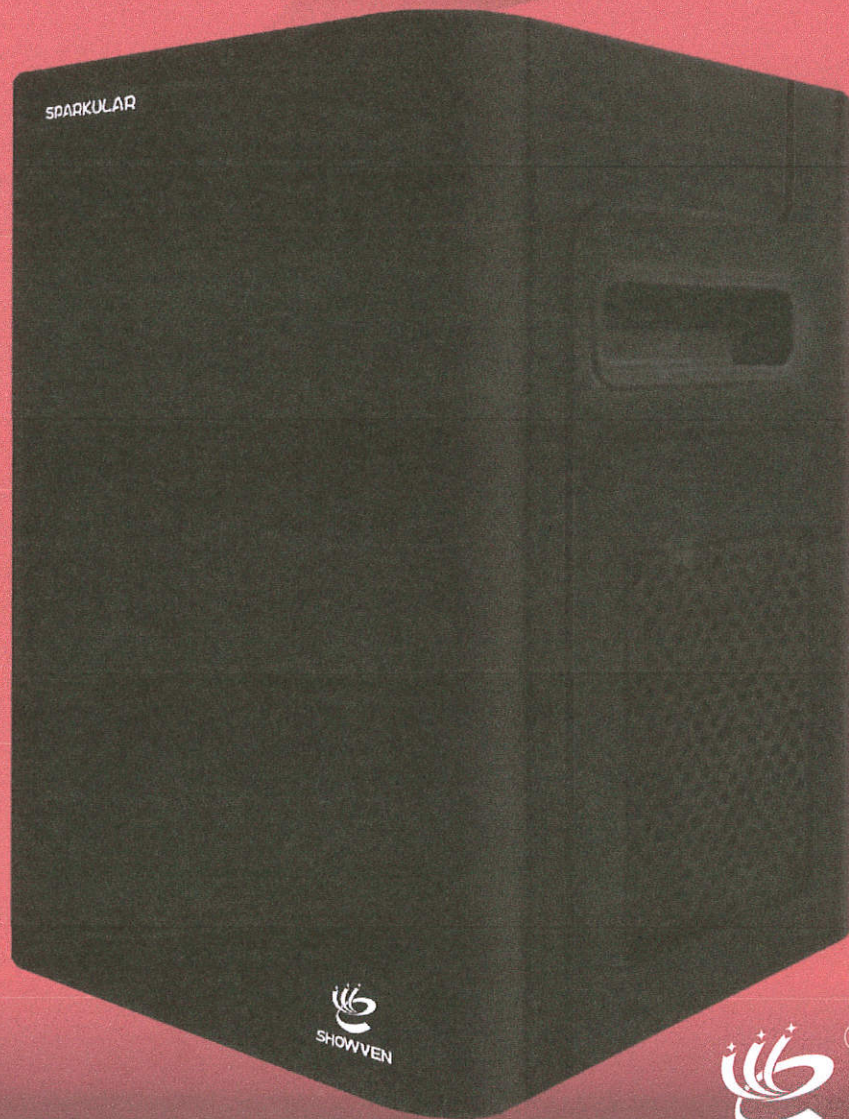


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# Safety

## Warnings and Cautions

These are designed to bring to your attention to hazards and important information that assists you in carrying out your activities on this machine safely and efficiently. Examples and Descriptions of safety statements have been provided as follows:

Warning: A warning alerts you to harmful or dangerous activities.

A description of the hazard is given and the consequences of ignoring them.



**Please note that the Sparkular units are not allowed to be operated without any intervals. The maximum running time is 60-90 seconds per single firing round and can be repeated before it triggers the overheat protection protocol.**

## Eye Protection



The eye protection warning icon is shown to indicate that you must pay attention to avoid your eyes getting injured while operating or standing nearby the Sparkular unit. Do not look over while the machine is running.

