VECTECH 378DA & 378DH
Self-Feeder Soldering Station

Instruction Manual

Contents

Chapter 1 Safety Instruction

In this instruction manual, “Warning” “Caution” and “Note” are defined as followings:

⚠ WARNING	Misuse may potentially cause death or serious injury to the user.
⚠ CAUTION	Misuse may potentially cause injury to the user or physical damage to the objects involved. For your safety, be sure to comply with these precautions.
⚠ NOTE	indicate a procedure or point that is important to the process being described.

⚠ Warning

When the power is on, the tip temperature is very high. Follow the precautions strictly because mishandling may cause burn or fire:

- Do not use the unit for other applications.
- Do not touch the metallic parts near the tip.
- Do not use the product near flammable items.
- Inform other people in working area that the temperature of this unit could be very high during the work. Power the unit off when the work is finished to avoid danger.
- Power off the unit and wait till the temperature cools down to room temperature when replace or install the parts.

⚠ Caution

To prevent damage to the unit and ensure a safe working environment, be sure to comply with the following precautions:

- Only use this unit with rated voltage and frequency (refer to the trademark back of equipment).
- If there’s any damage to the unit, stop using it.
- 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.
- Do not use the unit for other applications except soldering.
- Do not rap soldering iron against the workbench to shake off residual solder, otherwise the iron will be damaged by shocks.
- Do not modify the unit by yourselves.
- Only use the original replacement parts.
- Keep the unit dry. Don’t use or disconnect the unit with wet hands.
- The soldering process will produce smoke, so make sure the area is well ventilated.
- While using the unit, don’t do anything which may cause bodily harm or physical damage.
- Children don’t know the danger of electrical appliances. Always keep it away from them.

Chapter 2 Product Summary

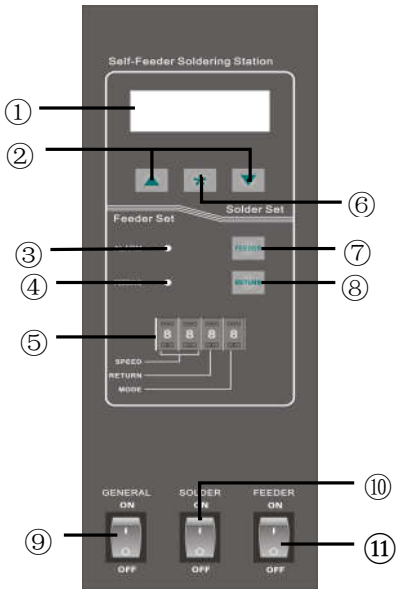
This unit is a self-feeder soldering station. It can control soldering temperature and feeding parameters, and the temperature is display with double temperature. Besides, it can communicate with the computer, by the soldering software, the computer can monitor, recode the working state about lots of soldering station. And completely control the whole soldering process to prevent optional change of soldering technology, realize real time control. The feeding is precise and the controlling method is flexible. The feeding speed, returning length, alarming mode etc., all are steady and can be adjusted. By the unit, it can get well soldering effect and improve the solder work efficiency.

2.1 Specification

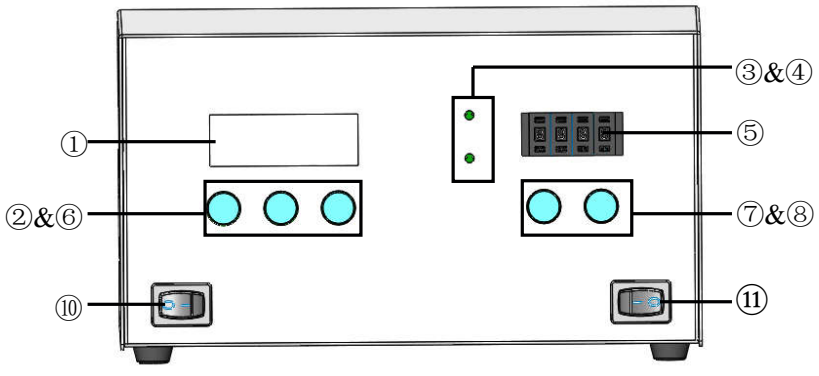
Type		378DA & 378 DH	
Voltage		★100~130V / 200~240V AC	
Power		320W	
Function	Heating	√	
	Feeding	√	
	Cutting	√	
Heating parameters	Temperature range	50℃~500℃/122~932℉	
	Handle type	9013A	
Feeding parameters	Feeding speed	1~50mm/s	
	Return length	0~4.5mm	
	Testing Mode of solder wire	0~9	
	Dia. of solder wire	0.3~1.2（mm）	0.5~1.2（mm）

★NOTE: Ensure that your power supply data agrees with the information on the nameplate of the machine!

