

FLYSPARK

SF-Z5

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 be responsible for this.

This product is a professional machine, we do not assume any responsibility for accidents or losses caused by the use or maintenance of this product by personnel without professional training and permission.

The information contained in the Manual and the product specifications are subject to change without notice, and we assume no responsibility for any errors or omissions.

Our company reserves the right to modify the 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 icon indicates a dangerous situation that, if not avoided, may result in death or serious injury.

CAUTION

This icon indicates a warning that, if not avoided, may result in mild to moderate injuries.

NOTICE

This icon indicates precautions that, if not followed, may affect the effectiveness of use.

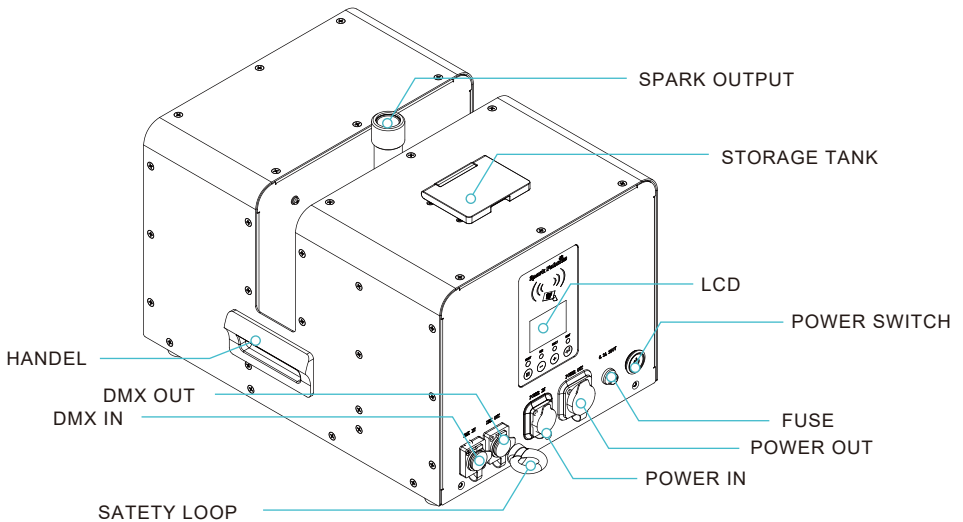
1 PRODUCT INTRODUCTION

This product is a special effects device. For professional use only.

This product is a special effects device for the dynamic and static simulation of cold pyrotechnics. Using CST technology, the tailor-made metal powder is heated to produce a dynamic and static fountain of silver sparks, which is safer than traditional cold fireworks. With 72 static and dynamic effects adjustable: height, rotation, steering and static.

This product is widely used in weddings, concerts, sports events, meetings and so on. Spark your interests and ignite your events.

1.1 FLYSPARK OVERVIEW



1.2 PRODUCT ACCESSORIES

1.6 Meter Power Plug / 3 Meter Power Cable
3 Meter DMX Cable
User Manual

NOTICE

Carefully unpack! Check and make sure the item is intact.

1.3 SPARK FABRICA GRANULE

A Kind Of Special Metal Powder With Full Spark And Less Residue, No Smoke, No Odor And No Toxic Gas During Use.

⚠ WARNING

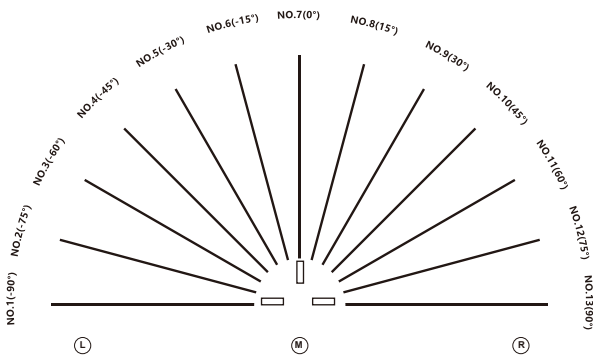
Only the consumables provided by Spark Fabrica are allowed to be used. Spark Fabrica shall not be liable for any machine breakdown, personal injury and property loss caused by the use of consumables not provided by the company.

