



QUICK 9101 Soldering Robot

Instruction Manual



Thank you very much for purchasing this Robot.

This operation manual describes the features and operation of the robot.


Before using, read the instructions thoroughly for proper using the robot. Store the manuals in a safe, easily accessible place for future reference.

For improve its quality, the specifications and parameters of the robot or the contents of this manual may be modified without prior notice.

Table of Contents

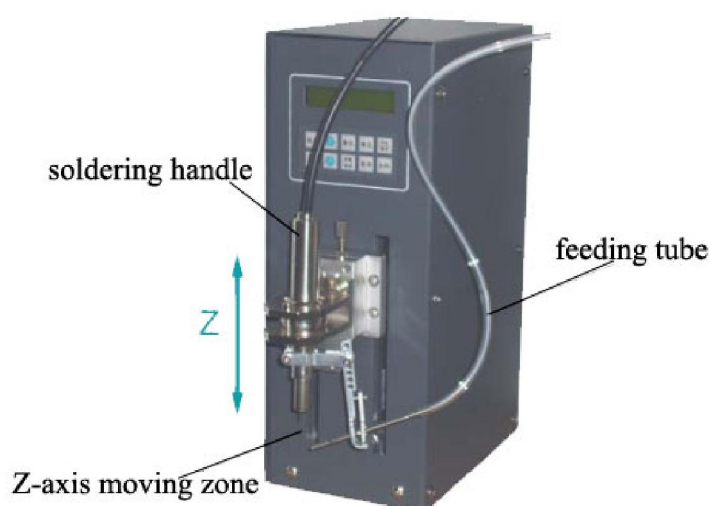
I . Safety Instruction	1
II . Summary	2
2.1 Specifications	2
2.2 Instructions about the Key	2
III. Connection and Fix	4
3.1 Fix	4
3.2 Input/Output Connect	4
3.3 Socket Instruction	4
3.3.1 I/O Socket Instruction	4
3.2.2 Pins Instruction of Four-pin Socket	5
3.2.3 Pins Instruction of Five-pin Socket	5
3.2.4 Pins Instruction of Seven-pin Socket	6
3.4 Soldering Process	6
IV Parameter Setting and Operation	7
4.1 Standby Interface	7
4.2 Function Test	7
4.3 File Processing and Pause	8
4.4 File Program	8
4.4.1 New File	9
4.4.2 Edit File Parameter	14
4.4.3 Delete File	14
4.5 Parameter Shortcut Setting	15
4.6 System Parameter and Cylinder Parameter Setting	15
V . FAQ	17

I . Safety Instruction

 Caution: before using, please carefully read the following safety precautions. Store the manuals in a safe, easily accessible place for future reference.

- Only use this robot with rated voltage and frequency (refer to the trademark in the back of equipment).
- This machine is equipped with a 3-wires grounding plug and must be plugged into a 3-terminal grounded socket. Do not modify plug or use an ungrounded power socket. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.
- Don't turn on the power of the machine when some parts are damaged, especially the power cord is damaged.
- Don't drop or shock intensively the unit for protecting it from damage.
- Don't move the XY table and the top head of feeding solder controller.
- During processing, don't touch the movable parts.
- Before using, check the heating controller and pressure reduction valve have been fasten reliable.
- Keep the unit dry. Don't use or disconnect the unit with wet hands.
- Check and clean the tubes at regular intervals for protecting the tubes to prevent clogging.
- Do the fittings change or maintain after turning off the power supply.
- Make sure the air supply is dry and clean. Select suitable air pressure according the component. Suggest the air pressure is less than 0.7Mpa.
- During using, don't over bend or revolve the PU tubes.

II . Summary



2.1 Specifications

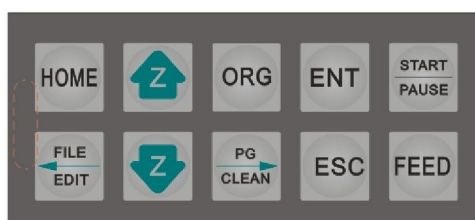
Form 2-1 main technical parameter

Power Supply		220VAC
Power Consumption		30W
Number of Controllable Axes		1 axes
Moving Range	Z axis	100mm
Speed Range	Z axis	0.1~300 mm/sec
Repeatability	Z axis	0.02mm
Resolution	Z axis	0.01mm
Loading Weight	Head	2 Kg
Working Ambient	Temperature	0~40℃
	Relative	20%~90%(no condensation)
Dimension(W×D×H)		12*19*31.5cm

Notice: parameter of Self-feeder soldering station see the user manual fo solder.

2.2 Instructions about the Key



The main unit has 10 operation keys, functional description are as follows.