2.2 Instruction



378DA

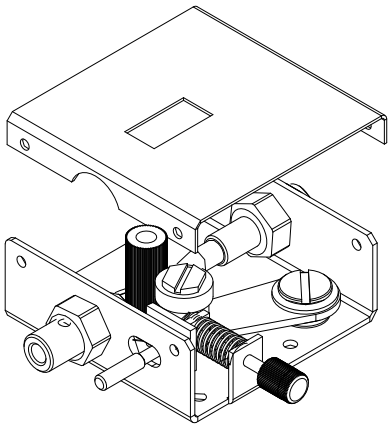
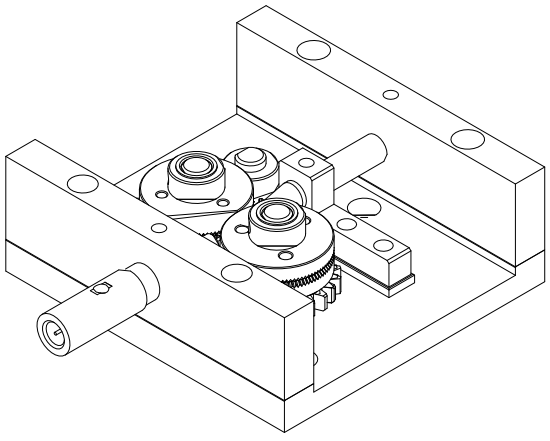


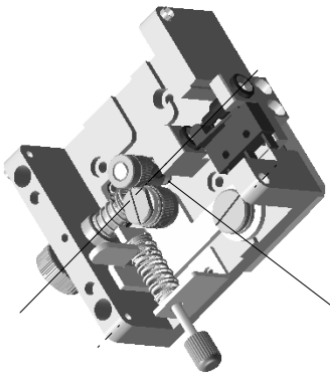
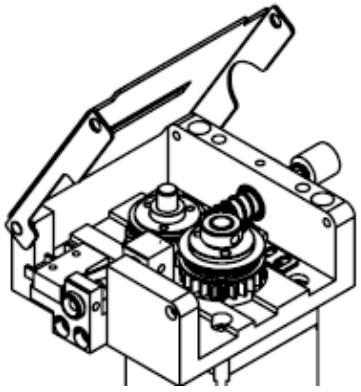
378DH

NO.	Description
1	LCD display
2	Setting number (+)/(-)
3	Alarm indicator lamp
4	Wire feeder indicator lamp
5	Dial switch
6	Parameter setting button
7	Wire feeder button
8	Wire back button
9	Power switch
10	Soldering station switch
11	Solder wire feeding device switch

Function	
Description	Function
LCD display	Display real temperature and setting temperature and real-time state messages
Dial switch (7777)	Change the solder wire feeding device (371HI, 371H, 371LI, 371L).
Dial switch (8888)	Change Feeding & Cutting Device.
Dial switch (9999)	Change between input signal and output signal.
Dial switch (SPEED)	Wire feeder speed
Dial switch (RETURN)	Wire back distance
Dial switch (MODE)	Alarm mode (refer to 5.2.1 Work Mode)

2.3 Feeding & Cutting Device (option)

Device of Solder wire feeding371H	**Device of Solder wire feeding and cutting371HI**
	

Device of Solder wire feeding371L	Device of Solder wire feeding and cutting371LI
	

371H: it can feed the solder wire automatically. The pressure adjusting screw at the right side can adjust the feeding pressure.

371HI: it can cut fine hole at the solder wire and then feed the solder wire automatically.

371L: it can feed the solder wire automatically.

371LI: it can cut fine hole at the solder wire and then feed the solder wire automatically（the method of detection alarm is different from 371HI）.

⚠**Caution: don't tighten the pressure adjusting screw for protecting its flexibility from damage.**

Chapter 3 Instruction of Working State and Socket

3.1 Switching & Instruction of Working Mode

1. The dial switch is “7777”, press the “FEEDER” and "RETURN" buttons simultaneous until the wire feeder indication light flashing, it can change solder wire feeding cutting device (371 HI, 371 LI).

2. The dial switch is “8888”, press the “FEEDER” and “RETURN” buttons simultaneous until the wire feeder indication light flashing, it can change Feeding & Cutting Device (371HI&371H).

3. The dial switch is “9999”, press the “FEEDER” and “RETURN” buttons simultaneous until the wire feeder indication light flashing, it can switch between “inside signal control” and “outside signal control”.

- **Feeding by inside signal control:** controlled by the digit switch. The feeding speed and feeding direction is set by the digit switch, and feeding time is controlled by the inputting port signal.
- **Feeding by outside signal control:** not controlled by the digit switch. The feeding speed, feeding length and direction are controlled by the outside pulse signal and outside direction signal.

In 8s after power on the unit, the statue of WORK indication light means the current working state. The WORK indication light function is as follow.