## Injury Voltages



Warning: Dangerous voltages are present in machine and controller when electrical power is applied. There is a danger of injury from electric shock. Under no circumstances, are you allowed to, or attempt to dismantle the machine and controller or attempt to remove or adjust any components fitted within the machine and controller. Only fully trained service engineers are qualified to diagnose and maintain the machine and controller.

## Caution Against Liquids



Warning: Do not allow the machine to be in a wet condition. Keep the machine and controller dry and not use on rainy or snowy days unless covered.

## Warning



Please make sure nothing drops into the nozzle of Sparkular unit. If this happens please clean out all debris before resuming operation. This could cause a fire or overheat situation within the machine.

## Warning on Granules



If the granules catch on fire, the suggested method of extinguishing is by sand or Class D Fire extinguisher. Do not try to empty the machine as this will result in activating the granules and will make sparks.

## Safe Distance



Keep audience and flammable materials at a minimum safe distance of 6-10 feet. Keep it out the reach of the public. Protect from any flammable materials.

## In Case of Emergency



If the machine needs to be shut off immediately in case of emergency, press the “pause/stop” button on the controller to stop operating and switch off the Sparkular unit. Call for medical assistance help if necessary.

## Noise Emission



The noise that is generated from the Sparkular unit does not exceed 80db. This means it is not harmful to hearing, therefore hearing protection device is not required while operating or using or standing nearby the Sparkular unit.

## Cleaning



Please inspect fountain nozzle of Sparkular unit before operation and confirm if there is not any burnt granules adhering to the inside wall of nozzle. Please invert the unit to clean out the debris if it has, a cleaning brush is recommended if necessary. Each time after and before operating the Sparkular unit, it is a must to do the CLEAR MATERIAL process to keep the unit in operating condition and to prolong the service life of Sparkular unit.

## Power Supply Requirement



Please select the proper power connector according to the power of the Sparkular unit. Please note that all USA models are 110 volts (BT-01 EU model is 220 volts).

If necessary, please connect directly to a power distribution box with separate cable.

Please note: One power supply cable can support a maximum 6 Sparkular units. Each unit can be connected individually or with the power-con series cables provided.

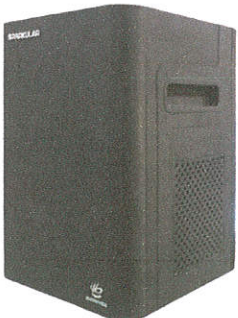
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## 1. Sparkular Unit

### 1) Description of Products

Sparkular is a revolutionary special effect system. It uses a newly designed delivery control system for a fountain style special effect and uses DMX communication and is compatible with other control equipment.

<b>Sparkular</b>	<b>Model No.: BT02</b>
	<b>Parameters:</b>
	Dimension: 7.87" × 8.47" × 11.22"
	Weight: 18.7 Pounds
	Input: 110VAC(BT02), 50/60Hz;
	Work Power: 365w
	Work Temp.: 14 Degrees F ~ 122 Degrees F
	Casing: Anti-flaming ABS
	Fountain Height: 5 Ft ~ 15 Ft
	Lifetime: >3 years
	Interface type: double DMX input interfaces, double AC power interfaces

### 2) Instructions

The Sparkular system has two main components. The Sparkular unit BT02 and the Host Control Console ZK6200. The BT02 has all safety features built into the smart feedback protocol that is readable on the Sparkular machine as well as the Host control console. \*\*\* Please note if DMX console is connected directly to Sparkular units but not via ZK6200, the feedback from units cannot be displayed on DMX screen. \*\*\*

Please read the following description to understand the functions, and master the skill of operating the Sparkular unit and the Host Controller.

### 3) Brief Introduction of the Functions

- a) The controlling signal of international standard: DMX 512
- b) Fixture uses two channels (channel 1 controls effect & height; channel 2 controls the pre-heat and safety feature).
- c) Adjustable effect height.
- d) Continuous feedback protection for overheating, redundant safeties for heat protection.
- e) The Host Controller can display feedback from Sparkular unit and diagnose its working status.