Form2-2: key function table

Control panel key	Function description
【HOME】	Make the terminal device return to work point, or set the work point.
【FILE/EDIT】	Enter file edit interface (new/edit/delete)
Z↑ / Z↓	Control the axis' coordinate
← / →	Move the cursor towards leftside or rightside.
【ORG】	Move the terminal device to mechanical origin (0.
【PG/CLEAN】	Enter parameter setting interface
【ENT】	Save the setting parameters Clear the circular processing times
【ESC】	1. Return to file processing interface but not save the set parameters. 2. Into the testing interface, test the axis's function
【START/PAUSE】	Start or pause the processing file.
【FEED】	Control feeding solder

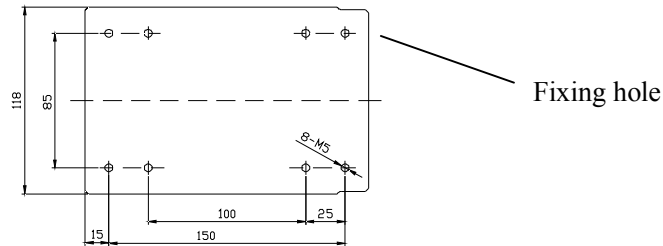
NOTE:

- , **FILE** and **EDIT** keys are at the same key.
- , **PG** and **CLEAN** keys are at the same key. (**PG** is parameter.)

III. Connection and Fix

3.1 Fix

It has 8 install fixing holes at unit's bottom. It can prevent the unit from being move, or falling down by reliablly fixing the unit on the table with M5 hexagon screws. The installing dimension as follows:



⚠Caution: it must fix the unit reliably to protect the operator and unit from accident.

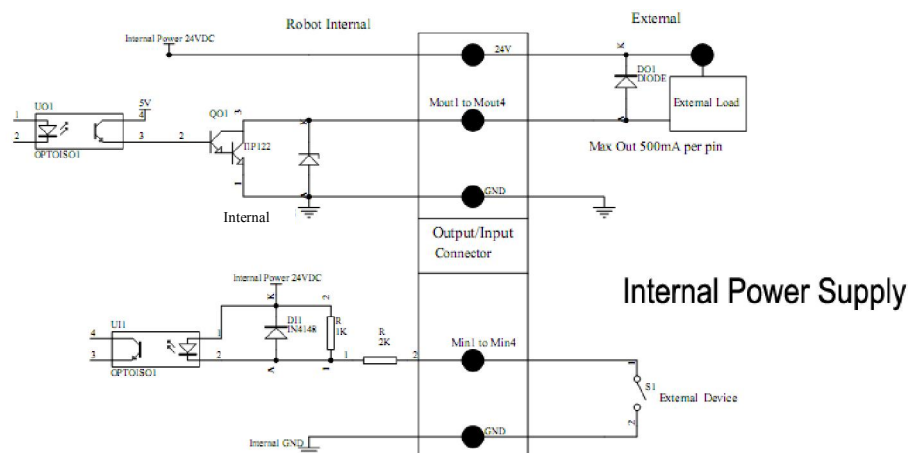
3.2 Input/Output Connect



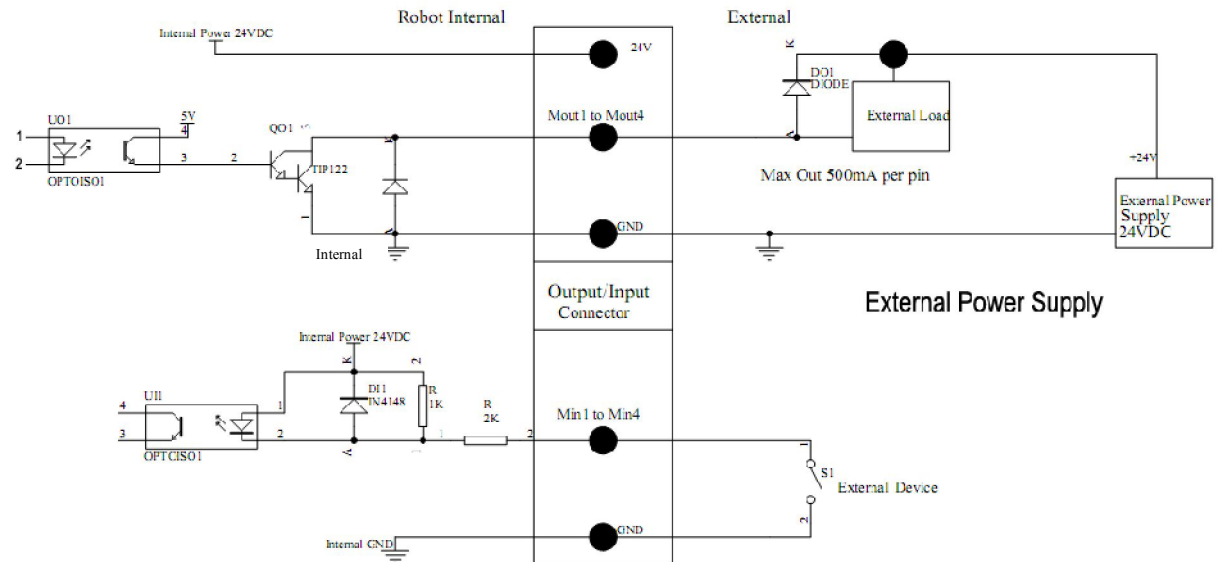
1. After fixed the unit on the workbench reliablly, it can connect the IO singal cords.
2. The soldering handle is the only moving axis and its movement process can refer 3.4.
3. In order to avoid air leakage, the two cylinder air connectors need to be blocked when not using.

3.3 Socket Instruction

3.3.1 I/O Socket Instruction

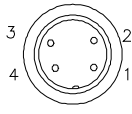


III. Connection and fix



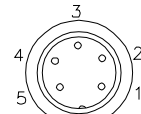
3.2.2 Pins Instruction of Four-pin Socket

The following list describes the pins function of the four-pin socket.

