SSB-002Robotic Material Loading System Operating Manual

Copyright

Preface

The automatic Loading machine shall not be liable for any direct, indirect, special, incidental, or consequential losses or liabilities arising from the improper use of this manual or this product.

Chapter 1: Overview

1.1Equipment Overview

Thank you very much for using our automatic feeding and gluing machine equipment!

This equipment can be used with various types of transfer adhesive paper to meet your different requirements for equipment transfer.

Advanced motion control technology makes the equipment faster, and the equipment has a friendly man-machine interface operating system, which effectively improves the production efficiency; The control equipment adopts linear module to make the machine run more smoothly, reduce the noise of the whole machine, and extend the service life of the machine!

Before use, please read the instructions carefully to ensure correct use.

Please keep the instructions for easy reference.

Due to different configurations, some machines do not have some of the functions listed in this book, and the details are subject to the corresponding operating functions.

1.2 Precautions

Please do not use non-professional personnel to repair and debug the equipment machinery and electrical system, which will reduce the safety performance of the equipment, expand the fault, and even cause personnel injury and property damage.

Do not pile debris around the control box, and periodically remove dust and dust from the surface of the control box during use to maintain good ventilation and heat dissipation.

Do not change the product without authorization, the company does not bear any responsibility for the consequences caused by this!

Warning

When it is necessary to open the cover of the chassis, you must cut off the power for 5 minutes and under the guidance of professional personnel before you are allowed to touch the

components in the electric control box!

Prohibited

When the machine is working, do not touch any moving parts or open the control equipment, otherwise it may cause injury or cause the machine to not work properly!

Do not allow electrical equipment to work in damp, dust, corrosive gas, flammable and explosive gas, otherwise it may cause electric shock or fire!

1.3 Working environment

Good ventilation, clean environment, minimal dust;

Storage space temperature: 0-50° C;

Working space temperature: 5-40° C;

Relative humidity in working space: 30%-90% non-condensing

1.4 Equipment Power Supply and Grounding

1.4-1Power supply requirements

The equipment adopts single-phase AC220V power supply servo control system, the electric control adopts DC24V DC power supply safety, and the power consumption is between 1.0-1.5KW.

1.4-2Grounding Requirements

In order to prevent electrical equipment due to leakage, overvoltage, insulation and other reasons caused by electric shock or fire accidents, please make the power control reliable grounding.

The ground resistance should be less than 100 ohms, the length of the wire is less than 20

meters, and the cross-sectional area of the wire is greater than 4.0x4 square millimeters. The user has the responsibility to design an effective error handling and safety protection mechanism in the machine, and the automatic feeding equipment has no obligation or responsibility to be responsible for the incidental or consequential losses caused by this.

1.4-3 Equipment Technical Parameters

- Model:
- Work table travel range 700(X)-400(Y)-100(Z)mm
- Maximum speed: 300mm/sec
- Resolution: 0.5mm

Repeatability: ±0.2mm

Transmission mode: servo motor/linear module
Power supply: single-phase AC220V 50-60HZ 1.5KW

Working environment: Humidity: 20-90%, temperature 0-40℃
1, machine dimensions: L*W*H=1200*900*1780
3, spraying color: frame for profile color + sheet metal fifty ling blue
4, steel hard chrome plating treatment, aluminum natural sandblasting treatment
5, the pressure source requires 4-7bar
6. Proximity switch: omron
7. Guide rail, module: Taiwan Dongyouda, Shangyin
8. Pneumatic components: Airtek
9, Huichuan servo motor,
10, pressure regulator, Yadeke, vacuum pressure number display table, Panasonic
11. Stepper motor, Shenzhen Lei Sai
12, touch screen, Willon

The purpose of the user manual

By reading this manual, users can understand the basic functions of the gluing equipment, and use the equipment for debugging and maintenance.

Object of the user manual

This programming manual is suitable for equipment debugging personnel who have the basic knowledge of the transfer paper machine and have a certain understanding of the paper process.

The main contents of the user manual

This manual consists of 13 chapters and appendices. It basically covers the functions of the R operating system of this device.