#### 4) DMX512 Signal Link:

Under DMX512 mode, the signal in this system are running in parallel. Therefore Shielded-Twisted-Pair cable must be used while connecting multiple units. Each unit is connected through the DMX signal sockets (XLR connector) Input and output, and the three pin XLR plug terminals connecting the unit must be corresponding to each other. While connecting communication cables, it is suggested to use DMX signal terminator to avoid signal weakening caused by the signal reflection. DMX signal terminator is a three pin XLR plug with 120ohm/1m resistance. The terminator should be plugged into the DMX out port of the last unit being used.

The configuration of three Pin XLR Plug: 1 Signal Ground line; 2 Signal-; 3 Signal+

#### Note:

1. After turning on the Sparkular unit, it takes time to warm up the unit to working temperature by pressing pre-heat button on the controller. When the READY sign lights up, it indicates that the Sparkular is ready (is at operating temperature).
2. To prevent anything that would affect the cooling or impede the operation, nothing can cover the top of Sparkular unit or in a confined area.
3. Please add granules if the effect begins to lose its density.

#### 5) Operation Panel:



a) **LCD:** Display info of menu and working status of unit

b) **LED :**

**READY:** Indicator will change from flashing to solid status after preparation is completed and enter ready-to-operate status.

**DMX:** Flashing indicator means DMX communication is successful. No indication means failure in communication.

**FAULT:** Indicator lights up when any error is detected.

**HEAT:** Indicator lights up when the system is heating.

c) **Control Button Area:**

**MENU:** enter menu selection

**DOWN:** parameter decrease

**UP:** parameter increase

**ENTER:** confirm and save parameters



**d) Interface and Plugging Area:**

- POWER IN:** BT02 is 110 VAC
- POWER OUT:** BT02 is 110 VAC
- DMX IN:** DMX Communication Signal Input
- DMX OUT:** DMX Communication Signal Switching Output

**e) Radio Frequency Identification Area:**

The Product Identification card attached to the spark granules determines the parameter and type of the product that is identified through swiping the card. This puts a programmed time onto the machine.

**Note:**

*Please note that the card enables the unit for 10-20 minutes of operation time (which is the amount of time each pouch of granules will last). The RFID card is valid for one time use only.*

**6) Interface**

**a) Main Interface:**

- 1) Displays DMX Address.
- 2) Displays the present temperature of the inner core.
- 3) Displays the error information if any.

Error Code	Illustration
E0 System IC	Systematic error.
E1 Motor Protect	Over current protection of the motor.
E2 Temp. Sensor	Temperature sensor is not detected by a break or malfunction.
E3 P Temp. Over	The equipment stops due to the over-temperature of the chassis.
E4 Time Remain	The RFID card time is under 10 minutes and will run out of time/product.
E5 K Temp. Over	The equipment stops due to over-temperature of the mechanism.
E6 Heating Failure	May be issues from heating system. Power off when this error occurs.
E7 Tip Over	The equipment stops due to tip over.

**b) The Interface of Setting:**

Press MENU button, you can enter the interface for setting. Then each time you press the MENU button, you will enter a different setting option before it will return to the main interface.

Option	Scope	Illustration
Set DMX Address	1-512	Set DMX Address.
Fountain Height	1-10	Manually adjust the height of Sparkular.
Manual Heat	On/Off	Start by manual, only for test.
Manual Fountain	On/Off	Start by manual, only for test.





The following Chart is for the 2 Channel settings:

Sparkular No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DMX Address	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35

Note: If the wrong address is on the Sparkular unit this will cause incorrect operation of the device.

- a) **Advanced Interface:** Hold down the MENU button for 3 seconds, you can enter the Advanced Menu. Then each time you press MENU button, you will enter different setting options. Hold down MENU button for another 3 seconds, you can return to main MENU.