	Pin No.	Pin's Name	Instruction of Pins	Application
	1	FOOT1		Now used to connect with "Switch of START/STOP".
	2	GND	Ground of power supply	
	3	INPUT1		Now used to reset (ORG) signal
	4	NC	NULL	

3.2.3 Pins Instruction of Five-pin Socket

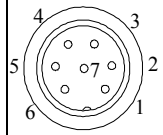
The following list describes the pins function of the five-pin socket. By the socket, it can connect with photoelectricity switch etc.

	Pin NO.	Pin's Name	Instruction of Pins	Application
	1	24VDC	"+" power supply	Output signal
	2	GND	Ground of power supply	
	3	INPUT0	signal input 3	connect with sensor, such as photoelectricity switch
	4	FOOT2	signal input 4	Connect with cylinder
	5	NC	NULL	

NOTE: Input3&Input4 are set at Effective Level window. INPUT0 is corresponding socket number of PCB.

3.2.4 Pins Instruction of Seven-pin Socket

The following list describes the pins function of the seven-pin socket. By the socket, it can control the external device.

	Pin NO.	Pin's name	Instruction of pins	Application
	1	24V	“+” power supply	Output
	2	GND	Ground of power supply	
	3	Mout1	Main signal output1, the current is less than 0.5A	Now used to feeding signal
	4	Mout4	Main signal output4, the current is less than 0.5A	Now used to cylinder
	5	INPUT1	(the function is same with the 3 rd pin of four-pin socket)	Now used to reset (ORG) signal
	6	Mout2	Main signal output2, the current is less than 0.5A	Now used to output working state signal
	7	Mout5	Main signal output5, the current is less than 0.5A	In effective only when pulse signal inputting

3.4 Soldering Process

After setting parameter, it can start operation, and the movement process is as following table.

Working process		Clean process	
0	Clean point (If set)	1	Clean point (Home Point)
1	Home Point	2	1st Height
2	1st Height	3	1st Feeding
3	1st Feeding	4	1st Delay
4	Work Point	5	CLEAN
5	1st Delay	6	2nd Feeding
6	2nd Feeding	7	2nd Delay
7	2nd Delay	8	3rd Feeding
8	3rd Feeding	9	3rd Delay
9	3rd Delay	10	Clean delay
10	4th Height	11	4th Height
11	4th Feeding	12	4th Feeding
12	4th Delay	13	4th Delay
13	Home Point	14	Clean point (Home Point)

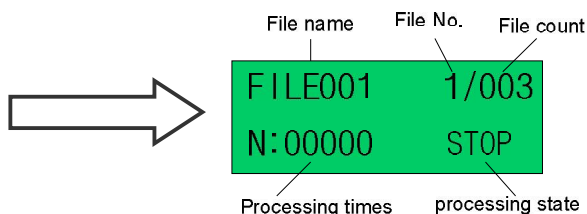
IV Parameter Setting and Operation

4.1 Standby Interface

Turn on the power switch, the system will enter initializing interface and then enter standby interface as following pictures “4-1 & 4-2”.



Pic.4-1: Initializing Interface



Pic. 4-2: Standby Interface

1. Select File

Select file by pressing $\boxed{Z\uparrow}$ or $\boxed{Z\downarrow}$ key.

Press $\boxed{Z\uparrow}$ key can select the previous file and press $\boxed{Z\downarrow}$ key can select the next file.

2. Processing Times

“N: 00000” at the lower left corner of standby interface, shows single processing times, or shows loop-work processing times in circulating processing mode, which patten is “Already processing times /total set processing times”.

3. Processing State

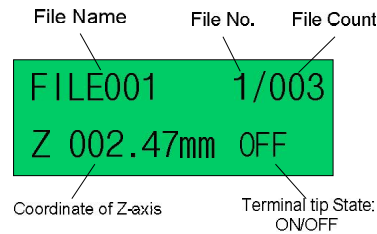
At the lower right corner of standby interface, display the file processing state. The processing state changes with the processing course. The file processing states are as following table.

Form 4-1: File Processing State

Working	Remark
RESET	Return to initial position.
STOP	The process has been stopped.
WORK	In the processing.
PAUSE	The process has been paused.
WAIT	Waiting time of changing product during the loop-work process.

4.2 Function Test

1. Enter function test interface: in standby interface, press \boxed{ESC} key to exit standby interface and enter function test interface.



Pic.4-3: function test interface

2. Function test interface is used to test the keys function and Z-axis movement.

- (1) “OFF” at the lower right corner of testing interface means the stub bar is off state. Press “FEED” and not loosely, it shows “ON”. If loosen, it changes as “OFF”. Also, user can judge the stub bar controlling is effective or not by sound.
- (2) It can move Z-axis upwards or downwards by pressing $\boxed{Z\uparrow}$ or $\boxed{Z\downarrow}$ key. By this, measure the $\boxed{Z\uparrow}$ or $\boxed{Z\downarrow}$ key function to be normal or not.
- (3) Test \boxed{ORG} function is normal or not: it can test \boxed{ORG} Function by pressing \boxed{ORG} key. Z-axis should return to zero point.
- (4) Test \boxed{PG} function is normal or not: it can change movement speed, L (low speed) -H (high speed) -M (middel speed) by pressing \boxed{PG} key.