2 TECHNICAL PARAMETER

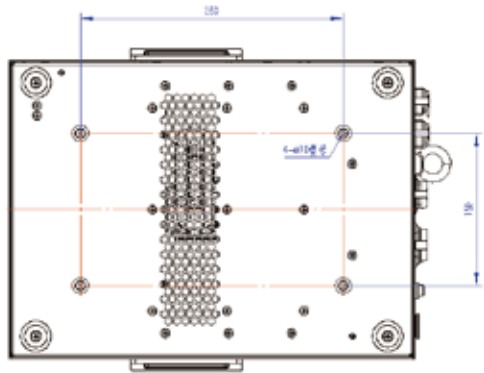
Identification	Manufacturer	SPARK FABRICA
	Name	FLYSPARK
	Model	SF-Z5
AC Power	Input Voltage & Frequency	AC 100-120V, 60HZ
		AC 200-240V, 50HZ
	Current Limiter Specifications	10A,100-120V / 6.3A,200-240V
	Constant Current	6.4A,100-120V / 3.2A,200-240V
	Nominal Total Power Consumption	700W
	Power Input Connector	SEETRONIC
	Power Output Connector	SEETRONIC
	DMX Signal Interface	3PIN
Heating	Heat Up Time	<5 Minutes
Hopper	Powder Tank Capacity	200g
Technical Parameters	Adjustable Height	3-5m
	Height Level	1-3 Level
	Powder Consumption (100% Output)	12.8/-15g/Minute
	Maximum Single Continuous Duration	60s
Control	Control Protocol	DMX-512
	RFID Proximity Card	√
Accessory	Power Plug	SEETRONIC (1.6Meter)
	DMX Cable	√ 3Meter
	Power Cable	√ 3Meter
	Safety Rope	Optional
	Safety Loop	×
	Software Upgrade Box	Optional
	120ohms Terminal Resistance	Optional
Certification	CE	√
	ROHS	√
Weight	Net Weight	17.5kg
	Gross Weight(2 units flight case)	56kg
Dimensions	Machine Dimensions - L*W*H	400mm*295mm*270mm
	Size of 2 unit flight case - L*W*H	870mm*490mm*510mm
Granule	Granule	Spark Fabrica Granule

3 ANGLE DEFINITION

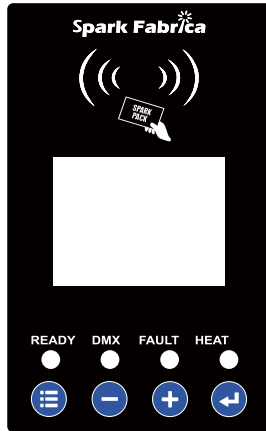
The spray angle of the FLYSPARK is $\pm 90^\circ$. From the viewer's side, it is defined as 13 spray directions, respectively labeled from left to right ,as shown below:



4 FIXED INSTALLATION SCHEMA (BOTTOM SCREW MOUNTING HOLES)



5 ON-SCREEN OPERATION GUIDE



RFID:

This area for the RFID card can increase the specific working time of a single machine. RFID card is supplied with consumables. It is a secure design that allows the machine to identify the parameters and types of consumables. The card is disposable and can only be used once.

READY: Device Readiness Indication, "Solid-on" light indicates that the machine's chip temperature has reached the sparking requirement.

DMX : DMX Input Mode Indication, "Solid-on" indicates that a DMX signal has been received.

FAULT: If there is a problem with the machine, this light will be Solid-on and the LCD screen will display an error message.

HEAT : Power and Heating Indication: "Solid-on" light indicates it is heating up.

-  **MENU BUTTON**, short press to enter menu setting.
-  **DECREASE BUTTON**, used to decrease the setting value or switch mode OFF/ON.
-  **INCREASE BUTTON**, used to increase the setting value or switch the mode OFF/ON.
-  **SAVE BUTTON**, used to save after setting.

5.1 MENU SETTING

SETTING	RANGE	DEFAULT VALUE
Temperature	400℃-800℃	550℃
DMX Channel	6	6
DMX Address	1-512	1
Safety Address	OFF/501-512	OFF
Density	Maximum/Minimum/moderate	Maximum
Angle offset	-30° -30°	0
MaxAngle Limit	0° -90°	30°
MinAngle Limit	-90° -0°	-30°
Match Remote	OFF/ON	OFF
RFID	OFF/ON	OFF
Auto Heat	OFF/ON	ON
Tilt Sensor	OFF/ON	OFF
TFT BackLight	OFF/ON	ON
Motor Disabled	OFF/ON	OFF
Restore Defaults	YES/NO	NO

*Turn on power

*Check machine status icons (refer to 5.2 Status Icons)

 **WARNING**

When the icon displays yellow, it indicates that the machine is in an abnormal state. Please have it inspected and repaired by a professional before using the machine.

