

# SPARK TIDE

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## SF-X5

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# USER MANUAL

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DISCLAIMER

Please read the manual carefully before installing and using this product. Failure to read or comply with this manual may result in injury to products and personnel, and Spark Fabrica shall not beresponsible for this.

This product is a professional machine, we do not assume any responsibility for accidents or lossescaused by the use or maintenance of this product by personnel without professional training anopermission. if the information contained in the manual or the product specifications are changed, Spark Fabricawill not inform you further and responsible for any errors or omissions. Our company reserves the right to modify the user manual at any time.

PREFACE

This manual includes warning, caution and notice concerning the safe operation of equipment. These warning, caution and notice come with the following icons. Please read them carefully!

 **WARNING** This warning indicates a dangerous situation that may result in death or serious injury if not avoided.

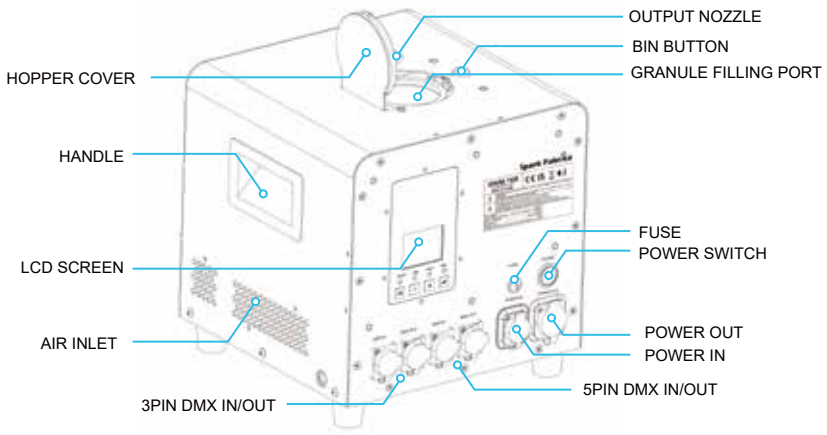
 **CAUTION** This alert indicates a dangerous situation that may result in mild or moderate injury if not avoided.

**NOTICE** This means that you need to be careful.

## 1 PRODUCT INTRODUCTION

This product belongs to special effects equipment, only for professional use. This product belongs to the cold fireworks simulation special effects equipment, using CST technology heating special metal powder, and sparking silver spark fountain which is safer than the traditional cold fireworks. It has three controllable variables: height, density and duration. This product is widely used in weddings, concerts, sports events, event meetings and so on. Stimulate your interest and light up your activity.

### 1.1 PRODUCT OVERVIEW



## 1.2 PRODUCT ACCESSORIES

|                                                   |
|---------------------------------------------------|
| 1.6 Meter Power Plug or 3 Meters Power Pair Cable |
| 3 Meters DMX Pair Cable                           |
| User Manual                                       |

### NOTICE

Open the package carefully and check to make sure the goods are in good condition.

## 1.3 SPARK FABRICA GRANULE

A special metal powder has the characteristics of high content, little residue, belonging to a special consumables with no smoke, odor and other toxic gas when sparking.

### ⚠ WARNING

Only the consumables provided by Spark Fabrica are allowed to be used. Spark Fabrica shall not be liable for any damage to machines, personnel and property caused by the use of consumables not provided by the company.