Option	Scope	Illustration
Set Temperature	500-610	Default setting 580
LCD Backlight	On/Off	LCD Backlight Open/Off
Density@ Height 1	30-70	Adjusts the Value of the Granular feed or density #1*
Density@ Height 2	30-70	Adjusts the Value of the Granular feed or density #2*
Density@ Height 3	30-70	Adjusts the Value of the Granular feed or density #3*
Density@ Height 4	30-100	Adjusts the Value of the Granular feed or density #4*
Density@ Height 5	40-100	Adjusts the Value of the Granular feed or density #5*
Density@ Height 6	40-100	Adjusts the Value of the Granular feed or density #6*
Density@ Height 7	40-100	Adjusts the Value of the Granular feed or density #7*
Density@ Height 8	40-100	Adjusts the Value of the Granular feed or density #8*
Density@ Height 9	40-100	Adjusts the Value of the Granular feed or density #9*
Density@ Height 10	40-100	Adjusts the Value of the Granular feed or density #10*
Mode Selection	Factory Mode/ User Mode	Used for the factory to test the equipment
Default Parameter		The parameters of the equipment can be restored to the factory settings through pressing Enter
Motor Protect	On/Off	Default setting is Off
Power Selection	220/110Vac	Select input power supply voltage. Default setting for BT02 is 110VAC
DMX Channel Mode	4 DMX Channel/2 DMX Channel	Default setting 2 DMX Channel
Tip Over Error	On/Off	Default setting is On

*\*\*\*Density of the granules at each height can be adjusted from 10-100%\*\*\**





**There are two options for DMX control that are selectable on the Sparkular units.**

**7) DMX Channel Mode:** 2 DMX Channel, when the system occupies two channels.

<b>First Channel</b>	<b>Function</b>
0-15	Fountain Off
16-39	Fountain Height 1
40-63	Fountain Height 2
64-87	Fountain Height 3
88-111	Fountain Height 4
112-135	Fountain Height 5
136-159	Fountain Height 6
160-183	Fountain Height 7
184-207	Fountain Height 8
208-231	Fountain Height 9
232-255	Fountain Height 10
<b>Second Channel</b>	<b>Function</b>
60-80	Clear Material
20-40	Emergency Stop
0-10	Pre-heat Off
240-255	Pre-heat On



**4 DMX Channel mode:** when the system occupies four channels.


<b>First Channel</b>	<b>Function</b>
0-15	Fountain Off
16-39	Fountain Height 1
40-63	Fountain Height 2
64-87	Fountain Height 3
88-111	Fountain Height 4
112-135	Fountain Height 5
136-159	Fountain Height 6
160-183	Fountain Height 7
184-207	Fountain Height 8
208-231	Fountain Height 9
232-255	Fountain Height 10
<b>Second Channel</b>	<b>Function</b>
0-20	Pre-heat Off
21-255	Pre-heat On
<b>Third Channel</b>	<b>Function</b>
0-20	Clear Material Off
21-255	Clear Material On
<b>Fourth Channel</b>	<b>Function</b>
0-20	Emergency Stop Off
21-255	Emergency Stop On



## 2. Host Controller (ZK6200)

### 1) Description of Hardware

1. ZK6200 Host Controller is an intelligent system specially designed for multi-effects and remote control of Sparkular unit, so as to create the simulation and demonstration of Pyrotechnic Gerb effects. It has diversified port configuration, and can use Audio or MIDI time code to trigger the function to complete a musical synchronized program. LAN port is installed for future control extension.

