Electronic cold flame spark machine

User Manual

DIRECTORY TABLE

3. Product Introduction:

The electronic cold flame spark machine is a revolutionary stage cold flame fountain special effects device that uses a new control system and two communication modes: standard DMX512 and 433MHz wireless remote control, which can be switched for control. It can realize a variety of cold flame fountain special effects. The research and development of electronic stage special effects sprayer is an intelligent product integrating mechanical electronics, intelligent control, Electromagnetism, aerodynamics, and other disciplines. The product has tilt protection, chassis overtemperature protection, movement overtemperature protection, and machine current overload protection. More convenient to use, safer and more reliable. Focusing on fundamentally changing the firing concept of traditional cold fireworks, it has seven major features: safety and no gunpowder, environmental protection and zero pollution, digital control, low consumption and recycling, simplified operation, low installation cost, and no hidden dangers in transportation. It thoroughly solves many problems of traditional fireworks in terms of safety, environmental protection, and application scope.

The product has an ultra-high spraying effect, with a maximum sparking height of 5.5 meters, and the spark effect is more dense and shocking. The external cold fireworks of the equipment are below 40 degrees Celsius and can be widely used in large-scale performances, press conferences, music festivals, weddings, parties, celebrations, performances, entertainment activities, and other places to enhance the on-site atmosphere and create a node atmosphere climax. It is suitable for various indoor and outdoor scenes.

4. Disclaimer:

* Please read the user manual carefully before installing and using this product. Failure to read or comply with this user manual may result in product damage and personal injury, and our company does not assume any responsibility for this.

* This product is a professional equipment, and our company does not assume any responsibility for accidents or losses caused by the use or maintenance of this product by untrained and authorized personnel.

* If there are any changes to the information and product specifications contained in the user manual, our company will not be notified separately and will not be responsible for any errors or omissions. Our company reserves the right to modify the user manual at any time.

5. Preface: This manual includes equipment safety precautions and warnings with the following icons. Please read carefully!

! Danger: This warning indicates danger and, if not avoided, may cause personal injury.

* Key information about installation or operation. Failure to follow this instruction may render the machine inoperable, cause damage to the machine, or cause injury to the operator.

! Warning: This alert indicates a warning that, if not avoided, may result in moderate to mild injury.

* Important information about installation or configuration. If you do not understand this information, the machine may not function properly.

Attention: This icon indicates precautions that, if not avoided, may affect the effectiveness of use.

6. Product packing list:

Number	configuration name	Quantity/Specification
1	Electronic cold flame spark machine	1 unit
2	User Manual	1 copy
3	3×1.5 ㎡×1.5 meter power cord	1 piece
4	3×1.5 meter Iron head shielded signal wire	1 piece

5	8-key remote control	1 piece
6	Fuse	1 piece

7. Unpacking

* After receiving the product, please carefully open the packaging box and inspect all contents to ensure that all spare parts are complete and in good condition.

* If the outer packaging and any components are damaged or missing during transportation, please contact the carrier or distributor immediately and return them in their original packaging.

Attention: Carefully open the packaging, check and confirm that the item is intact and undamaged.