	Time	WORK Indication light	Function
8s Instruction of WORK Indicating Light after Switch On	2s（first）	Bright 2s	Work mode---motor clockwise rotation
		Flashing 5 times	Work mode---motor counter-clockwise rotation
	1s	Light off	
	2s （middle）	Bright 2s	Work mode--- inside signal control
		Flashing 5 times	Work mode---outside signal control
	1s	Light off	
	2s（last）	Bright 2s	Solder wire feeding device is 371HI or 371H.
		Flashing 5 times	Solder wire feeding device is 371LI

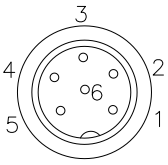
3.2 Connection of Socket

- **Six-pin socket:** Connect to the handle by six-pin plug cord.
- **Eight-pin socket:** connect to the back of robot by eight-pin plug cord (option).
- **Seven-pin socket:** connect to the back of robot by seven-pin plug cord.

3.3 Instruction of Socket

3.3.1 Six-pin socket

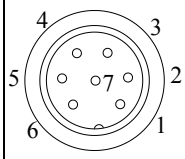
The function of six-pin socket is as following table.



Pin's No.	Instruction of pins	Application
6P-1	Sensor -	
6P-2	Sensor +	
6P-3	GND	
6P-4	Heater +	
6P-5	Heater -	
6P-6	NC	Not connection

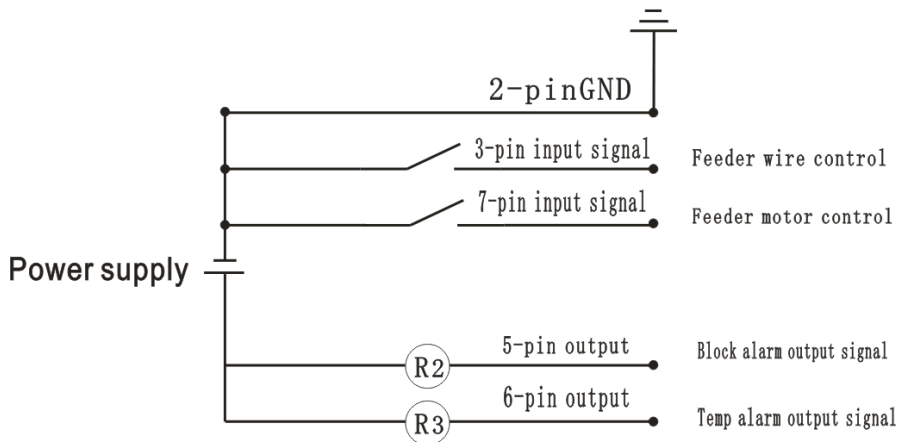
3.3.2 Seven-pin socket

The function of seven-pin socket is as following table.



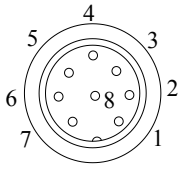
Pin's No.	Instruction of pins	Application
7P-1	NC	Not connection
7P-2	POWER GND	GND
7P-3	input 1	Feeder wire signal or feeder pulse input signal
7P-4	NC	Not connection
7P-5	Output 1	Wire block alarm output signal (open drain output).
7P-6	Output 2	Temperature alarm output signal (open drain output).
7P-7	Input 2	Feeder motor direction input signal.

Alarming output pin: the pin is break over to the POWER GND.

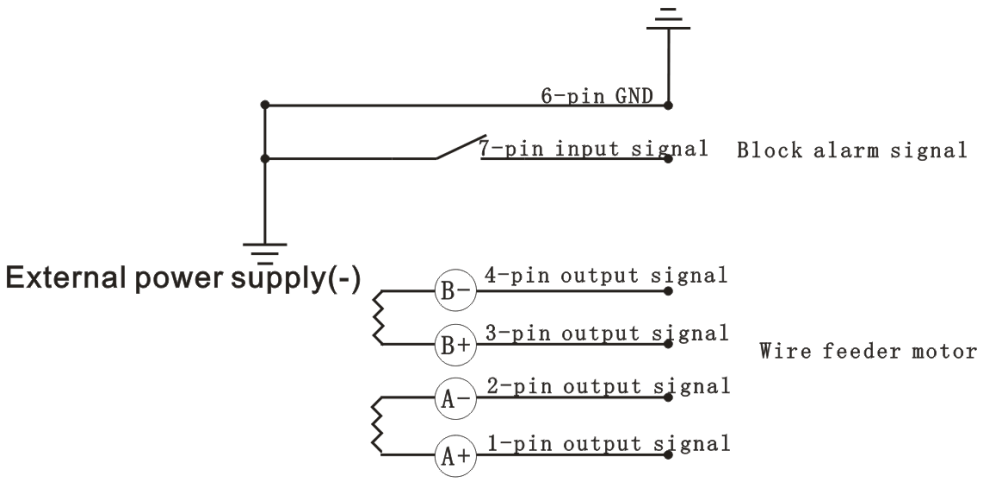


3.3.3 Eight-pin socket (optional)

The function of eight-pin socket is as following table.