4.3 File Processing and Pause

1. File Processing

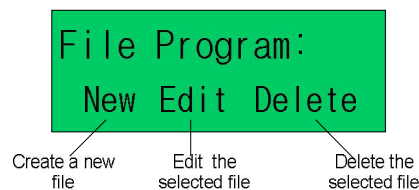
In WAIT or STOP state, press $\boxed{START/STOP}$ key, the processing file starts work, and the processing state shows “WORK”.

2. Pause the Processing

It can press “ $\boxed{START/PAUSE}$ ” button to pause the processing file. And the file state changes from “WORK” to “PAUSE”. If press this button again, the system will continue the paused processing file, and the file state changes to “WORK”.

4.4 File Program

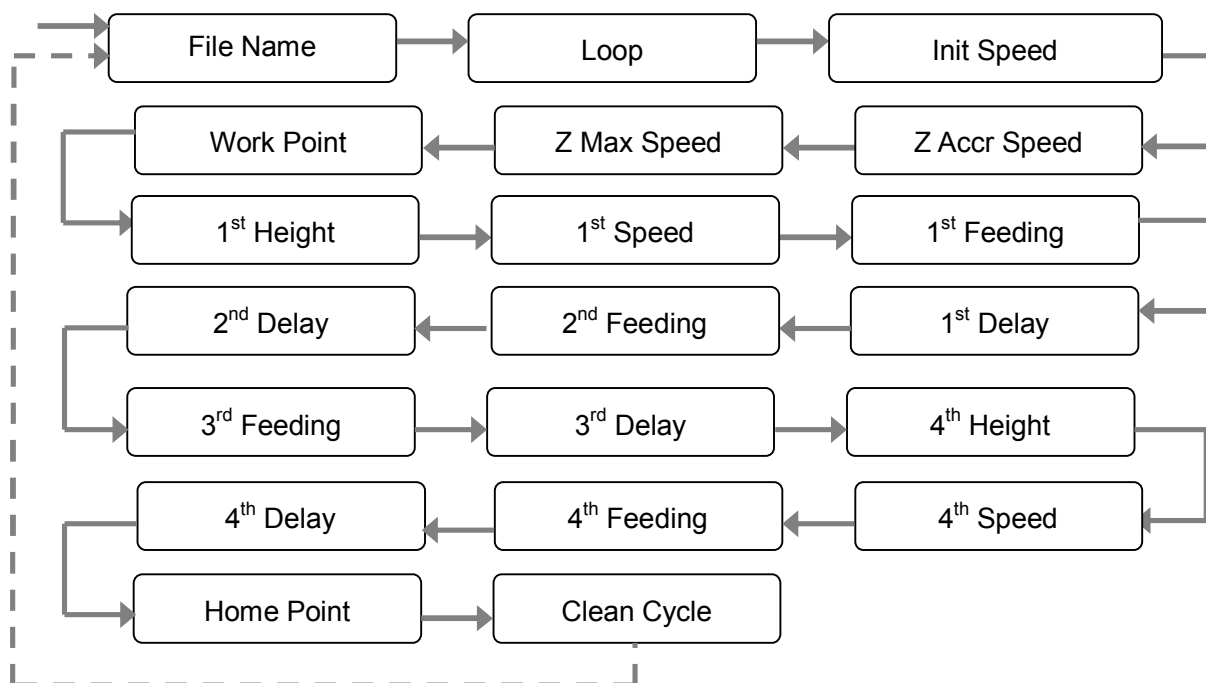
1. In interface of controller, press “ \boxed{file} ” enter “file programme interface” (picture 4-4).
2. At file programme interface, press “ $\boxed{\leftarrow}$ ” or “ $\boxed{\rightarrow}$ ” key, select “New file”, “Edit file”, “Delete file”. The selected menu blink.
3. After select, press “ \boxed{enter} ” key, enter process interface.