8. Product Appearance Overview
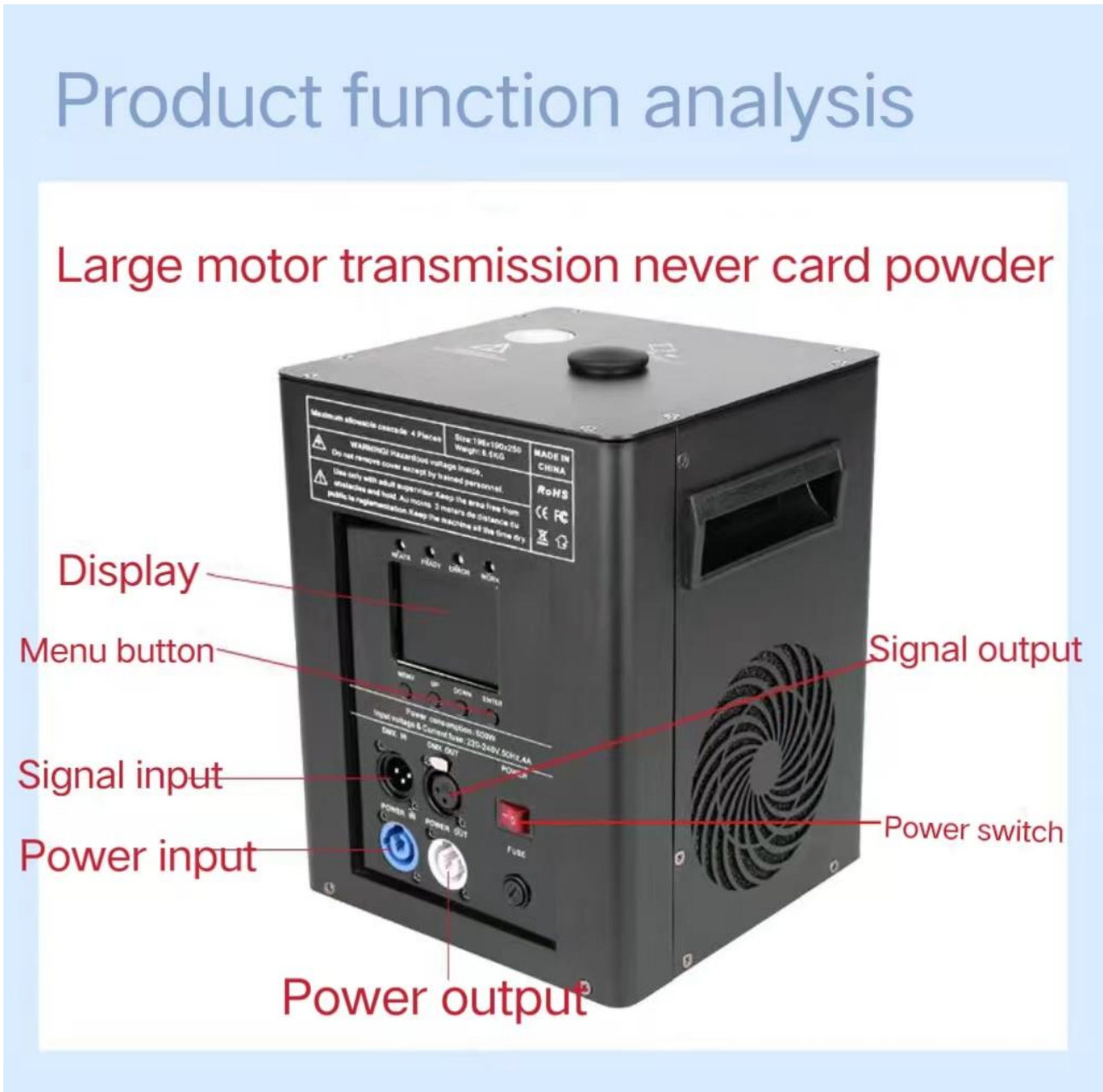
9.Technical parameter table:

	Product parameters	
1	Body material	SPCC
2	Product Color	Matte Black
3	Display screen	2.8 inch LCD display screen
4	Spark direction	upward
5	Input power supply	110V,50/60Hz;220V,50/60Hz
6	Fuse	110V:T8A;220V:T4A
7	Power socket	Power input socket; Power output socket
8	DMX signal socket	Signal input socket; Signal output socket
9	Hopper capacity	200 g
10	Consumption	20 g/min
11	Heating method	Electromagnetic induction heating
12	Warm-up time	3 minutes
13	Temperature control method	Electronic constant temperature control
14	Spark height	2.5～5.5 meters
15	Spark gear	Remote control: 2 height ranges; Console: infinite adjustment
16	communication mode	DMX512 signal; 433MHz wireless remote control
17	DMA Channel	2 channels
18	Ambient Temperature	-10℃～45℃
19	protection grade	Indoor / dustproof
20	Warranty Period	One year warranty
21	Net weight	6.3 KG
22	Gross weight	6.8 KG
23	Machine Dimensions	198mm×190mm×250mm

10. AC power supply

*Before connecting to the power supply, please check whether the input power voltage matches the rated voltage of the machine.