Pin's No.	Instruction of pins	Application
8P-1	Motor1	Feeder motor signal
8P-2	Motor2	Feeder motor signal
8P-3	Motor3	Feeder motor signal
8P-4	Mout4	Feeder motor signal
8P-5	NC	Not connection
8P-6	GND	GND
8P-7	Input	Wire block input signal
8P-8	NC	Not Connection



Chapter 4 Soldering Parameters Setting

4.1 Temperature Setting

Note:

- Make sure the temperature of the controller can be adjusted (the default password is 000).
- Do not switch off the unit when setting the temperature, or else the setting value will not be memorized.
- Press "*"for about six seconds to switch between "℃" and "℉".

Raise Temperature: Click **"▲"** button, the temperature will rise 1 ℃, the screen will display the current setting temperature. Press the "▲" button for at least 2s, the setting temperature will rise rapidly. Loose the "▲" button when the value is up to the required temperature.

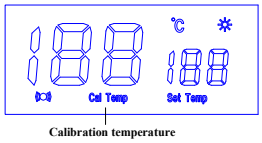
Reduce Temperature: Click **"▼"** button and the temperature will drop 1 ℃, and the screen will display the current setting temperature. Press and hold "▼" button for 2s to the sharp drop in temperature. Loose the "▼" button when the value is down to the required temperature.

4.2 Temperature Calibration

The soldering temperature should be calibrated after changing the tip, replacing the heater element or soldering handle. It adopts digital calibration mode and the revision digit is inputted by pressing button, make the adjustment simply and quickly.

Calibrate by using thermometer as followings:

1. Set the unit's temperature to a certain value.
2. After the temperature value is stable, measure the tip's temperature with thermometer and write down the value.
3. Press "*" "▲""▼" buttons simultaneously for about 5s to enter "CAL" screen, and the hundreds digit is flashing.



Calibration temperature

4. Press "▲"button to increase digit and press "▼" button to decrease the digit. Select the required digit and press "*"for moving to tens digit.
5. The tens digit is flashing. Press the"▲" or "▼" button to select the value. Select the required digit and press "*"for moving to single digit.
6. The single digit is flashing. Press the"▲" or "▼" button to select the value. Select the required digit and

press "*" to save calibration valve.

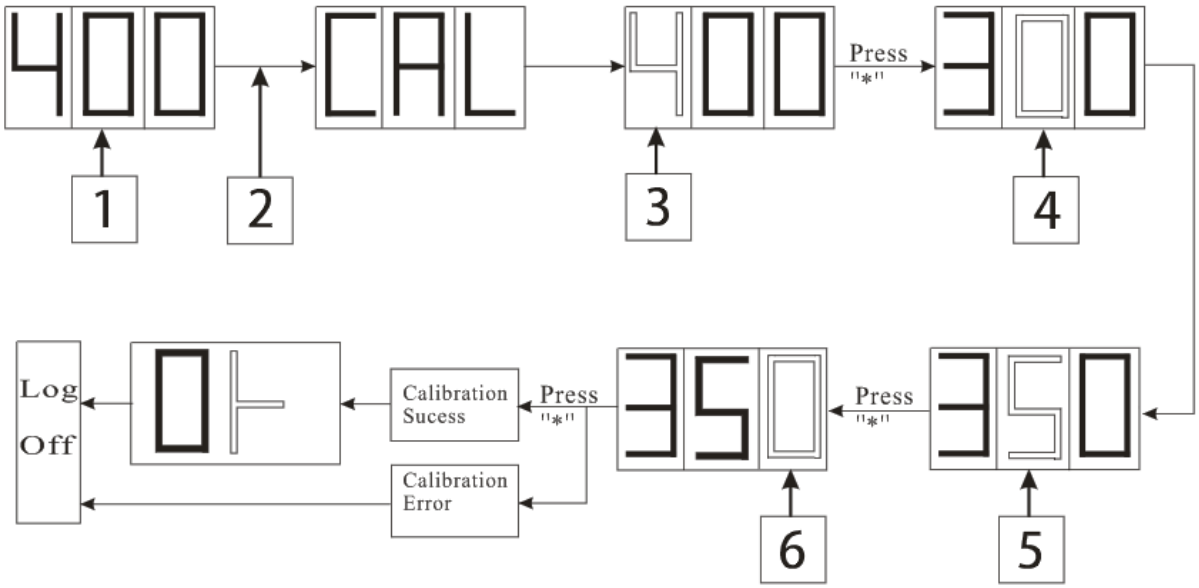
7. When  is displayed on the screen, it is indicate that the calibration is successful.