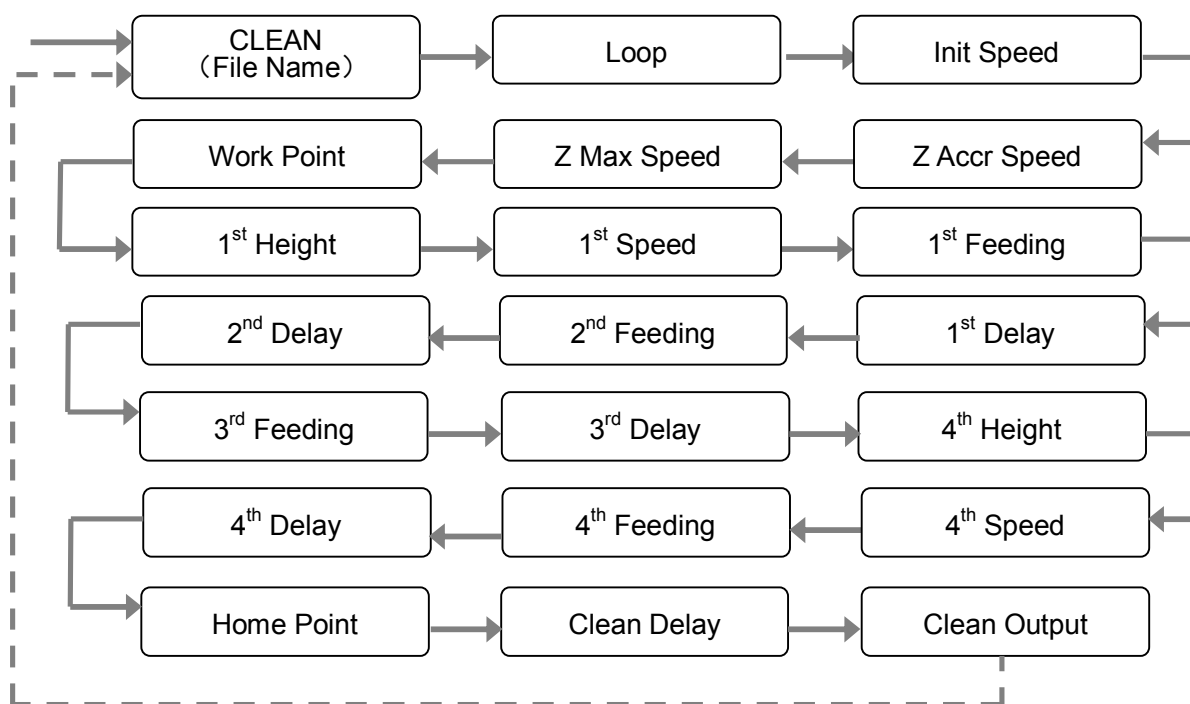
Pic. 4-4: File Propram Interface

4.4.1 New File

1. In “File Program” interface, select “New” to increase a file, and then press “**ENT**” into new file setting interface.
2. Press “**ENT**” key enter the next parameter setting, and then press “**ESC**” key exit from the current setting interface and return to file edit interface. Parameter setting of new file as follows.






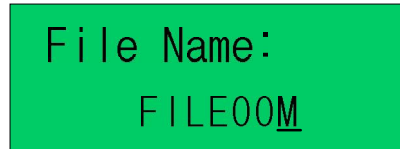
3. If file name is “CLEAN”, which means the current file is a clean file. Parameter setting process is as follows.



4.4.1.1 Set New File Name (File Name)

1. Firstly, set file name.


- (1) File name is made up of "FILE" & "three numbers". The "three number" can be any one of number (0~9), capital character (A~Z) or blank space.
- (2) Enter file named interface "File Name", move the cursor among the three numbers by pressing "←" or "→" key, select file name, and set the file name by pressing  or  key.
- (3) After setting, press "" to save the setting file name, and then enter the file loop parameters setting.

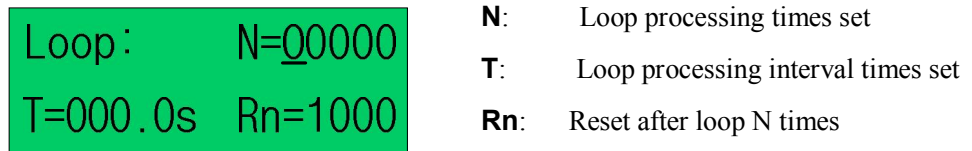


Pic.4-5: File Named Interface

4.4.1.2 Set Loop Processing Parameter







⚠Caution: During parameters setting, press  to save the parameters and then enter the next setting. Press  to exit the parameters setting.

1. After setting the file name, press "" to save the file name and then enter the "loop-work parameter setting interface".



Pic.4-6: Loop-work Parameter Setting Interface

Maximal N, namely Max loop processing times, is 99999.

2. When setting, select digit by move the cursor under the digit. Move the cursor left or right by pressing "" or "" key, and change the digit by pressing "" or "".
3. After finishing adjust, press "" to save the parameters and enter the next parameters setting. When the "N=0000" or "N=0001", without loop work processing and the file only processes one time.
4. After setting the loop work, the Processing Interface of Loop-work is as following (here, N=5, file 001 will work 5 times continuously after pressing "").



Pic.4-7: Processing Interface of Loop-work

4.4.1.3 Set Initial Speed

Init Speed:
0020mm/s

1. Init Speed: it is the rotate speed of motor and the setting range is 10~20mm/s.
2. Setting method: press“←”or“→”key to move the cursor and press “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” key to adjust the digit.
3. After setting, press “ \boxed{ENT} ” key to save and enter “Z Accr Speed” setting interface.

4.4.1.4 Acceleration Setting of Z-axis (Z Accr Speed)

Z Accr Speed:
2000mm/ss

1. The setting range of “Z Accr Speed” is 1~6000mm/ss.
2. Setting method: press“←”or“→”key to move the cursor and press “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” key to adjust the digit.
3. After setting, press“ \boxed{ENT} ”key to save and enter “Z Max Speed” setting interface.

4.4.1.5 Set Z Max Speed

Z Max Speed:
0500mm/s

1. The setting range of Z Max speed is 1~800mm/s. The setting method is same with “Z Accr speed”.
2. After setting, press“ \boxed{ENT} ”key to save and enter “Work Point” setting interface.

4.4.1.6 Set Work Point

Work Point:
090.98mm L

1. Work point set: Press “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” to set work point coordinate and the range is 0~100mm.
2. L means the current moving speed is low. Change the moving speed by pressing “ $\boxed{PG/CLEAN}$ ”key. And the moving speed can be changed as L (low speed)-H (high speed)-M (middle speed).
3. After setting, press“ \boxed{ENT} ” key to save the parameters and enter the 1st height setting.