Host Controller	Model No.: ZK6200
	<b>Parameters:</b>
	Dimension: 15.35" x 11.81" x 4.33"
	Weight: 8.16 Lbs.
	Input: 110-240Vac, 50/60Hz
	Work power: 15w
	Work Temp.: 14 degrees F – 122 degrees F
	Ports: 2 CAN communication ports, USB port, 2 media ports (music trigger), 2 MIDI ports (music trigger), 2 DMX512, 1 input& 1 output port, Ethernet (not currently available-for future application)
	Support max.200m communication cable
	3350mAH battery
	Lifetime: >3 years

### 2) Host Controller Introduction – Standard or Pro Version

- a) International standard DMX512 signal output
- b) Support 18 units Sparkular at the same time (Standard = 18 units / Pro Controller = 54 units).
- c) Five kinds of standard Dynamic modes: Synchronization (All Fire), Center to Ends, Ends to Center, left to right, Right to Left, Special Effects and one kind of user-defined special effect mode, supports 8 files and each file supports 36000 lines at maximum (special effects last for 30 minutes)
- d) There are multiple trigger options: Hand, Music, or Midi Inputs.
- e) Support simulation function and LED display.
- f) Monitoring function: The controller provides the feedback of working status from each Sparkular unit and is displayed on the F1 screen. (Eg: working temperature, Error code etc.)
- g) Emergency Function: Pause or Stop Button. (Earlier panel version has a Pause button)

### 3) Controller Operation Panel



Controller Operation Panel

#### a) Cable Connection Area:

**AC Input:** AC Power Input.

**CAN:** CAN Communication Input/output Ports. (only for European use)

**Tape In:** Audio signal input port of main sound track

**Aux:** Audio signal port of sub sound track

**Music:** Displaying the electrical level of audio signal.

**MIDI In:** Time Synchronous Signal Input of MIDI & thru output.

**DMX 512:** DMX Signal Options Output (top) /Input (bottom) for DMX console control.

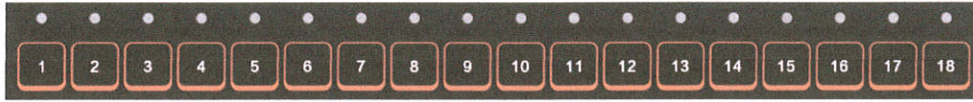
**LAN:** Network's Cascade Socket among Multi-Chassis, to link the remote-control feature.

**Download:** SparkularEdit200 soft Port





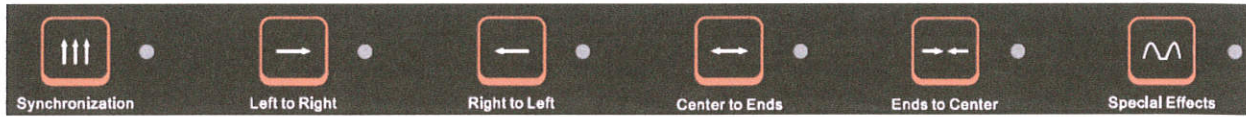
**b) Manual Operation Area**



**No.1 to No.18 is Sparkular number.**

This area, offers way of manually starting & stopping the Sparkular units from No. 1-18. The Sparkular unit will enter READY-TO-SHOOT status after 5 minutes' warm up time when Pre-Heat function is activated. The green flash of indicator light means Heat Up is in the process, and solid green of indicator light means the process completed. Press the unit number to activate the Sparkular unit, and it will stop firing automatically after 30 seconds to stop press the button again. Under firing status, the indicator light will turn to red.

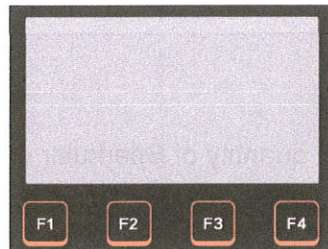
**c) Mode Selection Area**



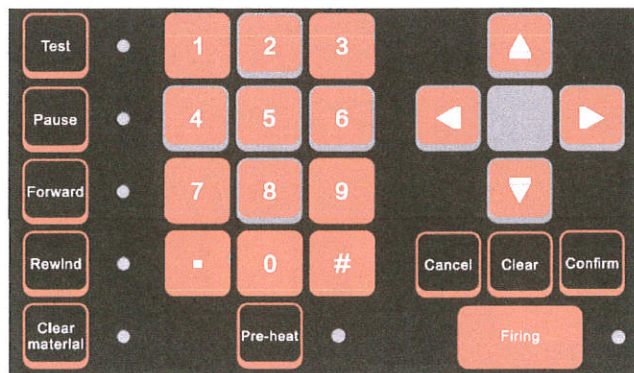
There are 5 standard dynamic modes and 1 special effects mode which can be initiated by pressing the buttons. These activate a pre-programmed page (1 of 8) functions that are displayed on each selection. They can be manually added. Manual operation will not be activated during special effects playback.