⚠NOTE:

- *Recommend using the 191/192 series thermometers to measure the tip temperature.*
- *If the soldering station is locked by password, it will not be able to calibrate the tip temperature and it must input the right password.*

< Example >

Calibration temperature: 350℃, LCD display temperature: 400℃.



Method

1.The LCD display temperature :400℃.

2. Press "*" "▲""▼" buttons simultaneously for about 5s to enter "CAL" screen.

3. The hundreds digit is flashing, press "▲"button to increase digit and press "▼" button to decrease the digit, select the required digit "3".

4. The tens digit is flashing.

5. Press "▲"button to increase digit and press "▼" button to decrease the digit, select the required digit "5".

6. The signal digit is flashing, press "▲"button to increase digit and press "▼" button to decrease the digit, select the required digit "0".

Note: When  is displayed on the screen, it is indicate that the calibration is successful.

4.3 Soldering Parameters Setting

⚠ NOTE:

It must enter correct password(default password:000) before setting the parameters, password setting, work mode, temperature alarming, address, sleeping time, off time ,round-trip delay setting and baud rate setting.

4.3.1 Enter the Password

The default password is "000". The setting temperature is admitted when the password is 000. If need to limit the setting temperature, the password must be changed, then turn off and turn on the unit.

Into password setting:

1. Turn off the power switch 9. And then press the "▲" & "▼" buttons simultaneously, afterwards, turn on the power switch.

2. The "▲" & "▼" buttons can be loosened until the screen shows  , Which means it has come into the parameter setting mode.

Enter the default password:

Press "*" key, the LCD displays "  " and "Password", and the hundreds digit is flashing, which means it has entered password setting mode, refer to the temperature calibration.

Enter wrong password:

Wrong password prevents parameters setting.

Enter correct password:

The LCD displays  , it indicates the password is correct.

4.3.2 Change Password

⚠NOTE:

- ***Enter the same password twice to set the password successfully.***
- ***Passwords can only be numbers.***

Enter new password:

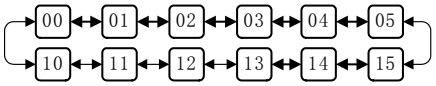
1. When the LCD displays  , press the "*" button until shows  , it indicates the station comes into new password state. Press "▲"or"▼"button to change displaying digit.
2. The inputting method is same with temperature calibration. See "calibration temperature inputting".

Repeat inputting new password:

3. When three digits are selected, press "*" button until displays  . Input the new password again. If the inputting passwords are the same, pressing "*" button to save the new password.
4. If the inputting passwords are different, pressing "*" button until displays  .Inputting a new password again. The password change will be successful.

4.3.3 Working Mode Setting

1. When the window displays , press "▲" and "▼" buttons simultaneously, then the LCD displays . This indicates the unit comes into working mode setting menu, press "▲" and "▼" button to change displaying digit as follow:



The 10~15 among the working modes have alarming sound. LCD display , it indicates that this working mode has sound function and will give sound when alarming or pressing the buttons.

Display: means it will give alarming signal when the temperature is in abnormal (6th pin of 7-pin socket).
Not Display: means it will give normal signal when the temperature is in normal (6th pin of 7-pin socket).

2. After selecting working mode, press "*" button to save it. Please refer to the "Working Mode Table" about the means of displaying digits.

Working Mode Table

Working Mode	Tip Type	Temperature Range	Alarm sound	Alarm output signal
00	Small TIP	200℃-420℃ 392℉-788℉	NO	Alarm：OC disconnection Normal : OC connection
10			YES	Alarm：OC connection Normal : OC disconnection
01	Middle TIP	200℃-420℃ 392℉-788℉	NO	Alarm：OC disconnection Normal : OC connection
11			YES	Alarm：OC connection Normal : OC disconnection
02	Large TIP	200℃-420℃ 392℉-788℉	NO	Alarm：OC disconnection Normal : OC connection
12			YES	Alarm：OC connection Normal : OC disconnection
03	Small TIP	50℃-500℃ 122℉-932℉	NO	Alarm：OC disconnection Normal : OC connection
13			YES	Alarm：OC connection Normal : OC disconnection
04	Middle TIP	50℃-500℃ 122℉-932℉	NO	Alarm：OC disconnection Normal : OC connection
14			YES	Alarm：OC connection Normal : OC disconnection
05	Large TIP	50℃-500℃ 122℉-932℉	NO	Alarm：OC disconnection Normal : OC connection

15			YES	Alarm：OC connection Normal : OC disconnection

⚠ **WARNING:**

- *The heater element and soldering tips will be seriously oxidized or damaged when working with a high temperature. So please choose the working mode carefully and try to operate with a lower temperature if possible.*

4.3.4 Upper and lower limits alarm temperature setting

Setting upper and lower temperature limits method is the same as temperature calibration.