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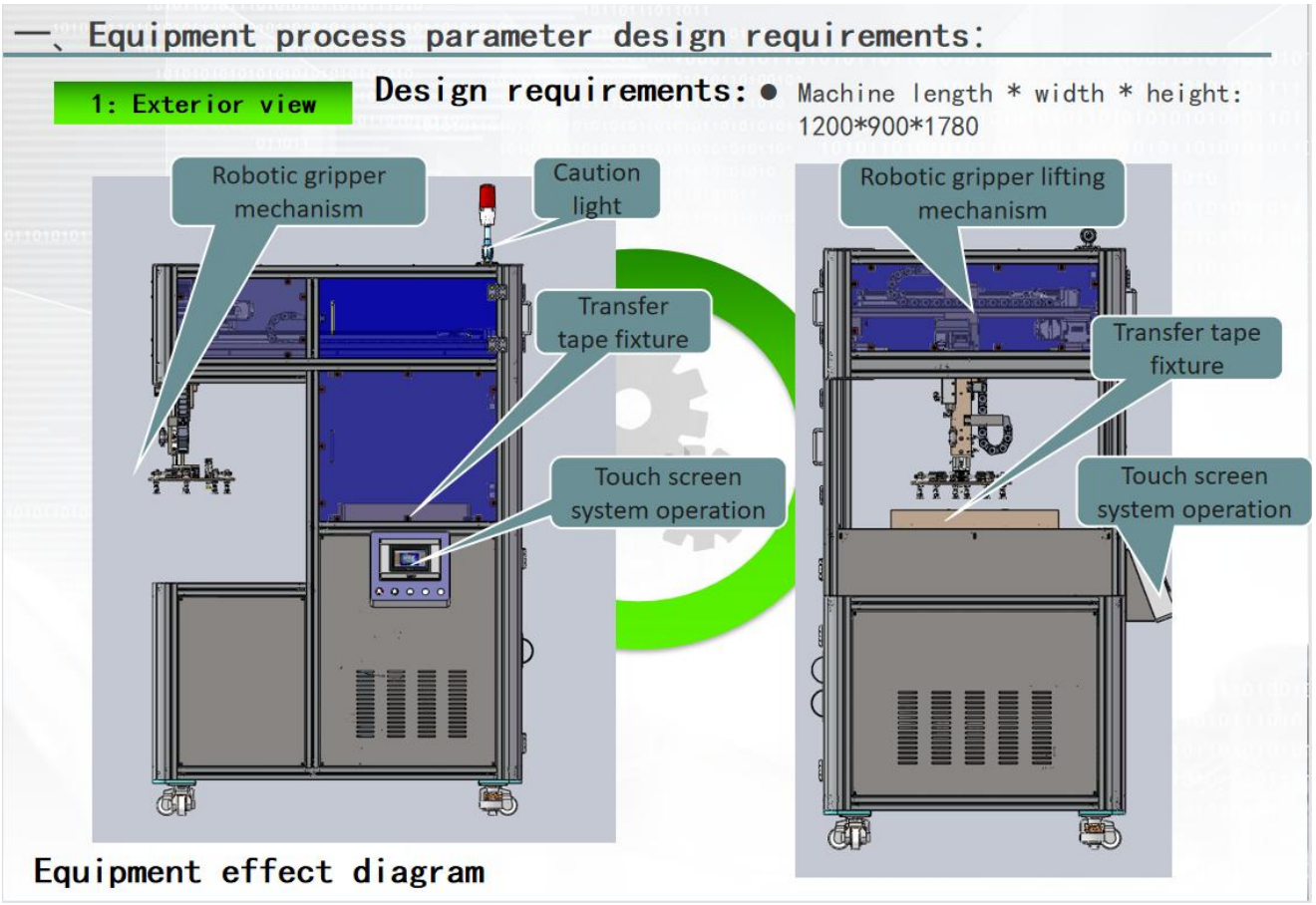
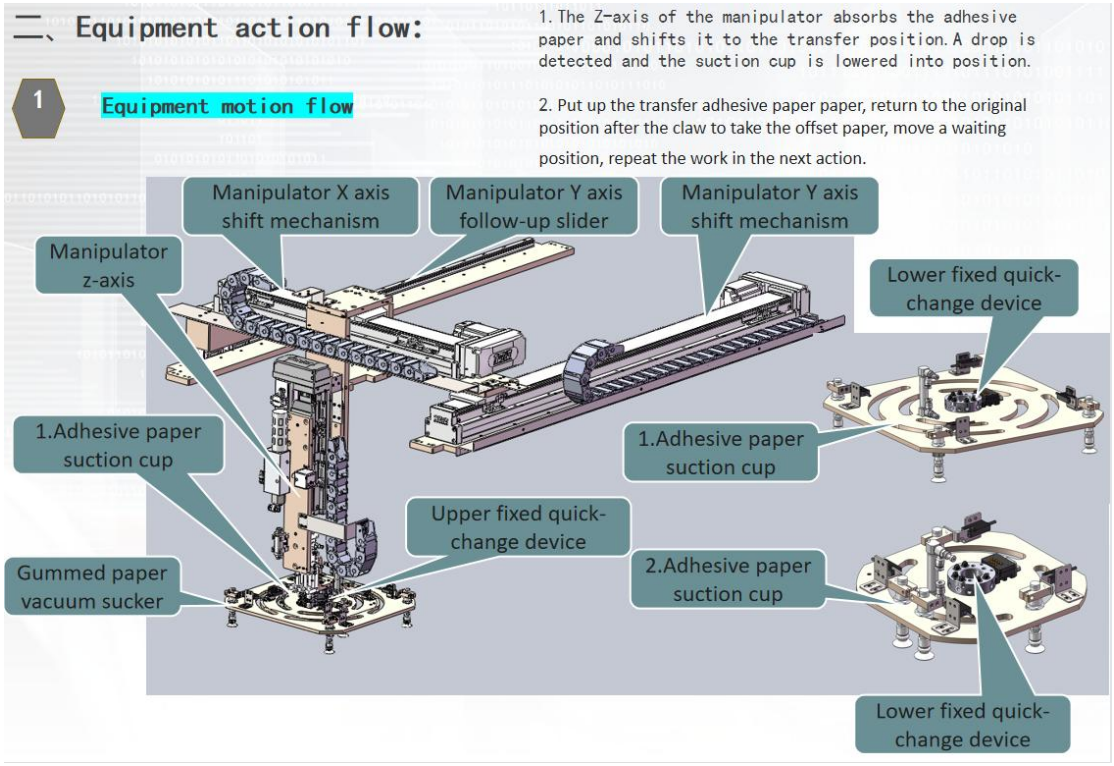
PART TWO Appearance and function

2.1 Function operation



2.2 Function Operation Process

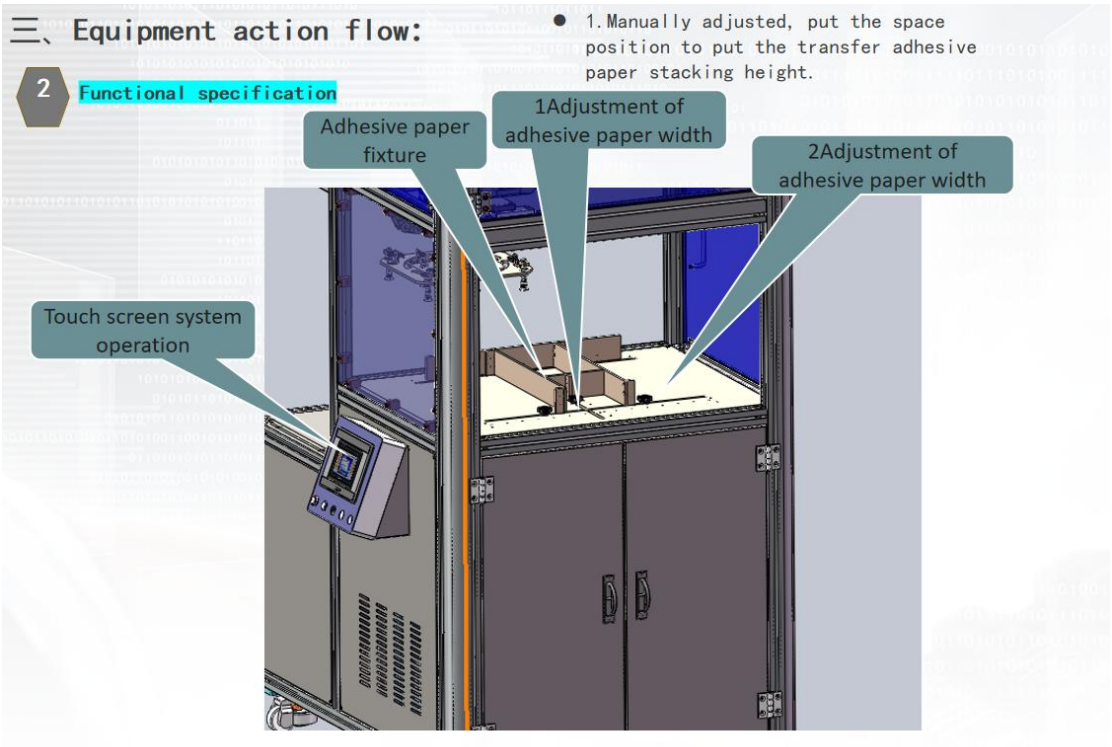


Gluing paper suction cup function

The Z-axis of the manipulator absorbs the adhesive paper and shifts it to the transfer position.
A drop is detected and the suction cup is lowered into place
Put up the offset paper, return to the original position after the claw to take the offset paper, move a waiting position, repeat the work in the next action