* The machine spray temperature uses the factory default temperature, and the automatic heating function will be turned on when the DMX signal is not connected. This function can be set to be turned on or off, please refer to the menu settings in section 5.1 for specific instructions.

* When connected to the DMX signal, heating can only be turned on by turning on the heating function on the console.

5.2 MENU SETTING



	Blower Motor		chip temperature
	Shaft Motor		Tilt Sensor
	Hopper Motor		Pcb Temperature
	Temp sensor		6通道模式
	Time Remaining		

NOTICE

When the icons are all green, it indicates normal operation and when the icons are yellow, it indicates an abnormality.

5.3 DMX PARAMETER LIST

CHANNEL	FUNCTION
CHANNEL1(CH1)	Manual angel setting(2-255)from 90° to -90°, 128 or 0 and 1upwords
CHANNEL 2(CH2)	Unoccupied
CHANNEL3(CH3)	Spark Switch: (0-15)off, (16-90)low height, (91-170)medium height, (171-255)high height, single highest height is 60S
CHANNEL4(CH4)	Unoccupied
CHANNEL5(CH5)	(0-2 or 186-255)no sequence, (3-185)with sequence DMX channel value =2+serial number *2.55(rounded)
CHANNEL6(CH6)	(0-49 or 201-255)stop heating(stop sparking), (50-200)start heating(spark ready)

CHANNEL 1(CH1):

Manual Angle setting ,spark output can stay at any angle from 90° to -90°.

As shown in below:

ANGLE NUMBER	ANGLE	DMX VALUE
1	90°	5
2	75°	24
3	60°	47
4	45°	66
5	30°	85
6	15°	108
7	0°	128/0/1
8	-15°	148
9	-30°	169
10	-45°	190
11	-60°	213
12	-75°	234
13	-90°	255

CHANNEL 5(CH5): Spark sequence setting

There are 72 built-in spark sequence in the FLYSPARK. Different spark sequences can be selected by different DMX value.

As shown in below:

Sequence	Spark Angle	Description	Reference Time	Channel (CH5)DMX Reference
1	Arbitrarily	Clear material	CH3 effective time	3-5
2	-90°	Spark at regular intervals	CH3 effective time	6-7
3	-75°	Spark at regular intervals	CH3 effective time	8-10
4	-60°	Spark at regular intervals	CH3 effective time	11-12
5	-45°	Spark at regular intervals	CH3 effective time	13-15
6	-30°	Spark at regular intervals	CH3 effective time	16-17
7	-15°	Spark at regular intervals	CH3 effective time	18-20

8	0°	Spark at regular intervals	CH3 effective time	21-22
9	15°	Spark at regular intervals	CH3 effective time	23-25
10	30°	Spark at regular intervals	CH3 effective time	26-28
11	45°	Spark at regular intervals	CH3 effective time	29-30
12	60°	Spark at regular intervals	CH3 effective time	31-33
13	75°	Spark at regular intervals	CH3 effective time	34-35
14	90°	Spark at regular intervals	CH3 effective time	36-38
15	-90°~90°	Slowly shack 1 time to the left	8S	39-40
16	90°~90°	Slowly shack 1 time to the right	8S	41-43
17	-90°~90°~90°	Slow swing 1 time	14S	44-45
18	-75°~75°~75°	Slow swing 1 time	12S	46-48
19	-60°~60°~60°	Slow swing 1 time	10S	49-50
20	-45°~45°~45°	Slow swing 1 time	17S	51-53
21	-30°~30°~30°	Slow swing 1 time	12S	54-56
22	-15°~15°~15°	Slow swing 1 time	7S	57-58
23	-90°~90°~90°	Medium swing 5 times	12S	59-61
24	-75°~75°~75°	Medium swing 5 times	10S	62-63
25	-60°~60°~60°	Medium swing 5 times	8S	64-66
26	-45°~45°~45°	Medium swing 5 times	7S	67-68
27	-30°~30°~30°	Medium swing 5 times	5S	69-71
28	-15°~15°~15°	Medium swing 5 times	3S	72-73
29	-60°~60°~60°	10 quick swing	5S	74-76
30	-45°~45°~45°	10 quick swing	5S	77-79
31	-30°~30°~30°	10 quick swing	4S	80-81
32	-15°~15°~15°	10 quick swing	3S	82-84
33	-75°~0°~75°	10 quick swing	4S	85-86
34	-60°~0°~60°	10 quick swing	3S	87-89
35	-45°~0°~45°	10 quick swing	2S	90-91