When the real temperature is out of the upper and lower limits alarm temperature setting, it will give an alarming.

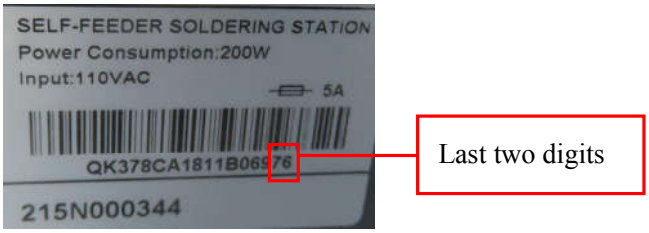
1. **Upper alarm temperature setting:** Press "*" button until the LCD displays "up temp". Press "▲" or "▼" button to select the required digit, press "*" button to move digit cursor and then press "*" button to save.
2. **Lower alarm temperature setting:** Press "*" button until the LCD displays "down temp". Press "▲" or "▼" button to select the required digit, press "*" button to move digit cursor and then press "*" button to save.

Upper and lower limits alarm temperature range:1℃-99℃ or 33.8℉-210.2℉.

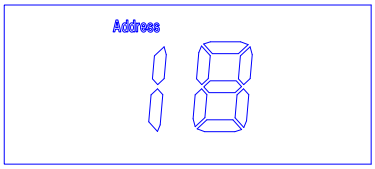
4.3.5 Address setting

The heater controller needs an address to communicate with the computer.

1. Press "*" button until LCD displays "address". The address range is 1~99, the initial address is the last two digits of the barcode.



3. Press "▲" or "▼" button to select the required digit, press "*" button to move digit cursor and then press "*" button to save.

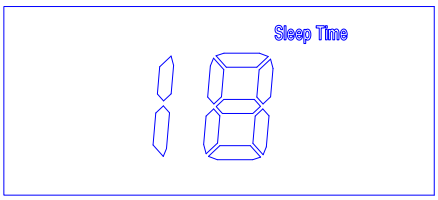


4.3.6 Set the Sleeping Time

It has auto-sleep function. When the heater controller doesn't operate during a certain period of time, it will come into the sleeping mode. The soldering tip temperature will reduce to 200℃ (setting temperature ＞200℃)

or 50℃ (setting temperature＜ 200℃).

1. Press “*” button until the LCD displays “sleep time”.



2. Press “▲” or “▼” button to select the required digit, press “*” button to move digit cursor and then press “*” button to save.

3. Sleeping time range: 00 ---99 minutes.

4. Break sleeping mode:

* Turn off solder switch⑩, and then turn on power switch⑨.

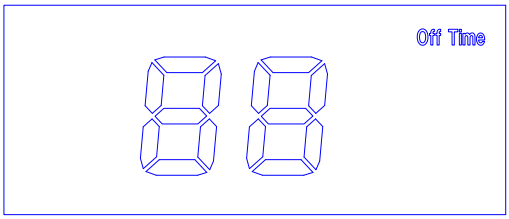
* Press any button, such as  \  or  button.

4.3.7 Off Time Setting

1. Press “*” button until the LCD displays “off time”.

2. Press “▲” or “▼” button to select the required digit, press “*” button to move digit cursor and then press “*” button to save.

3. Off time range: 00 ---99 minutes.



⚠NOTE:

- *The set digits mean “off time” and the unit is minute.*
- *The station first comes into sleeping state and then comes into off state, so the off time should be bigger than sleeping time. Otherwise, the station will be turned off immediately after it comes into sleeping.*

4.3.8 Communication round-trip delay setting

1. Press “*”button until the LCD displays “mode address”.

2. Press “▲” or “▼” button to select the required digit, press “*” button to move digit cursor and then press “*” button to save.

3. Communication round-trip delay setting range: 00 ---99 MS.

4.3.9 Baud rate setting

1. Press “*”button until the LCD displays “mode address”.

2. Press “▲” “▼”button② to set delay time and press“*”to save parameters.

3. The baud rate is 115200, 38400 and 19200.

4.3.10 Alarm symbol instruction

S-E: sensor error

H-E: heater error

Chapter 5 Feeding & Cutting Setting

5.1 Feeding Parameters Setting

Press "+" button on the dial switch, and the number will increase one. Similarly, press "-" button, and the number will decrease one.

1. SPEED --- feeding speed setting

Feeding speed is designed with two digits. Press "SPEED" button to choose suitable digit.

When the digit is set at 00, the speed is slowest about 1mm/s. When setting at 49, the speed is fastest about 50mm/s. The speed of (50~99) is 50mm/s.

2. RETURN --- wire returning length setting

Wire return length is designed with one digit. Press "RETURN" button to choose suitable digit. The setting digit range: 0~9, wire returning length range: 0~4.5mm.