**d) LCD Area**

- F1: Main Menu
- F2: File Selection Menu
- F3: Configuration Menu
- F4: About Host controller (factory use)



**e) Edit/Control Area**



Moving cursor into editing area, and parameters can be **edited** by pressing number keys or up/down keys.



Test --- When pressing the Test button, the signal transmission to Sparkular unit will cut off. Under this condition, if you press FIRING button, the Host Controller will run into simulation status. The Indicators will light on and off according to the file you programmed. Please note that TEST button will not invalidate (or interfere) with the function of PRE-HEAT.

Pause /Stop --- Pause/Stop button can be only applied in case of emergency or miss-operation. When this button is on, the communication between Host Controller and Sparkular unit cut off and the PRE-HEAT function stops. Please select the PRE-HEAT function after canceling the status of Pause/Stop.

Forward --- Under the special effects mode, the operating time can be put forward.

Rewind --- Under the special effects mode, the operating time can be put backward.

Clear Material --- Clear Material button is to clear out those un-projected granules left in the heating chamber of Sparkular unit. Must turn on PRE-HEAT function to do Clear Material procedure. And it is necessary to do this Clear Material procedure after each show.

Pre-heat --- You must turn on PRE-HEAT function before activating the Sparkular unit. The Sparkular unit enters Ready-to-Operate condition when all indicators are in solid status (which means PRE-HEAT is completed (it usually takes about 5 minutes). If there is extra-long wait between each display, it is recommended to turn off the PRE-HEAT button to help to prolong the service life of Sparkular unit.

Firing --- When press the FIRING button, the selected program file will be executed. Indicator of FIRING button will turn to red. If you press FIRING button during firing status, shooting will stop and return to ready state.

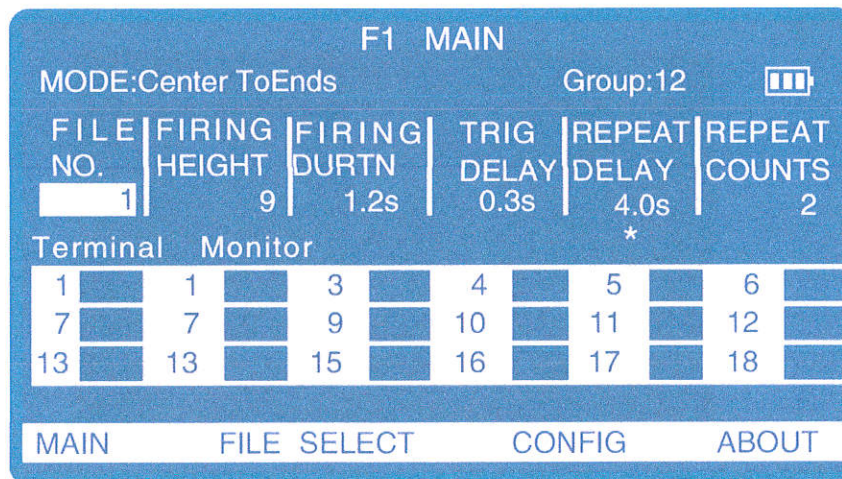
#### 4) Interface

##### A) F1 Main Menu

MODE: Displaying the Mode

GROUP: Displaying the total quantity of Sparkular units.

Battery Icon: Displays remaining battery information. And reminds you to recharge battery if only one grid electricity is left.