36	-30°~0°~-30°	10 quick swing	2S	92-94
37	75°~0°~75°	10 quick swing	5S	95-96
38	60°~0°~60°	10 quick swing	4S	97-99
39	45°~0°~45°	10 quick swing	3S	100-101
40	30°~0°~30°	10 quick swing	3S	102-104
41	-90°~0°~-90°	Slow swing 2 times	11S	105-107
42	-75°~0°~-75°	Slow swing 2 times	10S	108-109
43	-60°~0°~-60°	Slow swing 2 times	8S	110-112
44	-45°~0°~-45°	Slow swing 2 times	6S	113-114
45	-30°~0°~-30°	Slow swing 2 times	5S	115-117
46	90°~0°~90°	Slow swing 2 times	11S	118-119
47	75°~0°~75°	Slow swing 2 times	10S	120-122
48	60°~0°~60°	Slow swing 2 times	8S	123-124
49	45°~0°~45°	Slow swing 2 times	6S	125-127
50	30°~0°~30°	Slow swing 2 times	5S	128-130
51	-90°~0°~-90°	Medium swing 5 times	7S	131-132
52	-75°~0°~-75°	Medium swing 5 times	6S	133-135
53	-60°~0°~-60°	Medium swing 5 times	5S	136-137
54	-45°~0°~-45°	Medium swing 5 times	4S	138-140
55	-30°~0°~-30°	Medium swing 5 times	3S	141-142
56	90°~0°~90°	Medium swing 5 times	7S	143-145
57	75°~0°~75°	Medium swing 5 times	6S	146-147
58	60°~0°~60°	Medium swing 5 times	5S	148-150
59	45°~0°~45°	Medium swing 5 times	4S	151-152
60	30°~0°~30°	Medium swing 5 times	3S	153-155
61	90°~45°~90°	Slow swing 3 times	10S	156-158
62	90°~30°~90°	Slow swing 3 times	13S	159-160
63	-90°~-45°~-90°	Slow swing 3 times	10S	161-163

64	-90°~-30°~-90°	Slow swing 3 times	12S	164-165
65	-90°~0°	Slow swing angle decrease	18S	166-168
66	90°~0°	Slow swing angle decrease	19S	169-170
67	-90°~90°	Slow swing angle decrease	41S	171-173
68	0°~-90°	Slow swing 1 time	5S	174-175
69	-90°~0°	Slow swing 1 time	5S	176-178
70	0°~90°	Slow swing 1 time	5S	179-180
71	90°~0°	Slow swing 1 time	5S	181-183
72	0°	Spark at regular intervals	60S	184-185

CONTROL EXAMPLE

DMX EXAMPLE 1:

Using sequence #15 (-90°~90°, Slowly shack 1 time to the left) to control sparking

1.Set the output upward

CH1 angle=128/0/1, CH2=0, CH3 spark=0, CH4=0, CH5 sequence=0, CH6 heating=128

2.Set #15 sequence

CH1 angle=128/0/1,CH2=0,CH3 spark=0,CH4=0, CH5 sequence=39, CH6 heating=128

3.Sequential sparking, maintained for 8 seconds

CH1 angle=128/0/1, CH2=0, CH3 spark=255, CH4=0, CH5 sequence=39, CH6 heating=128

DMX EXAMPLE 2:

using sequence #8 (0° Spark at regular intervals) Spray vertically upwards for 10 seconds

1.Set the output upward

CH1 angle =128/0/1,CH2=0,CH3 spark =0,CH4=0, CH5 sequence =0, CH6 heating =128

2.Set #8 sequence

CH1 angle=128/0/1,CH2=0, CH3 spark =0, CH4=0, CH5 sequence=21, CH6 heating =128

3.Sequential sparking, maintained for 8 seconds

CH1 angle =128/0/1,CH2=0,CH3 sparking =255,CH4=0, CH5 sequence =21, CH6 heating =128

4.Sparking off

CH1 angle =128/0/1,CH2=0,CH3 sparking =0, CH4=0, CH5 sequence =21, CH6 heating =128

6 OPERATION WARNING

Please read the following precautions carefully before operating this machine.

6.1 ENVIRONMENTAL REQUIREMENTS

**WARNING**

Do not mount the product on flammable surfaces (linoleum, carpet, wood, paper, cardboard, plastic, etc.)

**WARNING**

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

**WARNING**

Operate the device only in an ambient temperature between 0C (32°F) - 50°C (122°F).