Wire Return Length =0.5mm×(setting digit)

3. MODE --- wire monitor mode

Wire monitor mode is designed with one digit. The setting digit range: 0~9.

Wire feeder device 371HI or 371 H, the setting digit "1--9" is test times;

Wire feeder device 371LI, the setting digit "1--9" is the block material time.

0	371HI: no block material check. 371LI: block material time 1×100ms, output alarm signal and alarm indicator lamp is flashing.
1	371HI: if wire feeding is abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 1×100ms, output alarm signal and alarm indicator lamp is flashing.
2	371HI: if wire feeding is twice abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 2×100ms, output alarm signal and alarm indicator lamp is flashing.
3	371HI: if wire feeding is three times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 3×100ms, output alarm signal and alarm indicator lamp is flashing.
4	371HI: if wire feeding is four times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 4×100ms, output alarm signal and alarm indicator lamp is flashing.
5	371HI: if wire feeding is five times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 5×100ms, output alarm signal and alarm indicator lamp is flashing.

6	371HI: if wire feeding is six times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 6×100ms, output alarm signal and alarm indicator lamp is flashing.
7	371HI: if wire feeding is seven times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 7×100ms, output alarm signal and alarm indicator lamp is flashing.
8	371HI: if wire feeding is eight times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 8×100ms, output alarm signal and alarm indicator lamp is flashing.
9	371HI: if wire feeding is nine times abnormal, the alarm signal will be output and alarm indicator lamp is flashing. 371LI: block material time 9×100ms, output alarm signal and alarm indicator lamp is flashing.

4. Cancel alarming

Wire feeder device 371H/371HI cancel alarming method: press “RETURN” or “FEEDER” button.

Wire feeder device 371LI cancel alarming method: 1. Press “RETURN” or “FEEDER” button.

2. Remove block material

5.2 Feeding Operation

Do the operation as the choosing feeding mode.

5.2.1 Work Mode

1. Turn on “FEEDER” button switch, set “FEED” and “RETURN” parameters.
2. Press “START” button to start work.

5.2.2 Testing Mode

Note: the parameters are invalid during testing mode.

1. Turn on the “FEEDER” button.
2. **Return**: press the “RETURN” button once, the solder wire will return one time. During the return, the indicating lamp is light.
3. **Feeder**: press the “Feeder” button once, the solder wire will feeder one time. If press the button not loosely, it will feed wire continually. During the feeding, the indicating lamp is light.

5.3 Replace Parts of Feeding & Cutting

5.3.1 Replace the Blade (option, only in cutting device) (stand for 371HI)

Solder straighten nozzle (02), cutting blade (06) and auxiliary driven gear (10), the three parts must be coincident with the solder wire. Usually, it needs to change the cutting blade. So select suitable cutting blade before replacing the different specification solder wire. Refer to the following steps to disassemble and assemble

the parts.

1. Remove the feeding tube assembly backwards, until it cannot touch the cutting blade (06) and auxiliary driven gear (10).

Take down the acryl board (12). Loosen the screw (15), and then remove out the feeding tube assembly. After that, loosen the locking screw fixing the feeding position tube with 1.5mm internal-hexagonal spanner. Remove backwards the position tube of feeding (16) until it cannot touch the cutting blade (06) and auxiliary driven gear (10).

2. Take down the locking cap (07).

Loosen and remove the fixing screws (08) at the locking cap, and then, remove the locking cap (07).

3. Take down the drive gear (04) component and auxiliary driven gear (10) component.

The drive gear (04) component and auxiliary driven gear (10) component must be taken down at the same time. Take the drive gear (04) and driven gear (10) and then move them out towards the axis. If need, change a new driven gear (10).

4. Replace the cutting blade (06).

The cutting blade (06) is in the assembly of driven gear. Loosen the three inner-hexagon fixing screws (04) at the driven gear with a spanner. Take down the locking cap (07), fixing plate (09) and cutting blade (06) in turn. Then change and install the suitable blade.

5. Replace the auxiliary driven gear (10) component.

Auxiliary Driven gears (10) are in the auxiliary driven gear component. The two driven gear components must be taken down at the same time. Hold the two gear components simultaneously and move them out along the axis. After that, loosen the fixing screws at the driven gear component and then take down the fixing plate (09) and driven gear (10) in turn.