2.3 Transfer adhesive paper superimposed on the material

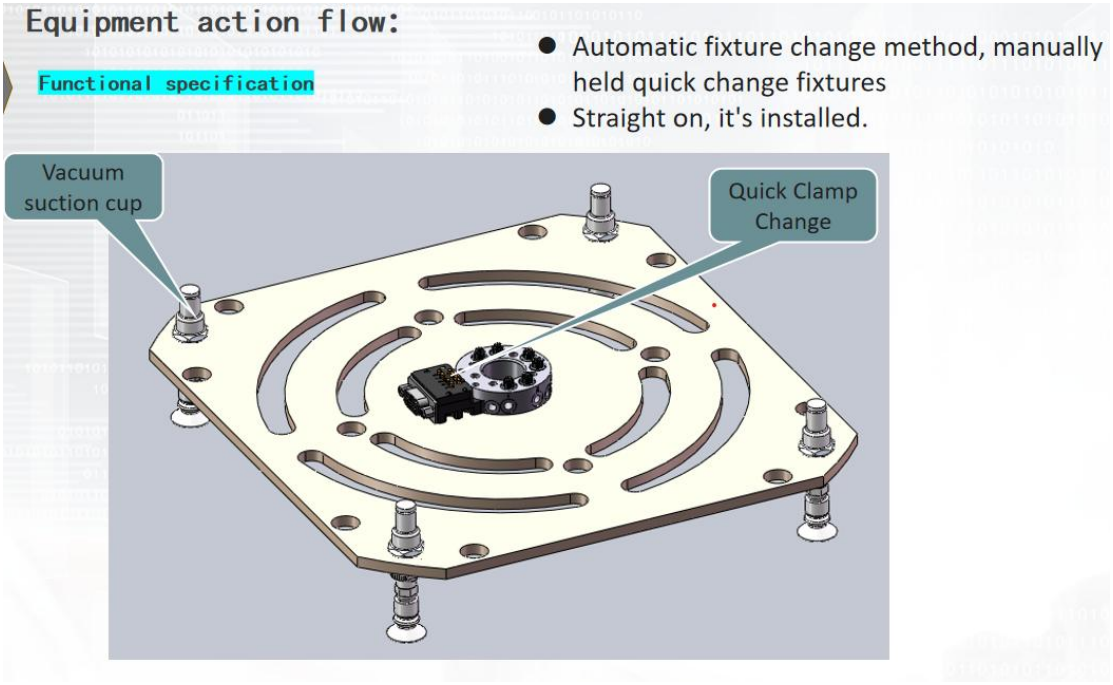
2.4 Start operation



Setting method: [human-machine interface] After pressing the start button, wait for the station to arrive, the detection is in place,

The heat transfer four-plex position is in place, the automatic gluing machine is detected, the automatic claw is taken from the fixture, the transfer glue paper is placed on the cloth, and the claw is taken from the automatic return to the position, and the work is repeated in the next action