6.2 SAFETY TIPS

**WARNING**

Make sure to connect the ground wire properly to avoid electric shock.

**WARNING**

Noise level of the operation of the spark machine is 80 db (at the point closest to the machine).

**WARNING**

Suitable fire extinguishers are as follows:

- 1.Any items similar to sand or soil can be used to cover and put out the fire.
- 2.Please use Class D Fire extinguishers for metal materials on fire.

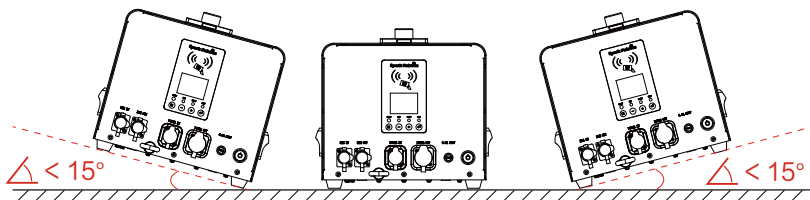
**WARNING**

The temperature of the product is quite high during operation and remains high for a long time after operation. It is strictly forbidden to put your fingers into the nozzle.

7 OPERATE THE MACHINE

7.1 PREPARATION

Place the machine on a flat ground, level surface with a recommend maximum inclination angle of no more than 15 degrees.



7.2 ADD GRANULE

A consumable designed special granule for cold spark machine to create cold fireworks on stage

- * Tear a bag of granule, and pour the granule from the feeder at the top of the machine
- * Pour the granule off the feeder instead the output
- * Once added, close the lid
- * Hopper capacity : 170 Gram

WARNING

Please pour the consumables into the feeder at the top of the machine **with the power off**.

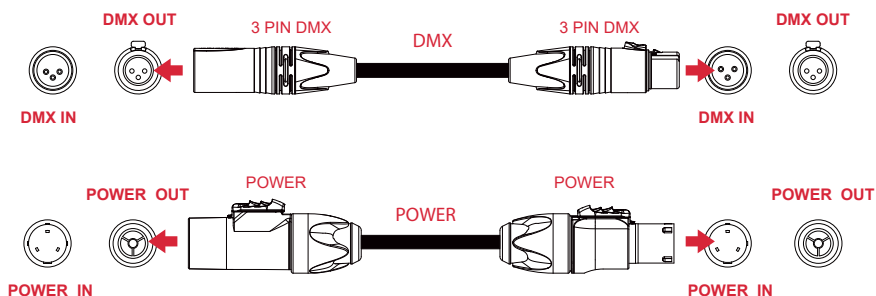
WARNING

Please wear safety glasses when adding consumables or testing the machine to prevent eye injury.

7.3 CONNECTING THE MACHINE

Connecting the power cable and DMX signal cables

- * The first unit is connected to the power plug
- * Connect the other machine in parallel with the power connect cable
- * Parallelise other machines with DMX signal cables.
- * Connect PYRO SIM CONTROLLER or DMX512 console.

**WARNING**

Do not use damaged power plugs and power connecting cords. 1 power plug is recommended to connect up to 4 units of this product in parallel at most.

7.4 DEFAULT SETTING

SET	REALM	DEFAULT VALUE
Temperature	400 C -800 C	590
DMX Channel	6	6
DMX Address	1-512	1
Safety Address	OFF/501-512	OFF
Density	Maximum/Minimum/moderate	Maximum
Auto Heat	OFF/ON	ON
Tilt Sensor	OFF/ON	OFF
TFT BackLight	OFF/ON	ON
Restore Defaults	OFF/ON	OFF

* Turn on power

* Check machine status icons (refer to 5.2 Status Icons)

CAUTION

When the icon shows yellow, it means that the machine is in abnormal condition, and can only be used again after professional inspection and repair.

CAUTION

The sparking temperature of the machine is the factory default. The automatic heating function will be automatically turned on if the DMX signal is not connected, but it can be set to on or off. For details, please refer to 5.1 Menu Settings.

CAUTION

When connected to the DMX signal, the machine can only be heated by turning on the heating function on the host controller.

7.5 DMX ADDRESS SETTING

Set the DMX address of the spark machine according to the channel mode:

*In 6-channel mode, please set the DMX address to 1, 7, 13, 19

NOTICE

Do not set the DMX address repeatedly.

7.6 SWIPE RFID TIME CARDS

To avoid machine malfunction or other safety accidents caused by poor quality consumables, Only the RFID time cards provided by our company are allowed.