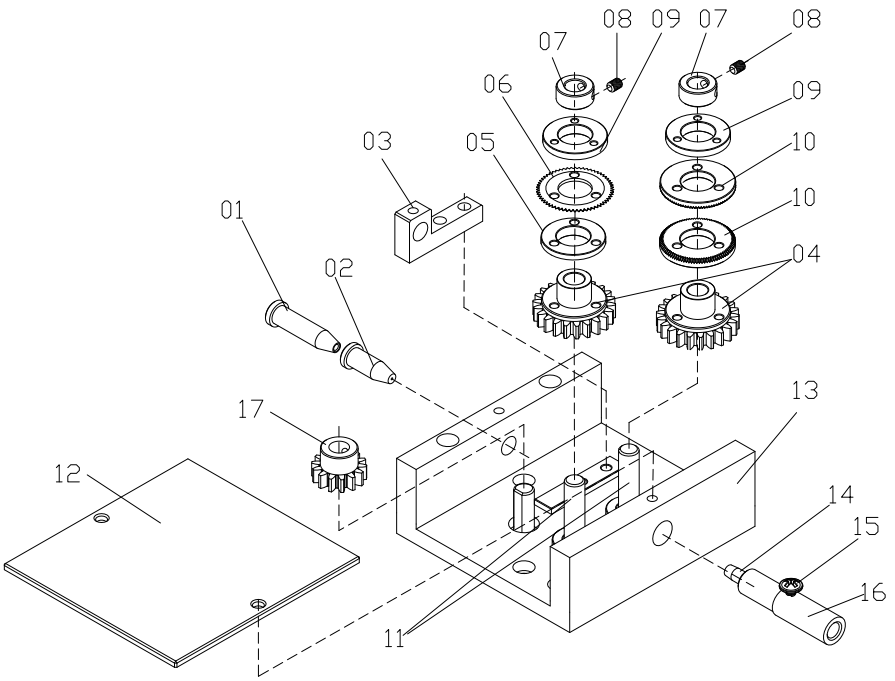
6. Assemble the drive gear (04) component and auxiliary driven gear (10) component.

Assemble it in the reserve order of the disassembly.

7. Install the assembly of the drive gear (04) and the auxiliary driven gear (10).

Mount them on the axis (11) simultaneously. Aim the blade in driven gear assembly at the notch of the auxiliary driven gear (10), and then mount them on the axis (11) smoothly and levelly. Place the locking caps (07) on the driven gear (04) and the **auxiliary** driven gear (10), after that, screw the locking screws (08) to fasten the locking cap.

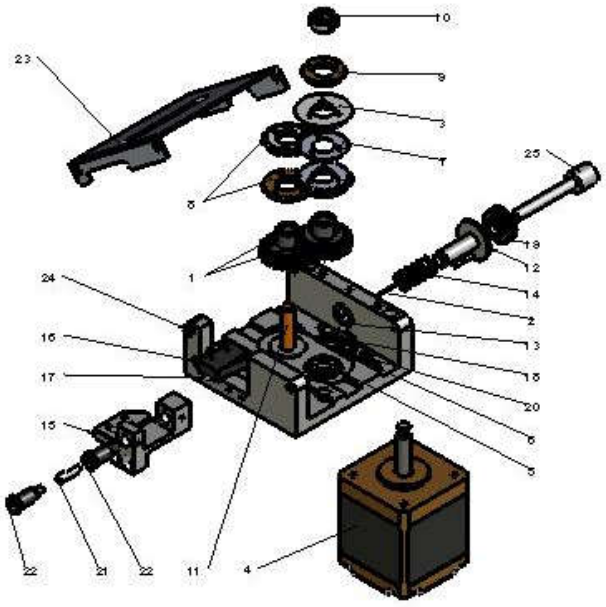
8. Install the Feeder Tube Assembly.



17	drive gear		1
16	position tube of feeding		1
15	M3×4 screw		1
14	feeding tube		1
13	feeder supporting plate		1
12	acryl board		1
11	axis		2
10	auxiliary driven gear *		2
09	fixing plate		1
08	M3×4 locking screw		5
07	locking cap		2
06	blade *	90 jaggies	1
		60 jaggies	1
		40 jaggies	1
05	blade supporting wheel		1
04	driven gear		2
03	feeding holder		1
02	solder straighten nozzle *		1
01	feeding nozzle		1
NO.	Name		QTY.

*Note: the parts with * , use according to the diameter of the solder wire.*

371HI explosive view



371LI explosive vie

25	tin exit tube
24	Φ4*0.2*3.8stainless steel tube
23	metal cover plate
22	tin exit
21	Φ4*0.2*12stainless steel tube
20	small microswitch adjust
19	stingy nut
18	microswitch
17	dead plate
16	microswitch
15	feed tin mouth adjust
14	spring
13	send tin-tube
12	send tin-tube
11	axis
10	locking cap
9	retainer
8	driven pulley
7	saw web
6	foundation
5	motor fix
4	motor shaft
3	driver
2	tin
1	M0.8-201101

QUICK INTELLIGENT EQUIPMENT CO., LTD.
ADD: NO.11, FengXiang Road, Wujin High-Tech Industrial Development Zone, Jiangsu, China
TEL: 86-519-86225678
FAX: 86-519-86558599
POSTCODE: 213167
WEBSITE: www.quick-global.com