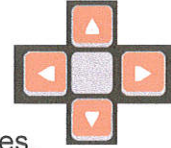




Left and right keys can move cursor to each parameter setting column.

Parameters can be edited through up/down keys and number keys.

Parameters will be saved automatically or press CONFIRM key to save changes.



Option	Scope	Illustration
File No.	1-8	File number
Firing height	1-10	Fountain Height. "." button can change to height 10 directly.
Firing duration	0.1-30.0s	Duration of the Fountain
Trigger delay	0.1-30.0s	Time between trigger of each fixture
Repeat period or repeat delay	0.1-30.0s	Repeat Period: Repeat begins from the <b>first</b> fixture. The value must be greater than Duration. Repeat Delay: Repeat begins from the <b>last</b> fixture.
Repeat counts	1-5	Repeated times (Loop)

*Note: When "Firing" button is on, Only "Pause or Stop, forward", "Rewind" buttons are unlocked.*

**Terminal Monitor:** Working status of each Sparkular unit will be displayed independently on the Terminal Monitor. The status includes information of each units working temperature, Error Code etc. For PRO version Host Controller, which controls 54units, that info will be displayed in scrolling pages. The standard operating temperature is 560-620□.

### B) Error Message List

Error Code	Illustration
E0 System IC	Systematic error.
E1 Motor Protect	Over current protection of the motor.
E2 Temp. Sensor	Temperature sensor is not detected or is broken or has a malfunction.
E3 P Temp. Over	The equipment stops due to the over-temperature of the chassis.
E4 Time Remain	The RFID card time is under 10 minutes and will run out of time/product.
E5 K Temp. Over	The equipment stops due to over-temperature of the mechanism.



E6 Heating Failure	May be issues from heating system. Power off when this error occurs.
E7 Tip Over	The unit stops working due to tip over.

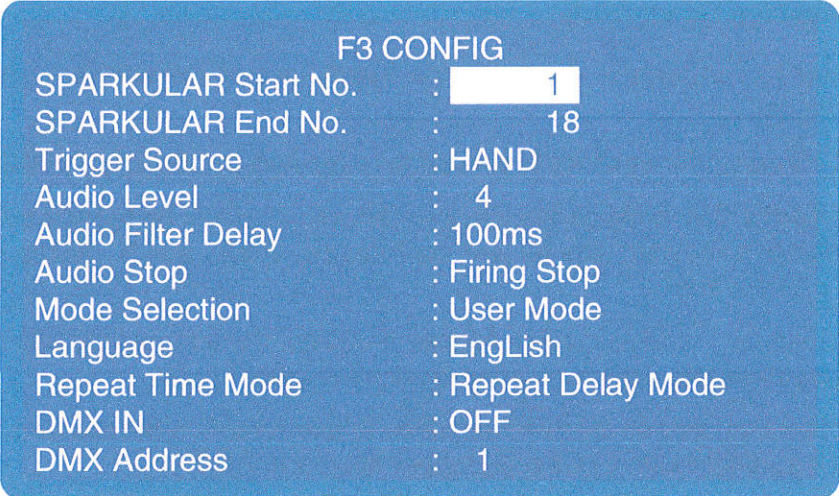
**C) File Edit: F2**

F2 provides you way to create and save 8 files. In each file, you can edit the height, duration, trigger delay, repeat mode, and repeat counts.