## 2 TECHNICAL PARAMETER

|                      |                                    |                                |
|----------------------|------------------------------------|--------------------------------|
| Identification       | Manufacturer                       | SPARK FABRICA                  |
|                      | Name / Model                       | SPARK TIDE / SF-X5             |
|                      | Waterproof                         | IP55                           |
| AC Power             | Input Voltage & Frequency          | 100-120V,60HZ<br>200-240V,50HZ |
|                      | Current Limiter Specifications     | 10A, 100-120V/5A, 200-240V     |
|                      | Constant Current                   | 5.9A, 100-120V/3A, 200-240V    |
|                      | Power                              | 730W                           |
|                      | Power Input Connector              | SEETRONIC                      |
|                      | Power Output Connector             | SEETRONIC                      |
|                      | DMX Signal Interface               | 3PIN/5PIN                      |
| Heating              | Heating Time                       | <5 Minutes                     |
| Hopper               | Powder Tank Capacity               | 330g                           |
| Technical Parameters | Adjustable Height                  | 3-5m                           |
|                      | Height Level                       | High/Medium/Low                |
|                      | Powder Consumption (100% Output)   | 16-18g/Minute                  |
|                      | Maximum Single Continuous Duration | 30s                            |
| Control              | Control Protocol                   | DMX-512                        |
|                      | RFID Proximity Card                | √                              |
| Accessory            | Power Plug                         | SEETRONIC (1.6Meter)           |
|                      | Remote Controller                  | Optional                       |
|                      | DMX Cable                          | √ 3Meter                       |
|                      | Power Cable                        | √ 3Meter                       |
|                      | Safety Rope                        | Optional                       |
|                      | Safety Loop                        | √                              |
|                      | Bottom Mounting Screw              | x                              |
|                      | Update Box                         | Optional                       |
| Certification        | 120ohms Terminal Resistance        | Optional                       |
|                      | CE                                 | √                              |
| Weight               | ROHS                               | √                              |
|                      | Net Weight                         | 13kg                           |
|                      | Gross Weight                       | 14kg                           |
| Dimensions           | Gross Weight (2 unit flight case)  | 46kg                           |
|                      | Machine Dimensions - L*W*H         | 280mm*290mm*300mm              |
|                      | Packing Dimensions - L*W*H         | 380mm*380mm*370mm              |
|                      | 2 unit flight case size - L*W*H    | 745mm*455mm*635mm              |
| Granule              | Granule                            | Spark Fabrica Granule          |

### 3 SCREEN OPERATION GUIDE

#### 3.1 BACK PANEL INTRODUCTION

**LCD SCREEN**

**READY**

When the equipment is ready, flashing light means that the heating temperature has not reached the set holding temperature, and long light means that the temperature of the movement has reached the spray requirements.

**DMX**

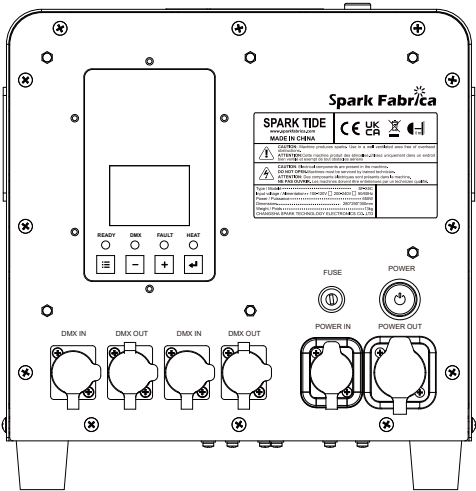
DMX input mode indicates that the DMX signal has been received, and the indicator light will keep flashing in wireless host mode.

**FAULT**

Error message indication: when the device runs wrong, the indicator light will turn on and the LCD will display error message.

**HEAT**

Movement heating status indicator, long light that is heating.