*To determine the power requirements of the machine (circuit breakers or fuses, power sockets, and wiring), please refer to the values listed on the machine panel label or refer to the technical parameter table. The values listed represent the average current consumption of the machine under normal conditions.

*Always connect the machine to a protected circuit (circuit breaker or fuse). Ensure that the machine is connected to a grounded power plug to avoid electric shock or fire.

*Do not connect the machine to a varistor (variable resistor) or dimmer circuit, even if the varistor or dimmer channel is only used as a 0 or 100% switch.

11. Power cord and plug

*Before connecting to the power supply, please check if the power supply voltage matches the rated voltage of the machine.

*Ensure that the power cord is not pinched or damaged.

*Do not disconnect the power cord by pulling it.

*To eliminate losses and improve the service life of the machine, please use a circuit breaker to disconnect or unplug the power plug when not in use, and completely disconnect the machine from the power supply.

*The power cord used in the product is a self-locking power cord, and the other end is a European plug (European market, Chinese market). If the power cord equipped does not have a plug, or if the plug needs to be changed, please refer to the following table to install the plug:

3-core power cord	Identification code	Power cord color
AC live wire	L	black
AC zero line	N	white
E ground wire	E	green

12. Precautions for operation

! Danger: Before operating this machine, please carefully read the following precautions.

12.1. Environmental requirements

!   DANGER: Do not install the product on flammable surfaces (such as felt, carpet, wood, paper, plastic, etc.) to ensure that there are no flammable or explosive materials in the use environment.
!   DANGER: Do not use in confined spaces and install the product in a well ventilated location at least 20 inches (50 centimeters) away from adjacent machines.
!   Danger: This product does not have lightning protection devices. Please do not use this product during thunderstorms.
!   Danger: People or flammable materials should be at least 10 feet (3 meters) away from the machine and ensure that debris does not fall onto flammable materials.
!   DANGER: Please do not use the machine in an ambient temperature exceeding 122 ℉ (50℃).
!   Danger: When installing the machine on the floor, please ensure that the machine and cables are kept away from personnel and vehicles.

12.2. Safety tips

! Danger: Please always connect the ground wire to a grounded socket to avoid the risk of electric shock. This machine cannot be operated in water.

! Danger: When ground water enters or covers the bottom of the machine, it can cause machine malfunction or electrical leakage. On rainy days, ensure that the bottom of the machine is at a safe distance from the ground water to prevent it from entering the machine from the bottom.

! Danger: Do not touch sparks. Do not touch the machine casing when heating or operating the machine.

! Danger: Ensure that no objects fall into the spark nozzle.

! Danger: Do not allow animals, children, or unauthorized personnel to approach the machine.

! Danger: The noise generated by the spray machine during operation is 100 minutes (the closest point to the machine)

! Danger: When adding consumables or testing the machine, please wear protective glasses to avoid eye injury.

! DANGER: Suitable fire extinguishers are as follows: Any object similar to sand can be used to cover the fire. If metal materials catch fire, please use a Class D fire extinguisher.

! Danger: The product has a high temperature during operation and will remain at high temperature for a long period of time after stopping operation. It is strictly prohibited to put your fingers into the spark nozzle.

! Danger: The machine is prohibited from continuously sparking for more than 3 minutes. Overtime operation will cause damage to internal components of the machine.

13. Operating the machine

*Preparation work:

*Confirm that the machine and its accessories are intact and undamaged.

*Place the machine on a sturdy and level ground, and it is recommended that the maximum inclination angle not exceed 15 degrees.

13.1 Installing the Machine

! Warning: It is recommended to follow the following specifications to install this product.

*Ensure that the installation location is convenient for machine maintenance and operation.