4.4.1.7 Set Feeding Parameters

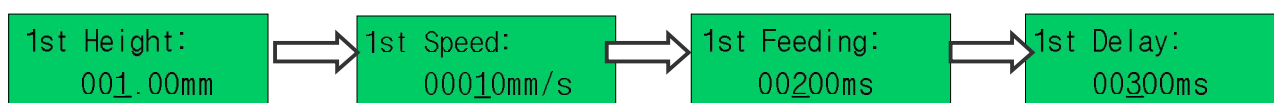
- “1st height” is the height at which it coats the fresh tin on the soldering tip.
- “1st Feeding” is the feeding time ready to coat the fresh tin on the soldering tip.
- “1st Delay” is the delay heating time of soldering.

Besides, it needs set “2nd Feeding” and “2nd Delay”. If the weld pad is difficult in coating tin, it also can set “3rd feeding” and “3rd delay”. If don’t set, the default value is 0.

- “4th height” is the Lift up height of 4th soldering for avoiding sharp soldering point.
- “4th feeding” is the feeding time of 4th tin on the soldering tip.
- “4th delay” is the delay heating time of repair welding.

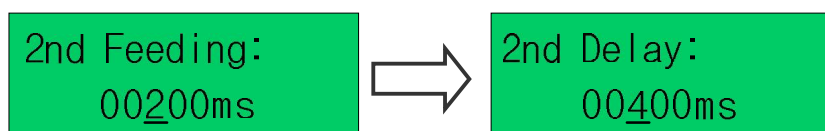
It is helpful to avoid soldering a sharply point by setting the parameters of “4th height”, “4th feeding” and “4th delay”.

1. First (1st) Feeding Parameter Setting



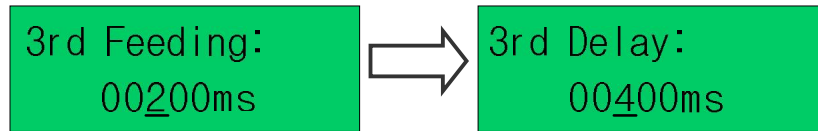
- (1) “1st height” setting: press “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” key to set and the setting range is 0~100mm.
- (2) After setting, press \boxed{ENT} to save setting parameter and enter “1st Speed”.
- (3) 1st Speed: it is the moving speed from 1st feeding height (1st Height) to “Work point”. The setting range is 1~400mm/s.
- (4) After setting, press \boxed{ENT} to save setting parameter and enter “1st Feeding”.
- (5) The setting method of Feeding time (1st Feeding) is the same as the “1st height”. After setting, press \boxed{ENT} to save and enter “1st Delay”.
- (6) Set the “1st Delay”. After that, press \boxed{ENT} to save and enter “2nd feeding parameter setting”.

2. Second (2nd) Feeding Parameter Setting



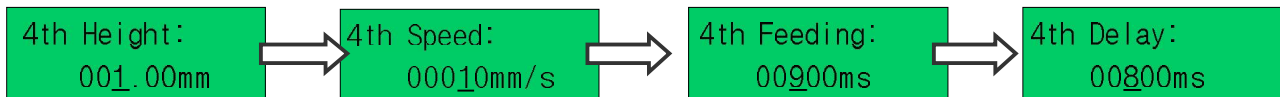
- (1) 2nd Feeding: press “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” key to set.
- (2) After setting, press “ \boxed{ENT} ” key to save and enter “2nd delay time setting (2nd Delay)”.
- (3) After setting “2nd Delay”, press “ \boxed{ENT} ” key to save and enter the following “3rd feeding parameter setting”.

3. Third (3rd) Feeding Parameter Setting



- (1) 3rd Feeding: press “**Z↑**” or “**Z↓**” key to set.
- (2) After setting, press “**ENT**” key to save and enter “3rd delay time setting (3rd Delay)”.
- (3) After setting “3rd Delay”, press “**ENT**” key to save and enter the following “4th feeding parameter setting.

4. Fourth (4th) Feeding Parameter Setting



- (1) 4th Height setting: set the 4th Height by pressing “**Z↑**” or “**Z↓**” key and the setting range is 0~100mm.
- (2) After setting “4th Height”, press “**ENT**” key to save and enter “4th speed setting (4th Speed)”.
4th speed: it is the speed moving from work point to 4th height. And the setting range is 1~400mm/s.
- (3) After setting, press “**ENT**” key to save and enter “4th feeding time setting interface (4th Feeding)”. The setting method of 4th Feeding is as same as 4th Height.
- (4) After setting, press “**ENT**” key to save and enter 4th Delay setting interface. After finish 4th delay time setting, press “**ENT**” key to save and enter “Home Point” setting interface as following.

4.4.1.8 Home Point Setting

Home Point:
000.00mm L

1. Home point setting: set the coordinate of the “Home Point”, which is corresponding to the working point coordinate (Work Point). When the process starts, move from the “Home Point” to the “Work Point”. After finishing the work, it returns to Work Point. “L” means the low moving speed.
2. After setting, press **ENT** to save the parameter and enter the “Clean Cycle setting interface” if selected file is not clean file, or enter the “Clean Delay setting interface” if selected file is clean file.