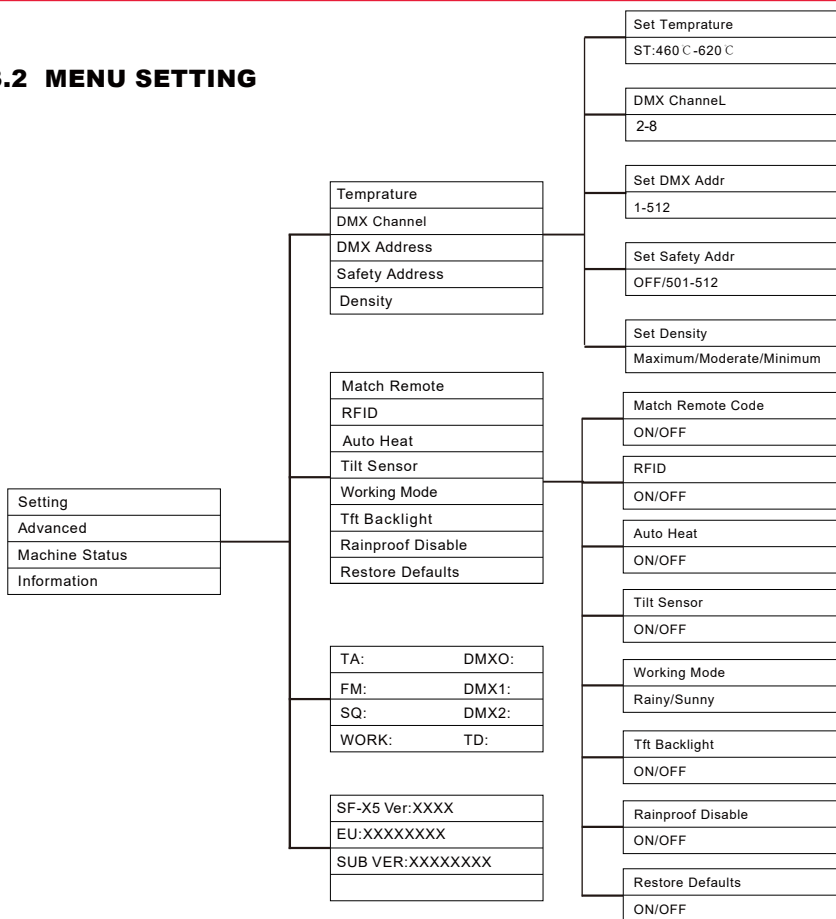


POWER SWITCH

FUSE

3PIN DMX IN/OUT 5PIN DMX IN/OUT POWER IN POWER OUT

## 3.2 MENU SETTING



### NOTICE

Press the "  " button to enter the menu settings, and the screen will automatically return to the main menu interface if no changes are made.

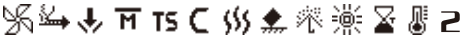
### NOTICE

Press the "-" or "+" key to modify the parameter, and it will blink after modification, press " " key to save the change.

### NOTICE

Press " " to save the settings.

3.3 STATUS ICONS



|  |                         |  |                       |
|--|-------------------------|--|-----------------------|
|  | Blower Motor            |  | Shutter On The Nozzle |
|  | Shaft Motor             |  | Temp Over Heat        |
|  | Hopper Motor            |  | Tip Over              |
|  | Shutter Motor           |  | Rainy Mode            |
|  | Temp Sensor Unconnected |  | Sunny Mode            |
|  | Lack Of Time            |  | PCB Too Hot           |
|  | 2 Channel Mode          |  |                       |

NOTICE

When the icons are green means the machine is working normally, and yellow means abnormal.

3.4 DMX PARAMETER LIST

| FIRST CHANNEL  | FUNCTION            |
|----------------|---------------------|
| 0~10           | Stop                |
| 11~255         | Fountain Height     |
| SECOND CHANNEL | FUNCTION            |
| 0~200          | Heat Off            |
| 56~200         | Clear Material      |
| 201~239        | Heating+ Sunny Mode |
| 240~255        | heating+ Rainy Mode |

## 4 OPERATION NOTES

The designed Ingress Protection Rate of this machine is IP55, the machine can be used in rainy weather which is under or similar to the testing condition of IP55.

### 4.1 WORKING CONDITION REQUIRED

**⚠ WARNING**

Do not mount the product on a flammable surface (linoleum, carpet, wood, paper, carton, plastic, etc). Make sure there are no inflammable or combustible materials in the using environment.

**⚠ WARNING**

Do not use in a confined space. Always install the product in a location with adequate ventilation, at least 20 in (50 cm) from adjacent surfaces.

**⚠ WARNING**

This product has no lightning arrester, please do not use this product in thunderstorm weather.

**⚠ WARNING**

Keep audience or flammable materials at least 10 feet (3 meters) away from the machine, and make sure that debris does not fall on flammable objects.

**⚠ WARNING**

Do not use the machine at temperature above 122 °F (50 °C).

## 4.2 SAFETY TIPS

### WARNING

Always connect the ground wire to avoid electric shock. The machine cannot be submerged in water while operating it.

### WARNING

Ground water entering or covering the bottom of the machine will cause machine failure or electrical leakage risk. Make sure the bottom of the machine is at a safe distance from the surface water in rainy weather to avoid surface the machine from the bottom.

### WARNING

Ensure nothing drop(s) into the nozzle of Spark Tide unit. Do Not cover output nozzle port.

### WARNING

The product is very hot during operation and it remains hot for a long time after operation has stopped. Do not touch or put finger in the output nozzle.

### WARNING

Make sure that children, unauthorized people and animals do not obtain access to the machine.

### WARNING

The noise level generated from the spark machine unit is estimated at 80dB depending on the point nearest to the machine(s) during operational discharge mode.

### WARNING

Wear eye protection to avoid eye injury while filling granules and testing spark machine(s).

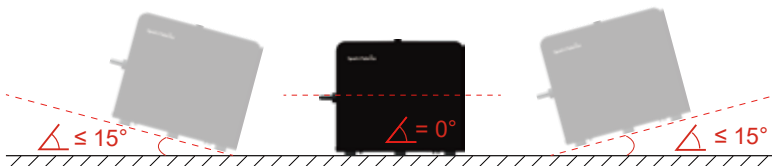
**⚠ WARNING**

The proper firefighting extinguishers are recommended as follows: Any type of sand or substance that can suffocate the active metals. Class "D" Fire Extinguishers for Metal Substance Fires.