*Ensure that the structure or surface used for installing the machine can support the weight of the machine (see "9. Technical Parameter Table").

! Danger: People or flammable items should be at least 10 feet (3 meters) away from the machine, and ensure that consumable residues do not fall on flammable items.

13.2 Special composite consumables (optional)

*A specially made metal powder with full sparks and minimal residue, which is free from smoke, odors, and toxic gases when used. Aluminum foil bag Vacuum packing, convenient for storage and transportation.

! Danger: It is recommended to use high-purity specialized consumables provided by our company. Our company does not assume any responsibility for machine damage, personnel damage, or property damage caused by the use of consumables not provided by the company.

13.2.1 Adding Consumables

*Consumables designed specifically for spark machines can create cold fireworks effects for the stage.

*Open the rubber stopper cover before adding.

*Tear open the packaging bag of the consumables and pour them into the feeding port on the top of the machine.

*Pour the consumables out of the feed port instead of the spark nozzle.

*After adding, cover the rubber stopper cover.

*The volume of the silo is 200 grams.

! Danger: Please add consumables when the power is turned off.

! Danger: When adding consumables and testing the spray machine, please wear protective glasses to avoid eye injury.

13.3 Connecting the machine

*Connect the power supply and the DMX signal cable

*Connect the first power plug.

*Connect other machines in parallel using power cables.

*Connect other machines in parallel using a DMX signal cable.

*Connect the DMX512 console or wireless remote control.

! Danger: Do not use damaged power plugs and power cables. It is recommended to connect up to 4 units of this product in parallel for one power plug.
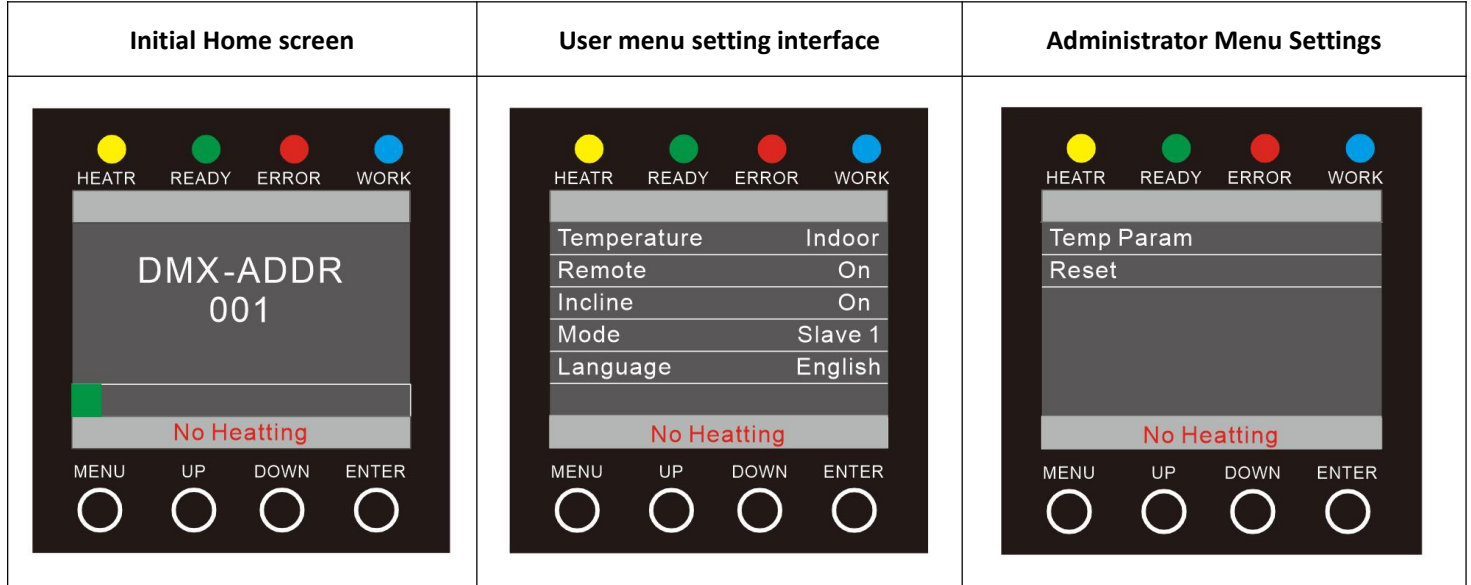
! Warning: Please connect the configured 120 ohm terminal resistor to the signal output port of the last machine to enhance the machine's anti-interference capability.