2.5Replacement of sucker fixture

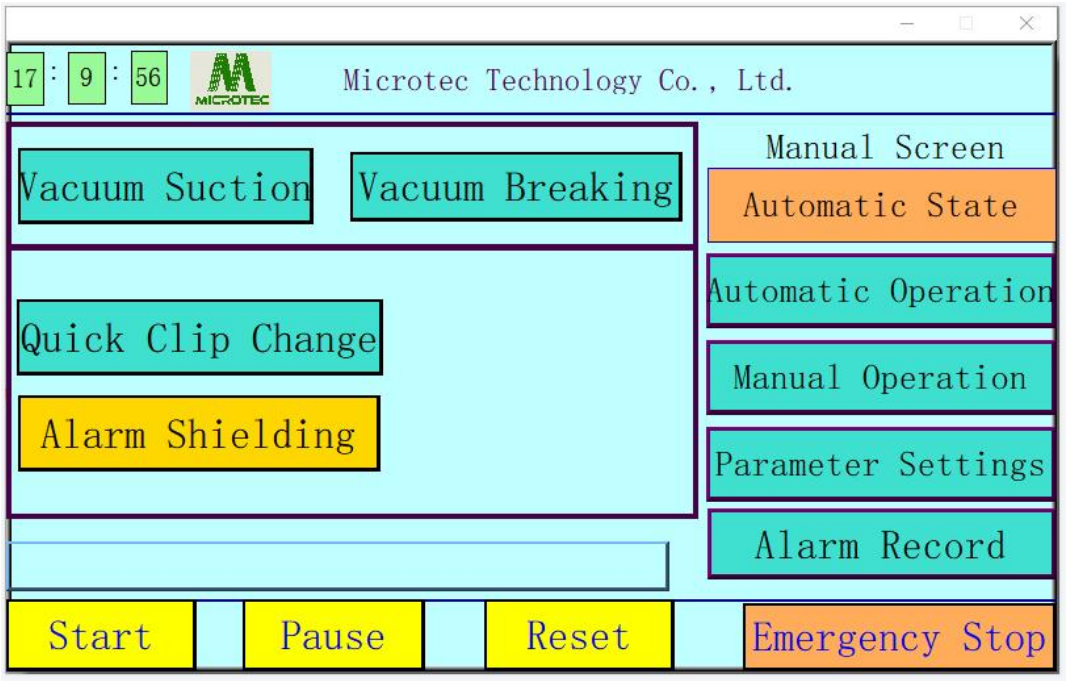


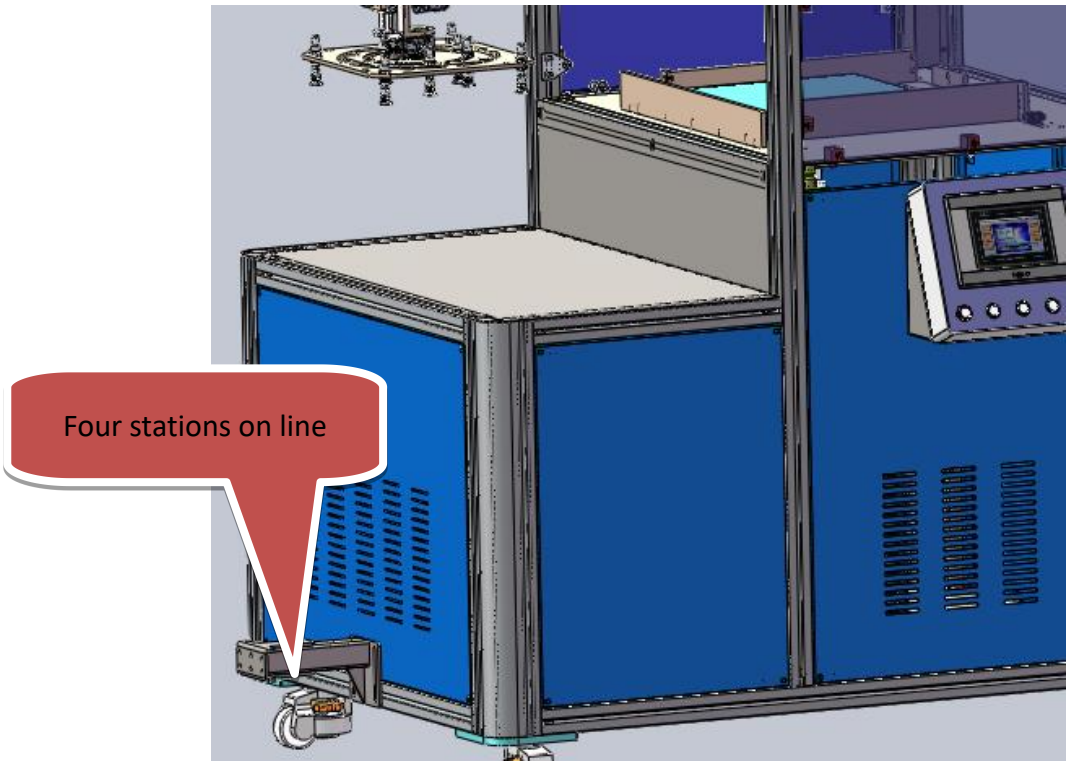
Automatic clip change method: sucker fixture replacement, manual operation

Manual quick clip change fixture

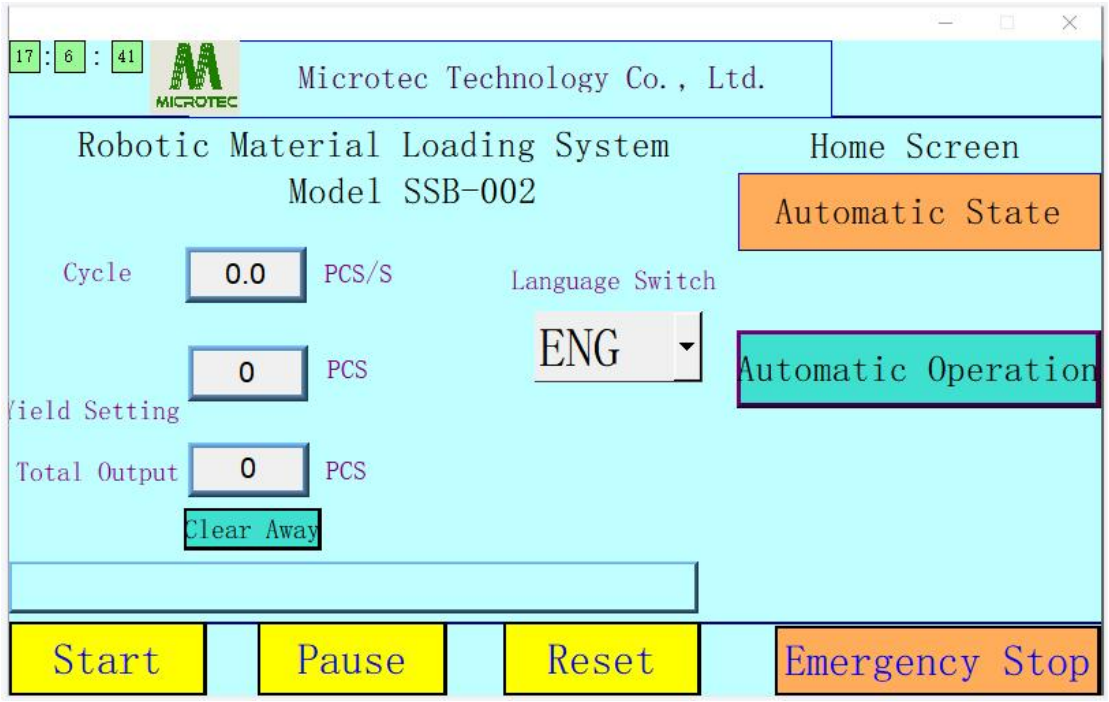
Directly on, man-machine interface manual screen, the replacement button is replaced and installed with one click

