis is installed on the machine, user should lubricate it regularly, recommended standard grease is THK AFB-LF Grease.

7.2.2 Movement Lubrication

1. Thoroughly wipe off the anti-rust oil before using the product.

2. Lubrication is needed to let the module demonstrate their functions fully. Using the product without sufficient lubrication may increase wear of the rolling elements or shorten the service life.

3. Do not mix different lubricants. Mixing greases using the same type of thickening agent may still cause adverse interaction. Use grease according to the attached lubrication chart.

4. When using the product in locations exposed to constant vibrations or in special environments such as clean rooms, vacuum and low/high temperature, use the grease appropriate for the specification/environment.

5. Because the intervals between greasing vary depending on the conditions of product use, it is recommended that the greasing interval be determined through an initial inspection. Although the lubrication interval may vary according to use condition and the service environment, lubrication should be performed approximately every 100km in travel distance (3 to 6months). It is recommended to add grease to the ball screw and guide rail. Replace the grease if there is any color change.

6. Machine lubrication part bases the attached lubrication chart.

7.2.3 Pneumatics System

Task	Operating hours	Daily	Weekly	Monthly	Every 3 months	Every 6 months	Annually
Check air pressure	8	\checkmark					
Clean	40					\checkmark	
Check for leaks							

Maintenance Schedule

Check Water					
Trap, replace				\checkmark	
soiled Water					

7.2.4 Hortbar Controller

Parts	Item	Service	Remarks
Power Switch	Press it to power ON	Replacement	
Connection cables	Check if loosen	Retighten	

7.2.5 Soldering Head

High temperature would affect/decrease the lifetime of soldering head. Set the temperature as per application but as low as possible.

The oxide and carbide produced by residual flux will damage the soldering tip, like soldering deviation and slow heat conduction etc. Clean the soldering head regularly (every week for long time continuous using). Under high temperature, the solder in head will produce oxide, which will damage its heat conduction. Turn off the hotbar controller when not use.

7.2.6 Prolong the Lifetime of Soldering Head

Set the temperature as per application but as low as possible.

Choose the right type of soldering head.

The plating would be broken if the head is beat. Do not use the soldering head as a detecting tool.

Do not press the soldering head. Much pressure is not helpful for heat conduction.

Routine Parts Replacement

7.2.7 Change Filter Pad

The filter pads takes up dust from the ambient air draw in, therefore it can clean the cabinet ambient air. The dust which remains in the filter pad can clog the filter, if the filter pad is clogged the flow of air at the outlet opening of the fan will be distinctly weaker or can no longer be felt. Clogged filter pad must be replaced.

Tools:

Screwdriver (cross screwdriver & Allen wrench)

Process:

- 1) Follow the Turn off sequence to shut down the power supply.
- 2) Open the rear operation panel of the machine.
- 3) Undo the screw (Allen wrench) and remove the fan component.
- 4) Undo the screw (cross screwdriver) and remove the filter pad device from back.
- 5) Fit a new filter pad.
- 6) Install the rear operation panel.

7.2.8 Limiting Sensor Replacement

Tool: Allen wrench

Process:

- 1) Follow the Turn off sequence to shut down power supply.
- 2) Undo the screws and remove the damaged sensor.
- 3) Fit a new sensor and connect lines according to drawings.

7.2.9 Removing Axis Covers

In order to lubricate the cables and linear guides, it will be necessary to remove the axis covers.

Tool: Hex key

Procedure:

- 1) Follow the Turn off sequence to shut down power supply.
- 2) Use a hex key to loosen the screws.
- 3) Slide out the axis covers and set aside.

7.2.10Lubricating Linear Guide

To ensure smooth movement, the Z axes linear guides must be lubricated approximately every three months or 100km in travel distance.



- 1) Follow the Turn off sequence to shut down power supply.
- 2) Move the soldering head component to the front of working area.
- 3) Slide out the Z-Axis covers and set aside.
- 4) Using a clean and soft cloth to clean and wipe the rail.
 - Manually move the soldering head to reach all parts of the rails.

5)	Using a clean and soft cloth to clean and wipe the rails.
6)	Locate the grease fitting on each of the rails.
7)	Attach grease gun to each fitting and pull the grease gun lever one time to squirt grease.
8)	Use a soft cloth to clean up any excess grease.
9)	Replace the Z Axis.
10)	Power on the machine.
11)	In the Manual menu of HMI (refer to 5.4.2.2 Head Manual Window). Click on Manual Key to move

the soldering head up and down in Z axis.

12) Use a clean and soft cloth to remove the excess grease.

7.2.11 Draining the Water Trap

Tools:

Container for waste water

Procedure:

- 1) Turn off the machine, refer to **1.4.8 Turn-Off Procedure.**
- 2) The Water Trap is located at the front of machine.
- 3) Disconnect the compressed air supply from the Pneumatic System.
- 4) Put a container under the Water Trap to catch the waste water.
- 5) Press the Water Drain knob (red arrow).



- 6) Loosen the Water Drain knob, when it has been drained.
- 7) Connect the compressed air supply tube into Air Port.

NOTE: If you have any problem during cleaning, please contact us for supporting.