## 5 MACHINE OPERATION

### 5.1 PERPARATION

Install the machine on a firm and level ground, and the maximum tilt angle shall not exceed 15 degrees.



#### 5.1.1 INSTALL MACHINE

Install the product on truss by using the attached accessories.

**⚠ WARNING**

Keep people or flammable materials at least 10 feet (3 meters) away from the machine, and make sure that debris does not fall on flammable objects.

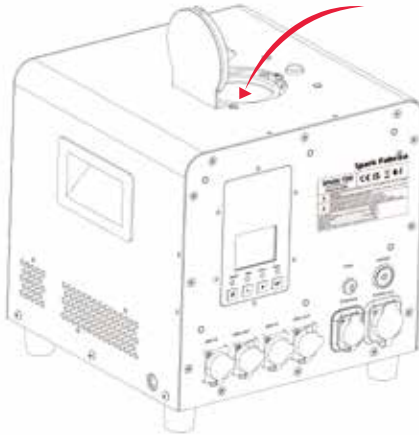
\*Specific installation notes please refer to "4 OPERATION NOTES".

### 5.1.2 FILL IN SPARK FABRICA GRANULE

Spark Fabrica Granule is the consumable specially designed for spark machine, to simulate cold fountain fire-works effect for stage.

Tear the vacuum package of granule, and fill in the Spark Fabrica Granule through the granule filling port on the top of the machine.

- \* Fill the consumable into the feed port. NOT into the output nozzle
- \* Close the lid securely after filling
- \* The capacity of storage bin is 330g.



#### **⚠ WARNING**

Make sure to fill the Spark Fabrica Granule through the feed port on the top of the fixture when power supply is off.

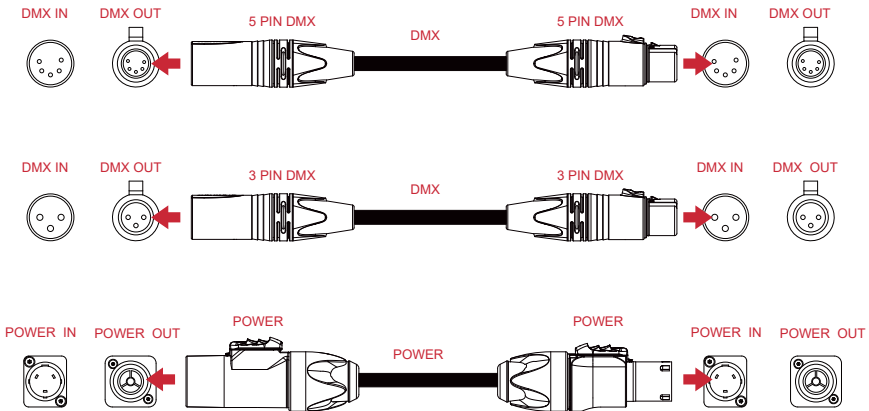
#### **⚠ WARNING**

Wear eye protection to avoid eye injury while filling granules and testing spark machine(s).

## 5.2 CONNECT MACHINE

Connect power and DMX signal line.

- \* Connect the first machine's power plug.
- \* Connect the other machines in series with the power cable
- \* Connect the other machines in series with DMX connection cable.
- \* Connect PYRO SIM CONTROLLER or DMX512 controller



**⚠ WARNING**

Do not use damaged power plug and power cable. One power plug is recommended to connect 4 units in series at most for this product.

**⚠ CAUTION**

Please attach the configured 120 ohm terminal resistor to the outlet of the last machine to enhance the anti-interference of the machine.

**⚠ CAUTION**

Please calculate all products' total current required according to the power supply and fuse parameters of the products.

**NOTICE**

The standard length of the power connection line and the signal connection line is 3 meters, and a longer length can be reached by connecting in series.

## 5.3 CONNECT MACHINE

\* Turn on power

\* Check the machine status icon(refer to icon introductions of 3.3)

**⚠ CAUTION**

When the icon shows yellow, it indicates that the machine is abnormal. Please use it after asking the professional to check and repair the machine.

\* The sparking temperature of the machine is the factory default temperature.

The product will heat up automatically when disconnected with DMX signal. Automatic heating function can be set to on or off, and the concrete operation please refer to "3.2 MENU SETTING".