NOTICE

Each card enables the unit to work 12 minutes, with a maximum of 2 time cards per machine and a maximum accumulation of 24 minutes. A new card can only be swiped if there is less than 20 minutes remaining.

NOTICE

If the customer cracks the swipe function by himself or cancel the swipe function at his request, he will not enjoy the quality assurance and after-sale service provided by our company, and we will not be responsible for any accidents and losses caused by this.

7.7 STAR TO SPARK

This machine can be controlled by PYRO SIM CONTROLLER or DMX 512

7.7.1 TURN ON THE POWER

7.7.2 TURN ON THE HEATING FUNCTION

NOTICE

The DMX value for the heating function of the second channel is 240~255, and it takes about 5 minutes to preheat after power on.

NOTICE

When the heating function is on, the HEAT indicator on the machine will light up in red and the READY indicator will flash green at the same time to indicate that the machine is heating up.

NOTICE

When the READY indicator turns a steady green, it means the heating is complete and the machine enters the sparking state.

NOTICE

The real-time temperature of each machine will be displayed on the screen if you use the host controller to control. When the temperature value on the console turns green, it means that the heating is complete and the machine is ready to spark.

7.7.3 PRECAUTION FOR SPARKING

NOTICE

Suitable fire extinguishers are as follows:

- 1.Any items similar to sand or soil can be used to cover and put out the fire.
- 2.Please use Class D Fire extinguishers for metal materials on fire.

7.8 CLEAR MATERIAL

This machine has the clear material function, which can clean up the consumable the raw material in the feeder and avoid blockages.

NOTICE

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

7.9 CLEAN MACHINE

To prolong the lifetime of the machine, clean the machine thoroughly each time after clearing material as below.

- * Power off the machine
- * Disconnect the power cord and the DMX signal cable from the machine.
- * Clean dust and debris from the surface of machine with a damp cloth
- * Place unspent consumables in the vacuum bag and seal tightly. Store in a cool, dry place away from moisture, high temperatures, naked flames, and other sources.

8 MACHINE MAINTENANCE

To maintain optimum performance, the spark machine requires some maintenance as follows :

- * After using the machine for a while, please check whether there is any consumable stuck in the sparking nozzle. If necessary, please clean it, otherwise it may affect the sparking effect and even damage the machine.
- * Please test your spark machine once a month to maintain optimal performance.

9 FAILURE HANDLING

ERROR CODE	DESCRIPTION	SOLUTION
System Error E0 Storage Fail	System Error: StorageFail	Replace main board
Motor Protect E1 M1	Blower motor protection/ disconnected	1.Restart machine to clear alerts,stop operating for 15 minutes until temperature returns to normal. 2.Check wire connection of motor 3.Replace motor 4.Replace main board
Motor Protect E1 M2	Shaft motor protection/ disconnected	1.Shaft motor stuck (mannual cleaning required) 2.Check wire connection of motor 3.Replace motor 4.Replace main board
Motor Protect E1 M3	Hopper motor protection/ disconnectd	1.Hopper motor stuck (mannual cleaning required) 2.Check wire connection of motor 3.Replace motor 4.Replace main board
Temp Sensor E2 Unconnected	Temperature sensor disconnected	1.Check wire connection of temperature sensor 2.Replace Temperation sensor 3.Repalce Main board
PCB Too Hot E3	Main board too hot	Stop operating machine until main board temperature returns to normal
Time Remain E4	Insufficient time	Please swipe a new RFID card
Temp Over Heat E5	Heating protection due to over-temperature.	Stop operating machine until temperature returns to normal. Alert will go off automatically.
Heat Fail E6	Heating process fail	1.Inspect Wire connection of heating board. 2.Replace heating coil 3.Replace heating board
Tip Over E7	Tip over alert	Machine will activate tip over protection if the angle is more than 45 degrees. The alert will clear off automatically after putting the machine back to normal position.
Sub PCB Unconnected E8	Sub-PCB disconnected	1.Check wire connection of Sub-PCB 2.Replace Sub-PCB 3.Replace Main Board
Illegal Card Machine Locked	Machine locked because of using illegal or piratic RFID card.	Using illegal or piratic RFID card will lock the machine. If so ,seller Will stop providing warranty and after sale service. To unlock The machine,please contact seller.

WARRANTY CARD

Product Name:		Serial No:	
Purchase Date:			
Tel:			
Address:			
Info.Feedback About The Problem :			
Actual Problem:			
Maintenance Detail:			
Service Engineer:		Service Date:	



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