Function Description




Four stations on line

2.6 Button function update description

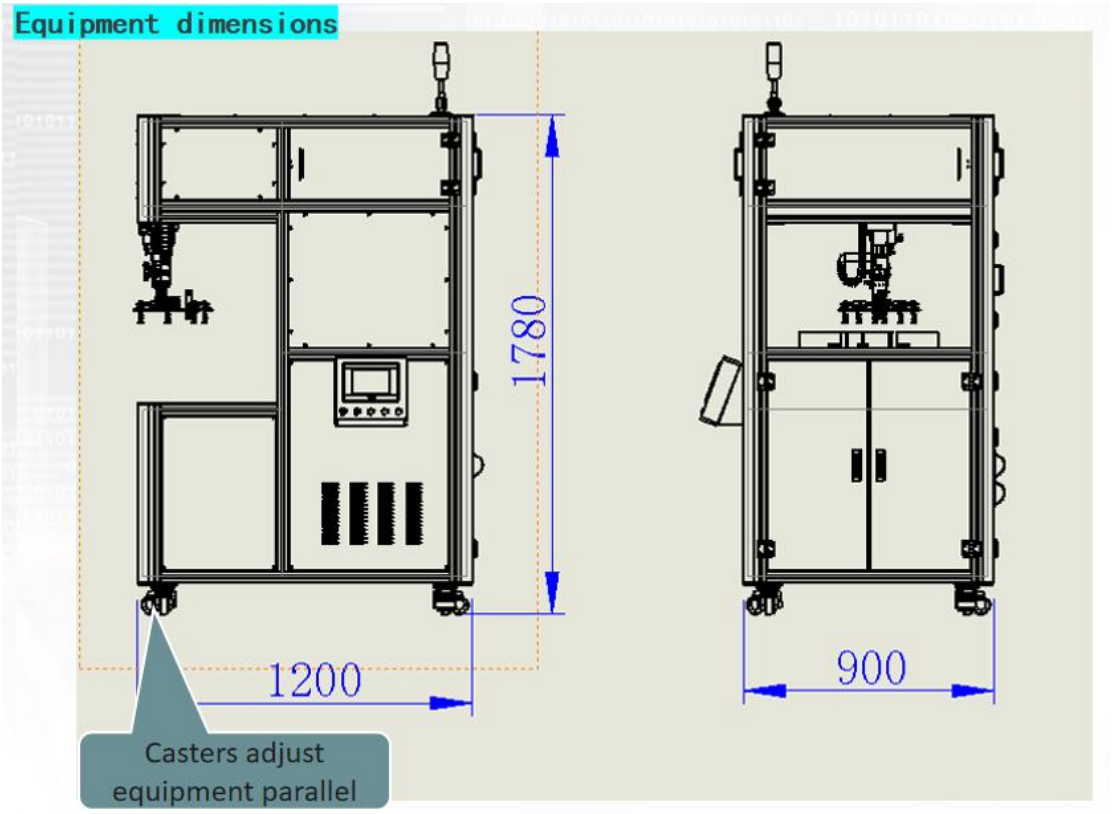


1.4.1 Man-machine interface, operation method, when ready to turn on the power and press, the device will reset itself in the waiting position.

1.4.2 Press the start button to display running..... The button flashes blue

1.4.3 Press the Pause button, it displays that the button has been paused, and the blue blink in the button

2.7.Product shape size

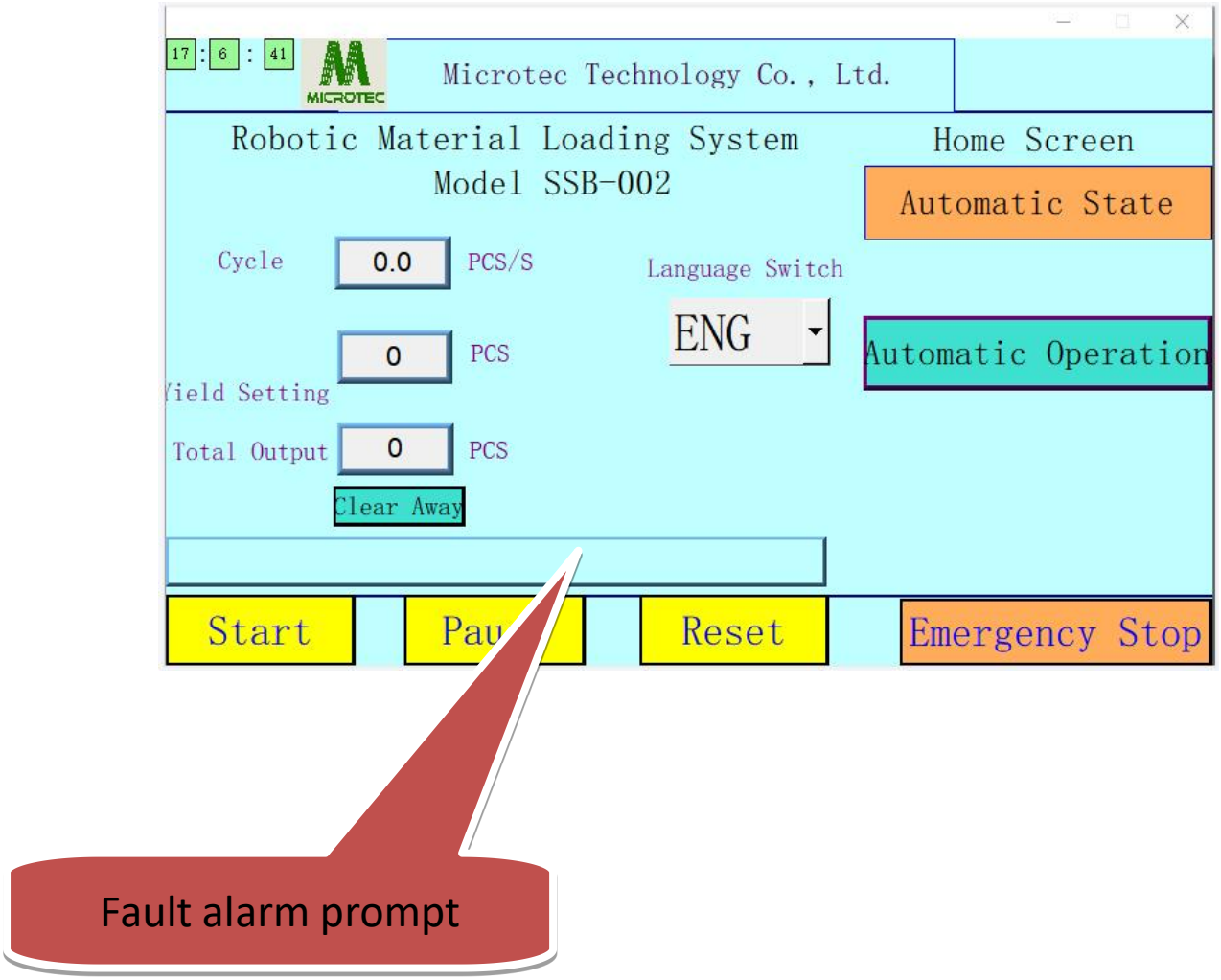


Device installation position Casters adjust the level

Part 3 Problem collection

3.1 Device program operation alarm handling method:

- During the operation of the equipment, the fault bar will be displayed on the man-machine interface, and the machine will automatically stop, eliminate it one by one according to the alarm information, and press reset to clear it



PART FOUR Handheld Box Programming Method

4.1Handheld Box Programming Method:

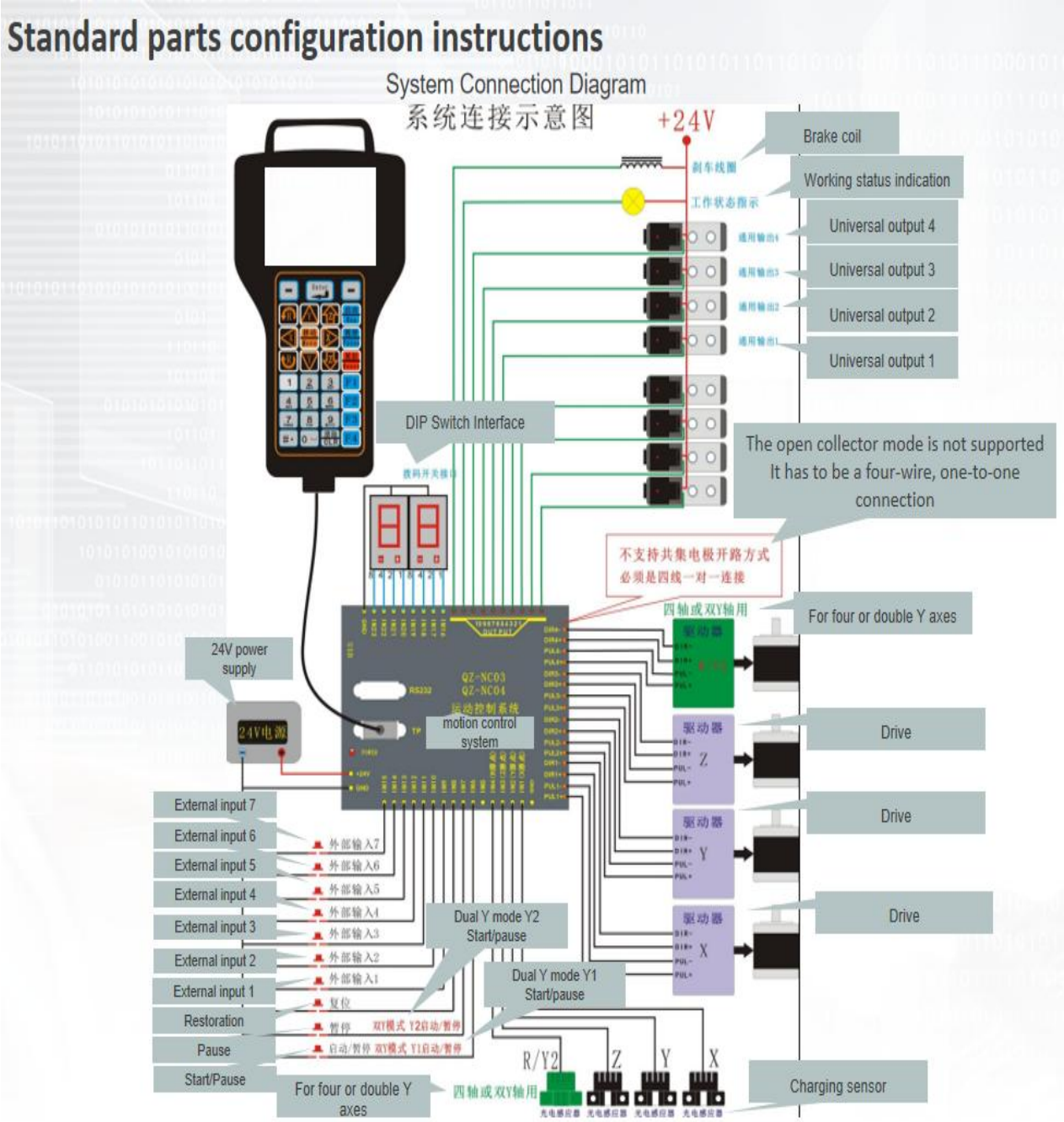
Box hardware features

Interface mode: Equipped with USB interface and serial port, USB port is used to connect the computer. The serial port is used to connect the handheld box.
Storage: FLASH chip.
Display configuration: resolution 320* 240,3.2 inch color LCD screen.

Part name	Type	Number	Introduction
Handheld box	Requisite	1	Operating teaching box
Controller	Requisite	1	Motion controller
SD card	Requisite	1	2G memory card
Data line	Requisite	1	Connecting line
Wiring board	Requisite	1	Wiring board

4.1 Handheld Box Keypad Diagram and Button Description

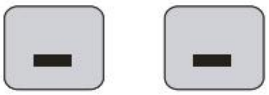
4.2 Motion control wiring method



4.3 Handheld box button diagram Button description

4.4 Handheld box button description

Handheld Box Key Description

Appearance graphic of buttons	Name	Function
	Function key	Different pictures display different operation keys.
	Confirmation key	Enter key for data, parameter change and preservation.

	Direction key	XYZR direction key can control forward, backward, leftward and rightward, lifting and rotation motion of four axes. 〈MOVE〉 positioning key: used for manual point positioning and the needle alignment for the equipment.
	Numeric and alphanumeric key	Letter, number and point input. "#" switches input method.
Run	Start/download key	Download action command to the controller, start the machine.
Pause	Pause key	Suspense the current operation of the machine.
Reset	Reset key	The device is reset to zero.
F1	Multi-function key	Different images mean different functions.
F2	Multi-function key	Different images mean different functions.
F3	Multi-function key	Different images mean different functions.
F4	Multi-function key	Different images mean different functions.
CLR	Clear key	Clear the modified error parameter, numerical value. Clear the documents and instructions. Output cleared.

Warning

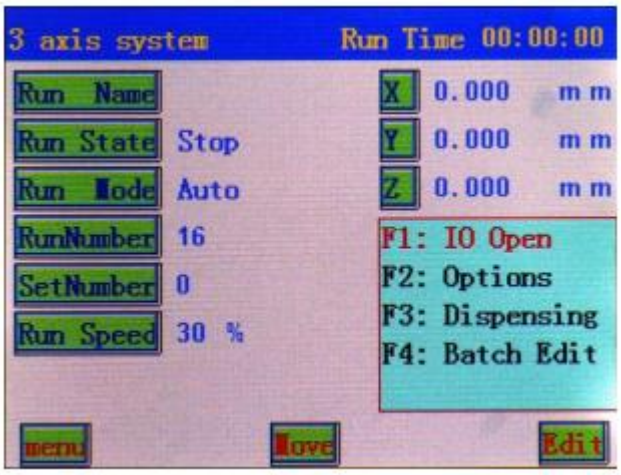
When operating this hand-held box, you must insert and pull out interface connnection wire when the power is disconnected, so as to prevent the controller and hand-held box from being burned.

⚠ WARNING

When operating the handheld box, insert and remove the serial cable when the power is off to avoid burning the controller and the handheld box.

4.5 Introduction to Startup Screen Handheld Box Operation Instructions

After powering on, the handheld box automatically switches to the startup screen, displaying the current working screen, as shown in the following figure:



Processing File: Refers to the name of the processing file.
Working Status: Indicates the current working status of the machine, divided into three states: "Stopped, Paused, Running".
Working Mode: Refers to the operating mode of the machine, divided into two modes: "Manual Run, Auto Cycle Run".
Processed Quantity: Refers to the output completed by the machine during operation. When the processed quantity equals the set quantity, it indicates that the machine has completed the processing and will stop.
Set Quantity: Refers to the preset production quantity for the machine to run.
Working Speed: Refers to the speed of the equipment during operation, namely the trajectory speed of applying adhesive. This speed is a percentage of the speed set during instruction editing, ranging from 0 to 100%. On this screen, you can directly increase or decrease the percentage of the working speed by pressing the "Y" key on the directional keys. Pressing the "Z" key will increase or decrease the working

speed percentage by 10 units. However, the working speed cannot be modified in real-time; changes to this speed will take effect during the next operation.