\* When spark machines connect DMX signal, the heating function can be started only on the Sim Pyro Console.

### 5.3.1 SET DMX ADDRESS

Please set DMX address according to channel mode:

\* In the 2 channel mode, please set spark machines' DMX address to 1.3.5.7.....

**NOTICE**

Please do not set address code repeatedly.

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### 5.3.2 SET SUNNY/RAINY MODE

**NOTICE**

In sunny mode, the sparking nozzle baffle is in the normally open state, and the sparking speed can be faster.

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**NOTICE**

Specific settings please refer to "3.2 MENU SETTING".

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## 5.4 SWIPE RFID TIME CARD

In order to avoid machine failure or other safety accidents caused by bad-qualified consumables, this product can only be used with special RFID time card.

**NOTICE**

Each swipe of the card can be recharged for 12 minutes, and each machine can swipe up to 2 time cards for 24 minutes at most. The card can only be swiped again when the remaining time is less than 20 minutes.

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**NOTICE**

If the customer breaks the card swiping function or cancels the card swiping function at the customer's request, no quality guarantee and after-sales service will be provided by Spark Fabrica. Spark Fabrica shall not be liable for any accidents and losses about this.

## 5.5 START TO SPARK

The machine can be controlled by Pyro Sim Controller console or DMX512 console.

### 5.5.1 TURN ON CONSOLE'S POWER

### 5.5.2 TURN ON HEATING FUNCTION

**NOTICE**

The heating function of the second channel DMX value is 201~255, and it takes about 5 minutes to preheat after turning on.

**NOTICE**

When heating is turned on, the <HEAT> indicator light on the machine will turn to red, and the <READY> indicator light flashes green to indicate that the machine is heating.

**NOTICE**

Heating will complete after the <READY> indicator light turns green for a long time, and the spark machine will enter sparking status.

**NOTICE**

When using the Pyro Sim Controller, the screen will display the real-time temperature of each machine. When the temperature value of the control board turns green, it means that the heating is completed and the machine enters the status of sparking.

### 5.5.3 ADJUST SPARKING HEIGHT

Adjust sparking height through the first channel, and the height adjustment values is DMX parameter values 11-255.

**WARNING**

Do Not touch the sparks or put finger in the output nozzle.

**WARNING**

During heating up and operation, do not touch the housing.

**WARNING**

Keep a minimum distance of 10 ft (3 m) from the machine to the nearest human or flammable material. And make sure no falling residue fly to flammable material.

**WARNING**

The maximum height of indoor and outdoor granule is different. The maximum height of indoor granule is 3.5 meter, while outdoor granule is 5 meter.

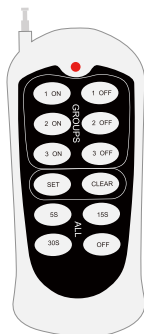
**NOTICE**

If spark machines are affected by wind, sparking height will be reduced, sparking direction will also be affected by the wind and inclined.

**NOTICE**

The proper firefighting extinguishers are recommended as follows: Any type of sand or substance that can suffocate the active metals. Class "D" Fire Extinguishers for Metal Substance Fires.

## 5.5.4 SPARK THROUGH REMOTE CONTROLLER



Battery : 23VA 12V

Please check the spark machine and remote controller before use.

Step 1: Connect the power supply to the device, start the machine, and pull out the antenna in the remote controller.

Step 2: Hold down the < SET> key until the screen displays :Control Pair code 433M, it means code success.

Note: It is recommended that one remote controller controls up to 3 groups of spark machines at most ( the same group should set the same DMX address ).

## OPERATE THE SPARK MACHINE AFTER CODING

Step 1: Connect the power supply and start the spark machine.

Step 2: Open feed port cover and add consumables.

Step 3: If the DMX console is not connected, the machine will automatically heat up.

When the < READY> light turns green, it means that the heating is complete, and the spark machine enters the spark mode.

Step 4: Press the <1 ON> key to start sparking, the default spark height is the highest height.

Step 5: Press <1 OFF> to end sparking

Step 6: After the show, press < CLEAR> to clear the material, and press this button repeatedly until no sparks are emitted.

Step 8: Turn off the machine, unplug the power, and pour out the remaining consumables.

Step 9: Keep the remaining consumables away from fire and in a dry place.

## 5.6 CLEAR MATERIAL

This product has the function of cleaning material, which can clean up the heated but not sparked consumables, so as to avoid nodulation in the heating chamber and causing stuck machine.

**NOTICE**

Use the cleaning function of the second channel for cleaning, DMX value is 56-200.