Attention: The standard length of the DMX signal connection line is 1.5 meters, and multiple wires can be connected in series to achieve a longer length. (Up to 18 signal lines can be connected in series in a single channel)

13.4 Before turning on the power

! Warning: Plug the power cord into a grounded socket. Please confirm again whether the voltage specifications are correct before powering on.

14.Display Board Operation Instructions

Initial Home screen	User menu setting interface	Administrator Menu Settings
HEATR READY ERROR WORK DMX-ADDR 001 No Heatting MENU UP DOWN ENTER	HEATR READY ERROR WORK Temperature Indoor Remote On Incline On Mode Slave 1 Language English No Heatting MENU UP DOWN ENTER	HEATR READY ERROR WORK Temp Param Reset No Heatting MENU UP DOWN ENTER

14.1. Indicator light description

1. Yellow (heating) indicator light HEAT:

*The flashing indicator light indicates that the system heating is in progress;

*The indicator light goes out to indicate that the system is ready and the machine is in a sparking state;

2. Green (completed) indicator light READY:

*The indicator light goes out to indicate that heating is not complete;

*The indicator light is constantly on, indicating that the system is ready and the machine is in a sparking state;

3. Red (fault) indicator light ERROR:

*When the indicator light is off, it indicates that the system has detected that everything is normal;

*The indicator light is constantly on, indicating that the system has detected a fault;

4. Blue (working) indicator light WORK:

*The indicator light goes out to indicate that the machine is in a non sparking state;

*The indicator light is constantly on to indicate that the machine is in a sparking mode;

14.2. Menu button operation instructions:

MENU: (Menu button) Press this button to enter the user menu interface or return to the previous menu level.

UP: (Add button) Press this button to select the menu upwards and increase the value in the set state.

Down: (Reduce button) Press this button to select the menu downwards and reduce the value in the set state.

ENTER: (Confirm button) Press this button to enter the menu setting state or confirm saving.

14.3.User Menu Settings：

	MENU	UP	DOWN	ENTER
Number	Press the **MENU** key to enter"Settings" (or press **MENU** to return)	Press the **UP/DOWN** key,select>Set Project. Press the **UP/DOWN** key toincrease and decrease the numerical range		First, press the **MENU** key to enter the"Settings" option,after setting the parameters, press this button again to confirm saving/automatic saving.
	Set Project	Starting value	Cut-off value	Function Setting Description
1	Address code	1	512	Set the DMX address code. After modifying the address code in console mode, press the ENTER key to save it, and it will be automatically saved in non console mode
2	Temperature	Indoor	Outdoor	Indoor: Heating temperature using (2.5-4M) specialized consumables
				Outdoor: Heating temperature using (2.5-5.5M) dedicated consumables
3	Remote	ON	OFF	Set to "off"remote control failure
4	Incline	ON	OFF	Set to "off" tilt protection failure
5	Mode	Mode	Master	Will receive signals from the console or remote control and send control signals to the slave;
			Slave	Will receive control signals from the console,remote control, or host;
6	Language	Chinese	English	Language switching (Chinese/English),automatic saving, device restart required;

14.4. Master Slave Mode Settings

In the "User Menu Settings Interface", press the "**DOWN**" key to go to the master-slave settings, and press the "ENTER" key to enter the "master-slave settings interface"; Press the **UP/DOWN** key to select the host/slave.