4.4.1.9 Clean Cycle Setting

Clean Cycle:
0001

1. Clean Cycle: It means clean the tip after the setting cycle times. If clean cycle is 0000, it means not

clean. If clean cycle is 0001, it means clean after processing one time. If clean cycle is 0002, it means clean after processing two times.

2. If clean cycle is not 0 and the soldering times is 0, it will clean the tip automatically before the next soldering.
3. After setting, press **ENT** to save setting parameter and finish the whole file parameters setting.
4. After finishing setting, press **ESC** to exit the parameters setting interface.

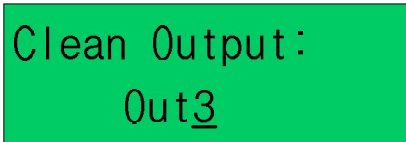
4.4.1.10 Clean Delay Setting



Clean Delay:
00150ms

1. Clean delay: it is the blowing time when cleaning the tip. It is only included in CLEAN file.
2. After setting, press **ENT** key save and enter the Clean Output interface.

4.4.1.11 Clean Output



Clean Output:
Out3

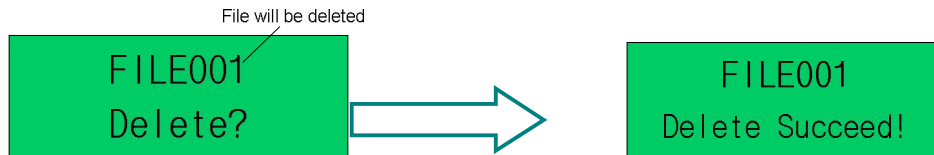
1. Clean output: in the clean out interface, the window shows “OUT3”, which is output port controlling the air blowing and not to be set. This parameter is only included in CLEAN file.
2. Press **ESC** key can exit setting interface.

4.4.2 Edit File Parameter

1. In File Program Interface, select “Edit” by pressing “←” or “→” key, “Edit” flashing display after selected. And then press **ENT** into the File Edit setting interface.
2. File editing will not add file quantity, and only used to change current file parameters.
3. The parameters are same with the new file. And the parameters setting method can refer “4.4.1 New File”.

4.4.3 Delete File

1. In File Program Interface, select “Delete” and then press **ENT** into the File delete interface.
2. In the File delete interface, if press **ENT**, the file will be deleted and the window will show “Delete Succeed”. If press **ESC**, it will not delete the selected file and exit File delete interface and return File Program Interface.

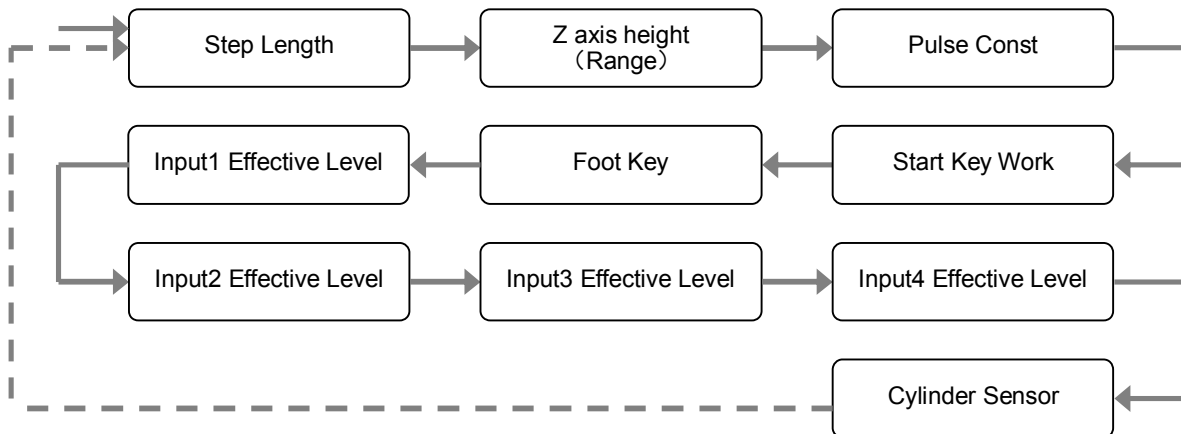


4.5 Parameter Shortcut Setting

1. In the standby interface, it can immediately enter feeding parameter setting by pressing “PG CLEAN” key. And it can set 1st feeding parameters, 2nd feeding parameters, 3rd feeding parameters and 4th feeding parameters.
2. After setting finished, press “ENT” key to standby interface.