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**NOTICE**

This function must be performed at the end of each show.

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## 5.7 CLEAN MACHINE

- After clearing material, please clean the machine to extend the service life of the machine.
  - Turn off the machine's power
  - Remove power connection and DMX signal line cable.
  - Use a damp cloth to remove dust and debris from the surface of the machine
  - Unused Spark Fabrica Granule should be stored in a cool, dry place, vacuum packed in sealed foil bags, and protected from moisture, heat, hot surface, open fire and other ignition sources
-

**⚠ WARNING**

The product is very hot during operation and it remains hot for a long time after operation has stopped.

**⚠ CAUTION**

Wear gloves to take out the hopper after cooling down machine. Don't touch the casing of the hopper to avoid scalding.

**⚠ CAUTION**

Dry the water on the machine when taking the hopper out in rainy days to avoid consumable accretion.

**⚠ CAUTION**

To eliminate unnecessary machine wear and improve its lifespan,unplug the power of the machine during the period of not-in-use.Never power off the product by pulling or tugging on the power cord.

## 6 MACHINE MAINTENANCE

Some steps are needed in order to clean and maintain the product for maximum usage the recommended procedure is as follows;

After a period of using, check if there is any consumable accretion inside the nozzle. Do necessary cleaning up if there has some. or it may affect spark performance, even damage the machine.

## 7 FAILURE HANDLING

| ERROR CODE                      | DESCRIPTION                             | SOLUTION                                                                                                                                                                                  |
|---------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Error<br>E0 Storage Fail | System error: Storage fail.             | Replace main board.                                                                                                                                                                       |
| Motor Protect<br>E1 M1          | Blower motor protection /disconnected.  | 1. Restart machine to clear alerts,stop operating for 15 minutes until temperature return to normal.<br>2. Check wire connection of motor.<br>3. Replace motor.<br>4. Replace main board. |
| Motor Protect<br>E1 M2          | Shaft motor protection /disconnected.   | 1. Shaft motor clog (perform clean material function manually).<br>2. Check wire connection of motor.<br>3. Replace motor.<br>4. Replace main board.                                      |
| Motor Protect<br>E1 M3          | Hopper motor protection /disconnected.  | 1.Hopper motor clog (perform clean material function manually).<br>2. Check wire connection of motor.<br>3. Replace motor.<br>4. Replace main board.                                      |
| Motor Protect<br>E1 M4          | Shutter motor protection /disconnected. | 1.Check wire connection of motor.<br>2. Replace motor.<br>3. Replace main board.                                                                                                          |
| Temp Sensor<br>E2 Unconnected   | Temperature sensor disconnected.        | 1. Check wire connection of temperature sensor.<br>2. Replace temperature sensor.<br>3. Replace main board.                                                                               |
| PCB Too Hot<br>E3               | Main board too hot.                     | Stop operating machine until main board temperature return to normal.                                                                                                                     |

| Error Code                     | Description                                                | Solution                                                                                                                                                             |
|--------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time Remain<br>E4              | Insufficient time.                                         | Please scan new RFID card.                                                                                                                                           |
| Temp Over Heat<br>E5           | Heating protection due to over-temperature.                | Stop operating machine until temperature return to normal.Alert will clear off automatically.                                                                        |
| Heat Fail<br>E6                | Heating process fail.                                      | 1.Inspect wire connection of heating board.<br>2.Replace heating coil.<br>3.Replace heating board.                                                                   |
| Tip Over<br>E7                 | Tip over alert.                                            | Machine will activate tip over protection if the angle is more than 45degrees. The alert will clear off automatically after put the machine back to normal position. |
| Sub PCB Unconnected<br>E8      | Sub-PCB disconnected.                                      | 1. Check wire connection of Sub-PCB.<br>2. Replace Sub-PCB.<br>3. Replace main board.                                                                                |
| Shutter Sensor<br>E9           | Shutter sensor malfunction.                                | 1.Check wire connection of shutter sensor.<br>2.Check the space between shutter and sensor (2-8mm is ideal space)<br>3.Replace shutter sensor.                       |
| Illegal Card<br>Machine Locked | Machine locked because of using illegal or copy RFID card. | Use illegal or copy RFID card will lock the machine. If so ,seller will stop providing warranty and after sale service. To unlock the machine,please contact seller. |
| Out Of Control<br>Heat AC OFF  | Temperature out of control, AC shut off.                   | Stop operating, and restart machine after the fault was overcome.                                                                                                    |



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