Set Project	Function	Range	Function Setting Description
Master	Recycle	001-100	Press the ENTER key to enter the settings, press the **UP/DOWN** key to increase or decrease the numerical range, and automatically save it;
	Time	003-060S	Press the ENTER key to enter the settings, press the **UP/DOWN** key to increase or decrease the numerical range, and automatically save it;
	Interval	30-9999 ms	Press the ENTER key to enter the settings, press the **UP/DOWN** key to increase or decrease the numerical range, and automatically save it;
Slave	Address	001-100	Press the ENTER key to enter the settings, press the **UP/DOWN** key to increase or decrease the number of slaves, and automatically save;

14.5.Administrator Menu Settings：

Number	Set Project	Starting value	Cut-off value	Function Setting Description
In the homepage interface, long press the Menu key for 3 seconds to enter the administrator menu setting：				
1	Temp Param	520℃	600℃	press the **UP/DOWN** key to increase or decrease the numerical range
2	Reset	Cancel	Confirm	Select "Confirm" and press the ENTER key to restore the factory default values

14.6.Default Start Settings：

Number	Set Project	Range	Default value
1	DMX Add	1～512	001
2	Temperature	Indoor/Outdoor	Indoor
3	Remote	ON/OFF	ON
4	Incline	ON/OFF	ON
5	Mode	Master/Slave	Slave 1
6	Language	Chinese/English	Chinese
7	Temp Param	520℃～600℃	520℃
8	Reset	Cancel/Confirm	Cancel

15.1.Table of DMX Channel Parameters：

Channel	DMX value	Function	Explanatory notes
1CH	0～9	Turn off spark painting	The gear of spray height is infinitely adjustable, and the larger the data, the higher the spray height. The program is limited in time The single run time is 60 seconds. After switching to other spray heights, the program will accumulate time.
	10～255	Spark height	
2CH	0～128	Turn off heating	
	129～255	Turn on heating	
3CH	100～255	Material cleaning	The machine will automatically clean up the heated but not sprayed consumables for 8 seconds

15.2. Setting the DMX address

Set the machine's DMX address code according to the channel mode:

*In 2-channel mode, please set the DMX address of the spark to 1, 3, 5, 7, 9... to calculate based on this

Attention: Setting the same DMX address code will not allow for independent control of the machine's channel functions.

15.3. Control Machine Spark

*This machine can be controlled through two communication modes: DMX512 console or 433MHz wireless remote control, and can be switched between communication modes.

15.4. Turn on the console power supply

*Connect the input end of the machine's DMX signal line to the output end of the console.

15.5. Enable heating function

Attention: The values of 129 to 255 in channel 2 are for activating the heating function, and it takes about 3 minutes to complete preheating after activation.

Attention: After turning on the heating, the "HEATR" yellow indicator light on the machine will flash, indicating that the machine is heating.

Attention: When the "READY" green indicator light becomes permanently on, it indicates that the heating has been completed, the system is ready, and the machine is in a sparking state.

15.6. Adjusting the spark height

Use the first channel to adjust the spark height. The values of 10-255 are used to adjust the spark height. The larger the data, the higher the spark height.

16.Fault Codes and Handling Methods：

Operation instructions: The following interface cannot be operated, and only appears when the system reports an error:

Number	Fault indication	Fault description	Solution
1	Incline warning	Machine tilt protection	When the inclination angle of the machine exceeds 45 degrees,it will enter a tilt protection state, and after the machine is placed in a flat position, the alarm will automatically clear。
2	Heating warning	Heating time exceeds the limit Heating for 15 minutes without reaching the set temperature	1.Check if there is any looseness at the wiring harness connection end； 2.Replace the heating motherboard； 3.Replace the electromagnetic heating coil； 4.Replace temperature sensor； 5.Replace the control motherboard；
3	Temperature warning	Heating movement temperature over limit protection	1.Wait for 5 minutes for the temperature to automatically drop to normal temperature； 2.Replace the heating motherboard； 3.Replace temperature sensor； 4.Replace the control motherboard；
4	Abnormal temperature control	Temperature sensor detects abnormal temperature	1.Check if the wiring harness connection end of the heating plate is loose； 2.Replace the heating motherboard； 3.Replace temperature sensor；