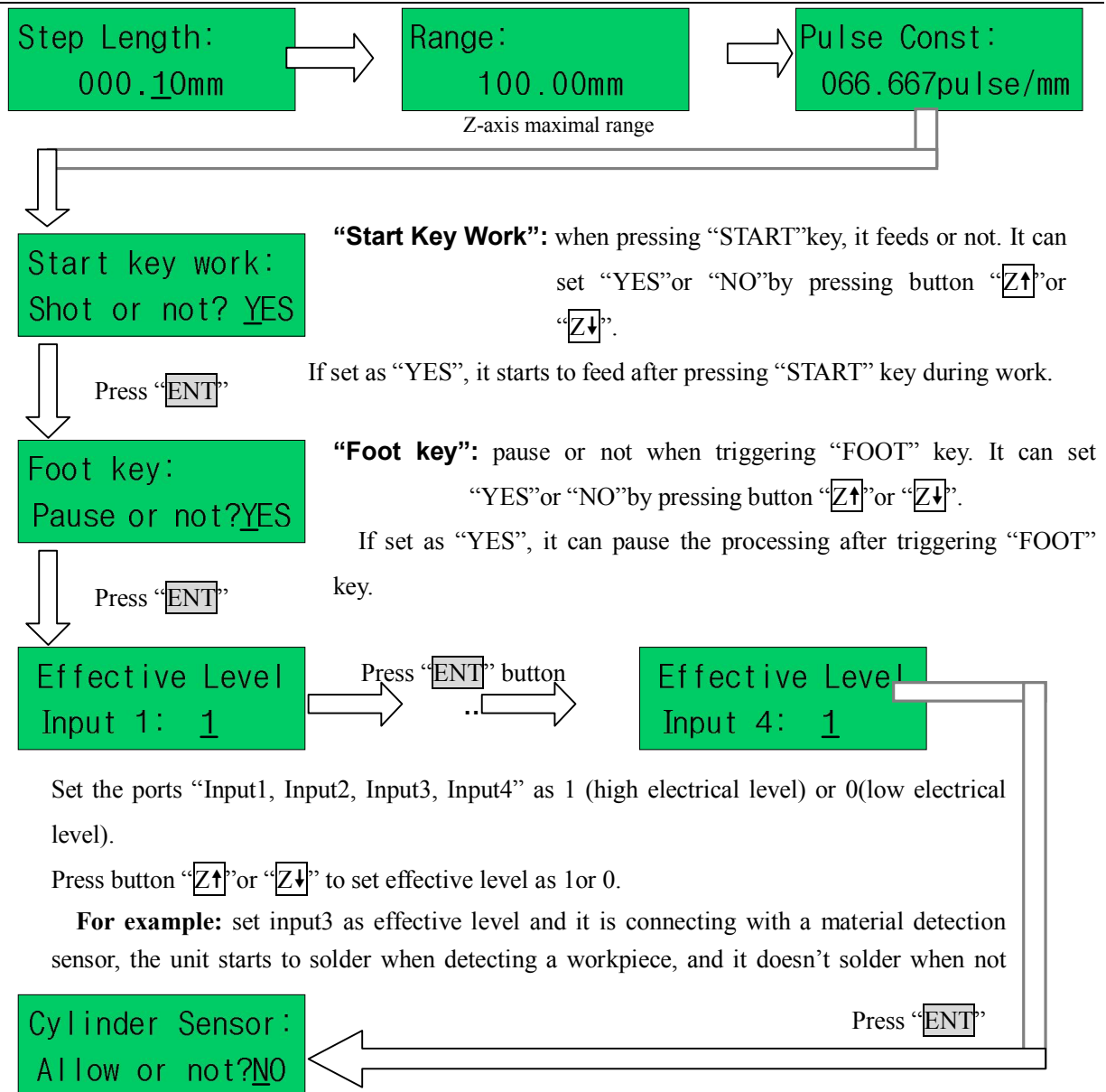
4.6 System Parameter and Cylinder Parameter Setting

1. In standby interface, press “PG CLEAN” key can enter the 1st height parameter setting (as 4.4.1.7). And then press “FILE EDIT” & “PG CLEAN” keys simultaneously and not loosely until enter System Parameters Setting Interface.
2. In System Parameters Setting Interface, press “ENT” key enter next parameter setting, press “ENT” key exit system parameter setting.



3. Firstly, enter “Step Length” interface and it can set the step moving length. After setting, press “ENT” key into the next parameter setting interface.

IV. Parameter setting and operation



Set the ports “Input1, Input2, Input3, Input4” as 1 (high electrical level) or 0 (low electrical level).

Press button “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ” to set effective level as 1 or 0.

For example: set input3 as effective level and it is connecting with a material detection sensor, the unit starts to solder when detecting a workpiece, and it doesn’t solder when not

“Cylinder Sensor interface”: Set the cylinder sensor parameter as “YES” or “NO” by pressing button “ $\boxed{Z\uparrow}$ ” or “ $\boxed{Z\downarrow}$ ”.

If set as “YES”: it can use the sensor to judge whether the air cylinder arrives at the special position or not.

If set as “NO”: it doesn’t use the sensor and ignore the air cylinder whether it arrives at the special position.

Input4 is the inputting port of cylinder sensor.

When set “Input4:0”, namely, the low electrical level is effective: if Input4 is 0, the air cylinder arrives at the special position.

When set “Input4:1”, namely, the high electrical level is effective: if Input4 is 1, the air cylinder arrives at the special position.

V. FAQ

1. During processing, the Z-axis has loss of steps.

Reason: It may be overload, excessive speed or acceleration, insufficient power supply, or mismatched motor drive would lead to the loss of steps.

Please check the overload and reduce the acceleration of axis.

2. Z-axis cannot reset.

Reason: It maybe the signal of photoelectricity switch at the zero point has some malfunction.

Changzhou Quick Soldering Co., Ltd.

Add: No.11, FengXiang Road, Wujin High-Tech Industrial Development Zone, Jiangsu, China

Tel: 86-519-86225678

Fax: 86-519-86558599

Zip code: 213167

Website: www.quick-global.com