X: Refers to the current coordinate of the machine's X-axis.

Y: Refers to the current coordinate of the machine's Y-axis.

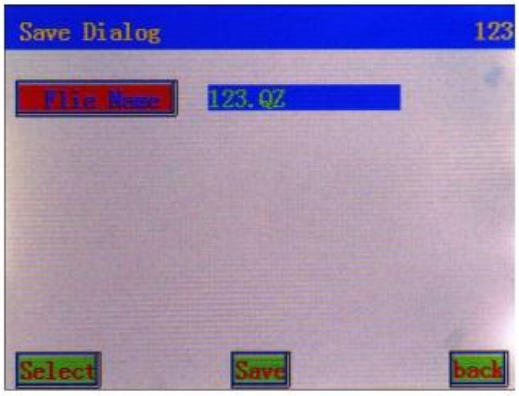
Z: Refers to the current coordinate of the machine's Z-axis.

R: Refers to the current coordinate of the machine's R-axis.

Press "Edit" to enter the instruction teaching dialog:

1. When there are no files in the controller, pressing "Edit" will create a new file. The system will automatically prompt the following dialog box:

The "Left Function Key" is for "Yes", and the "Right Function Key" is for "No". After selection, the system will automatically display the file saving dialog box. Enter the file name, press "Save", and you will enter the instruction teaching editing dialog box ("#" key is the switch key between numbers and letters). The instructions taught on this screen will be automatically saved under the file name just entered. As shown in the figure:



在 In the instruction list dialog box, pressing the number keys 1 to 5 allows you to edit the corresponding graphic elements shown in the figure. Pressing the number key 6 allows you to access more graphic options.

2. When there are files in the controller, pressing "Edit" will enter the instruction list dialog box, allowing you to modify and edit parameters and perform other operations. As shown in the figure:

Pressing the "X Key" on the keyboard's left side jumps to the first instruction in the current list, while the "X Key" on the right side jumps to the last instruction in the current list.

Pressing the "Y Key" on the keyboard's up side moves the current instruction upward, while the "Y Key" on the down side moves the current instruction downward. When multiple selections are made, the "Y Key" serves as the direction key for selecting instructions.

Pressing the "Z Key" on the keyboard's up side flips to the previous page of the instruction list, while the down key "Z Key" flips to the next page of the instruction list.
Pressing the "R Key" on the keyboard's up side enlarges the graphic display, while the down key "R Key" reduces the graphic display.
The "CLR" key clears the selected instructions in the list.
Pressing the "MOVE" key on the keyboard allows direct editing and modification of the coordinates of the selected instruction. (After multiple selections, pressing the MOVE key is for offset operation.)
Pressing the "#" key on the keyboard is used for aligning selected points. After alignment, all instructions in this file will be correspondingly offset.
In this screen:
"F1" is the jump selection function, which allows you to select non-continuous instructions (discontinuous instructions) for parameter editing.

Method: Select a target instruction, then press F1. The serial number position of the selected instruction changes color, indicating successful selection. Select the second target instruction, then press F1. By following this method, you can sequentially select all target instructions for parameter editing. To cancel jump selection, you can press F1 (to cancel a single instruction) or F4 (to cancel all).
"F3" is for selecting all instructions (i.e., select all).
"F4" is for selecting a segment of instructions (i.e., multiple selection), with cursor prompts.
Then, press "Operation" to perform operations such as copying instructions, array copying, offset operations, batch modification, automatic fillet, etc., on the selected instructions.

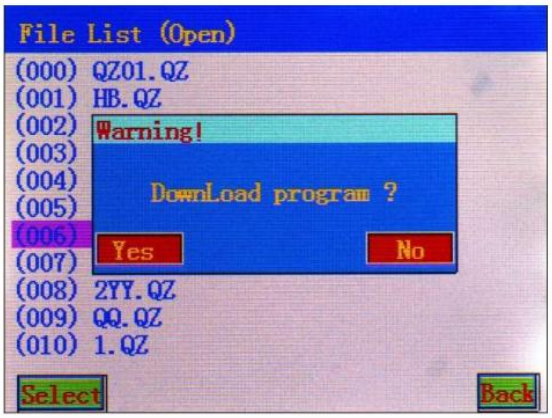
Copy Instructions: Refers to copying the selected instructions.
Array Copying: Refers to matrix copying of selected instructions.
Offset Operation: Refers to offsetting the selected motion instructions by a specified value.
Batch Modification: Refers to batch modification of a certain parameter, improving editing efficiency.
Automatic Fillet: Refers to the function of filleting between line segments, but only for filleting multiple lines.
In this screen, when the cursor selects only one instruction, pressing "Parameter Editing" will enter the following dialog box, allowing you to edit the parameters of the current instruction.

4.6 Main Menu Function Introduction

Press the menu key to enter the "Main Menu" screen, as shown in the following figure：

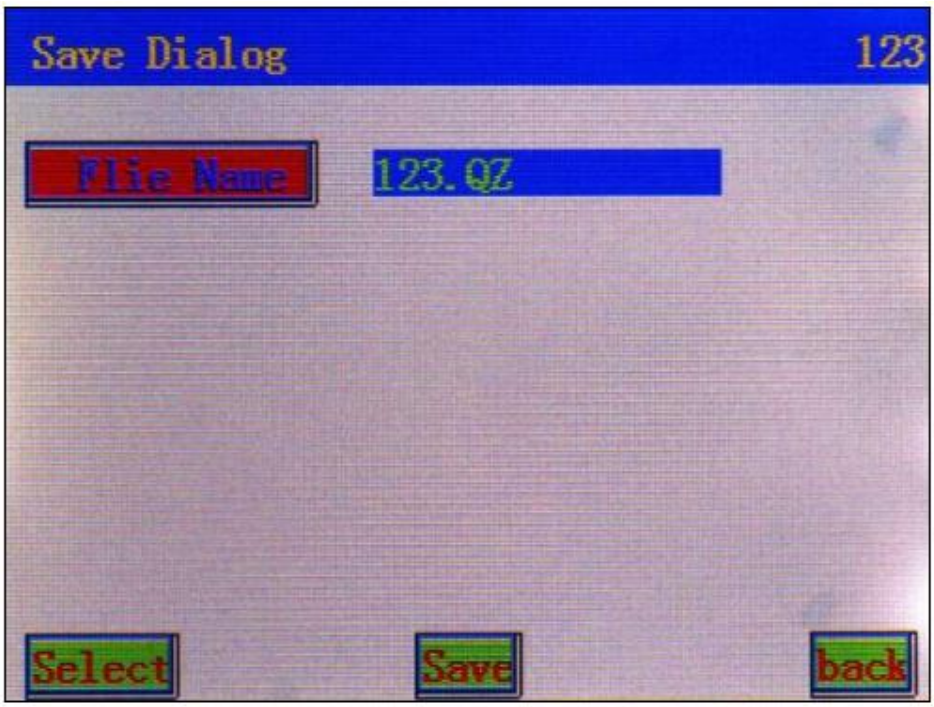
currently selected list of files, as shown in the following figure:

When select the file to be opened, it will prompt whether to download the program, "download" refers to that the instruction file is downloaded to the controller. As shown in figure:

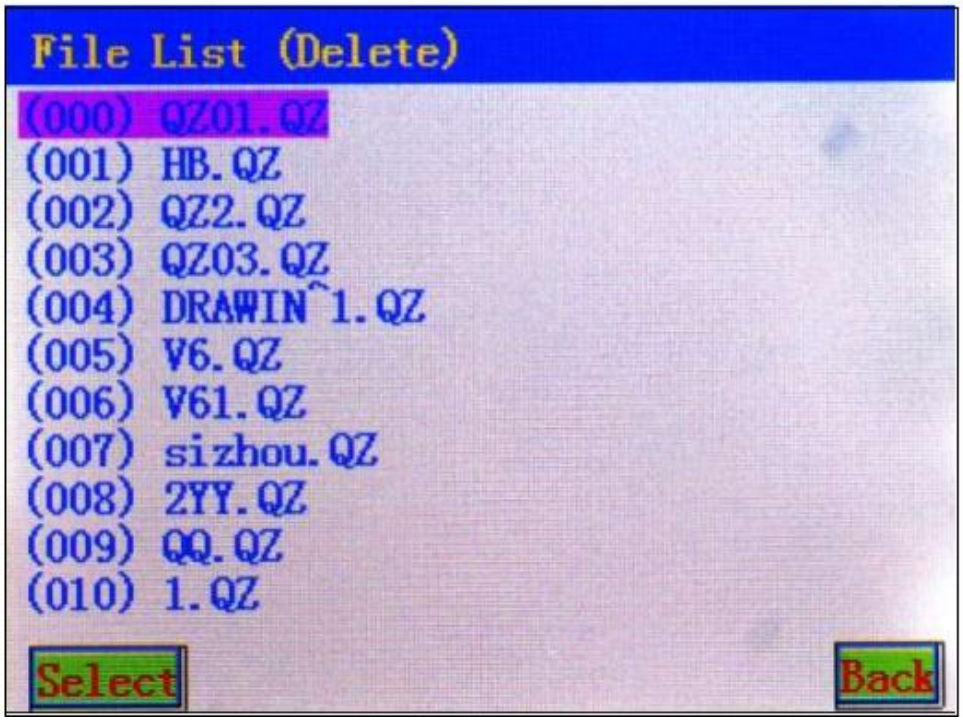


Delete the existing file name, press the "select" or "OK" button, then the files are deleted successfully; as shown below: select the file name to be deleted, press the "select" or "OK", then the files can be deleted successfully.

Save the opened file as another file, after enter the file name, press "OK" key, the file is saved successfully; file name can be the number and English word, press "#" key to switch input method, as shown below:



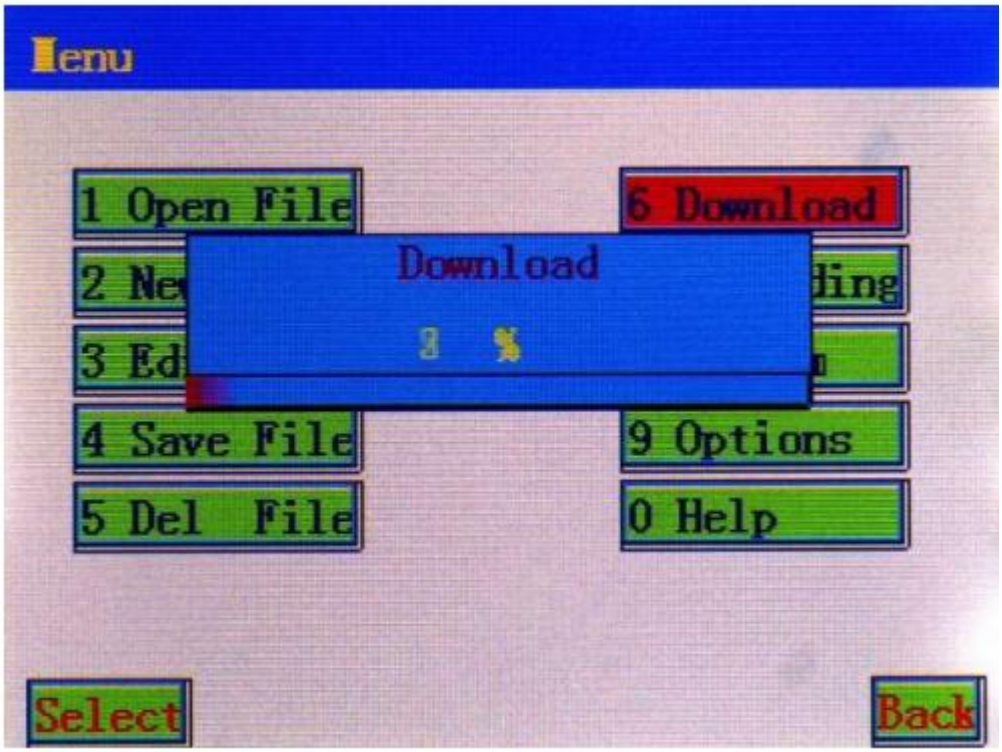
Delete the existing file name, press the "select" or "OK" button, then the files are deleted successfully; as shown below: select the file name to be deleted, press the "select" or "OK", then the files can be deleted successfully.



4.10 “Download Data” menu

"Data download" menu

Download the files to the controller of device; as shown below:



Notes on frequent problems	Troubleshooting
1. the system is not to reset	a) Check whether the power supply is normal; b) Check whether the drive is normal; c) Check whether the state of sensor is normal;
2. Communication is not normal	a) Check whether the serial port cable is damaged; b) Check whether the device completes the reset action; c) When the equipment is working properly, it only responses part of command "reset", "pause", other commands are not responsed.
3 3. The equipment can't start	a) Firstly check whether production has been completed, connect the handheld box to see, if production is completed, clear the yield; b) Check whether the start button is normal, you can use handheld box to control the equipment to start, to eliminate this failure; c) If the handheld box does not start, upload instruction from the controller with a hand-held box to check there is instruction in the controller; d) Check whether the device is authorized, when connecting with the handheld box, press the "start" button, pop-up the registered dialog box, the equipment is not authorized to use;