17. Remote Control Button Operation Instructions

Number	Button	Function	Function Description
1	ON	Heat-up on	The "HEATR" indicator light flashes when heating is turned on, and the display screen shows that heating is in progress
2	OFF	Heat-up off	Turn off the heating "HEATR" indicator light and the display screen shows that heating has stopped
3	10s	Spark time	Spark work 10s
4	20s	Spark time	Spark work 20s
5	High	Spark height	Spark height level biggest
6	Mid	Spark height	Spark height level middle
7	Clear	Material cleaning	The machine will automatically clean up the heated but not sprayed consumables for 8 seconds
8	Stop	Spark stop	Machine spark stop

17.1 Remote control of electronic flower spark machine
17.2. Remote control operation instructions
17.2.1 Remote control conventional spark operation process:

1. Connect the power and signal wires of the machine, turn on the power switch, and confirm that the communication with the control console is disconnected.

2. Press the "ON" button to turn on heating, the "HEATR" indicator light flashes, and the display screen shows that heating is in progress, Wait for the "READY" indicator light to remain on, indicating that the heating system is ready and the machine can be operated to spray.

2.1. Press the "OFF"button to turn off the heating, and the "HEATR" indicator light will turn off.

3. Press the "10s" and "20s" keys to select the spark time;

4. Press the "High" and "Mid" keys to select a gear, and the machine will start sparking flowers;

5. Press the "**Clear**" button to clean the material, and the machine will automatically clean the heated but not sprayed consumables for 8 seconds;

6. Press the "**Stop**"key to choose to terminate the spark painting.

17.2.2 Remote control operation of machines

1. Push open the back cover of the remote control, insert the corresponding battery, pull out the metal antenna, and set it to the machine operation in the host mode;

2. Press the "**10s**" and "**20s**"keys to select the spark time, and press the "**High**" and "**Mid**" keys to select the gear to run the spray effect.

18.1 Material cleaning

This product has a material cleaning function, which can clean up the heated but not sprayed consumables to avoid clumping and jamming in the combustion chamber.

Attention: Before turning off the machine after each performance, please make sure to perform this function.

18.2 Safety instructions

! Danger: Do not touch sparks. It is strictly prohibited to put your hands into the spray nozzle.

! Danger: Do not touch the machine casing when heating or operating the spray machine.

! Danger: People or flammable items should be at least 10 feet (3 meters) away from the machine, and ensure that debris does not fall on flammable items.

! Danger: The maximum spray height of indoor and outdoor consumables varies, with indoor consumables reaching a maximum of 3.5 meters and outdoor consumables reaching a maximum of 5.5 meters.

Attention: If affected by the wind, the height of the spark will decrease, and the direction of the spark will also tilt due to the influence of the wind.

Attention: It is recommended to use the following methods to extinguish the fire: any object similar to sand can be used to cover the fire, and Class D fire extinguishers are used for metal material fires.

19.Cleaning the machine

After completing the material cleaning, it is necessary to do a good job in cleaning the machine to extend its service life.

*Turn off machine power.

*Unplug the power cable and the DMA signal cable.

*Clean the dust and debris on the surface of the machine with a dry cloth.

*Put the unused consumables into a Vacuum packing bag and seal it. Place in a cool and dry place to prevent moisture and keep away from high temperatures, open flames, and other environments.

! Warning: Do not pull the power cord to disconnect the power supply. To avoid unnecessary machine wear and improve the service life of the machine, please unplug and power off the plug during non use.

20.Machine maintenance

*In order to maintain optimal performance, it is necessary to perform some maintenance on the spray machine. The necessary maintenance is as follows:

*After using it for a period of time, please check if there are any consumable nodules on the nozzle. If necessary, please clean it, otherwise it may affect the spray effect and even damage the machine.

*Please test the sprayer once a month to maintain its optimal performance.