F2 FILE SELECT					
MODE: Synchronization					
FILE No.	FURING NEIGHT	FIRING DURTN	TRIG DELAY	REPEAT DELAY	REPEAT COUNTS
1	3	5.0s	0.0s	5.0s	1
2	9	0.8s	0.0s	1.0s	1
3	3	5.0s	0.0s	7.0s	2
4	9	0.4s	0.0s	1.0s	1
5	9	0.5s	0.0s	5.0s	2
6	9	1.0s	0.0s	3.0s	3
7	9	1.0s	0.0s	2.0s	2
8	9	1.0s	0.0s	1.0s	1

**D) Configuration Menu: F3**





Option	Range	Description
Sparkular Start and end number	1-18 units (standard) 1-54 units (pro)	The maximum allowed quantity of fixture/heads. Unless multiple controllers are used.
Trigger Source	HAND, AUDIO, MIDI	Trigger method under special effect mode
Audio Level	1,2,3,4	Voltage rating 1-4 under Audio Trigger Mode
Audio Filter Delay	10-100ms	The filtering time of trigger signals under Audio Trigger Mode
Audio Stop	Music Control stop or continue	This function allows the console to stop the program sequence or allow it to continue without music track. (can be set or left at default)
Mode Selection	User Mode, Factory Mode	Factory mode only used for the factory test
LANGUAGE	ENGLISH/CHINESE	Different language options
REPEAT TIME MODE	Repeat period or Repeat Delay	<b>Explained in End Note</b>
DMX Input	On/Off	This allows user to control through a DMX console and disables the Showven controller.
DMX Address	1-512	This gives the first fixture a start address for operation. It does not matter what the units are set to (low to high)
LAN	Communication Port	This port is for developing function extension
DMX Channel Mode	4 DMX Channel 2 DMX Channel	Default setting is 2 DMX Channel



### 5) The Use of the Special Effect Mode:

Connect USB cable to computer to download the Sparkular Edit200 software (please refer to Sparkular Edit200 software manual)

**Trigger Source: Hand** Under this mode, file can be executed by pressing FIRING button.

**Trigger source: Audio** This mode can be easily interfered, and can be triggered just once. It immediately triggers the command of executing files once it captures the Audio signal. Audio rating can be observed from the Music bar on the panel.

When set Audio Level as 1 and Audio Filter Delay as 50ms, the bottom light of the Music bar will light up once Audio signal captured and lasts for 50ms before executing file.

To prevent mis-operation, please follow those steps to use Audio: 1) Set trigger source as **HAND**;2) Plug in audio cable and test audio input; 3) Change trigger source to **AUDIO**

Please set Audio Level and Audio Filter delay parameters suitable for the input audio signal,

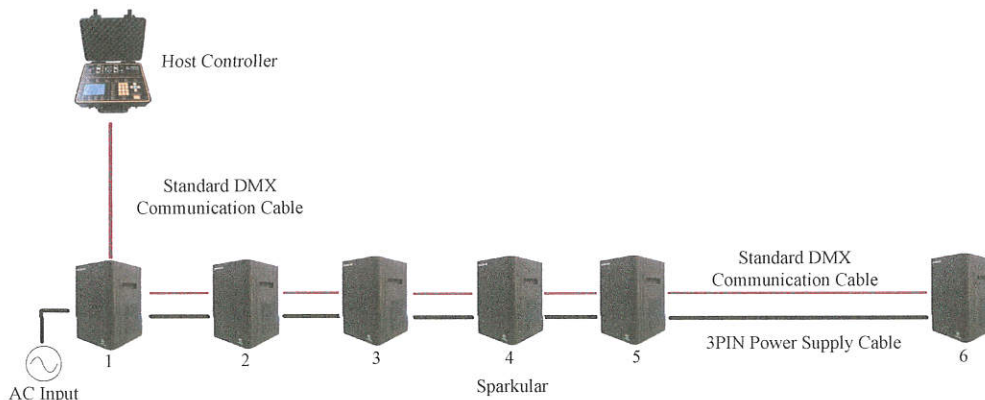
**Trigger Source: MIDI** This mode can synchronously start or stop operation from the MIDI time code.

**Sparkular Edit200 can synchronously start or stop operation under all kinds of Trigger Source.**

*Please note that there is another manual for the operation of the Sparkular Edit 200 Software. Currently the software does not stop Sparkular operation if the music feed or track is stopped or connection of playback track has been interrupted. The program would need to be paused or stopped by the operator and restarted to resume operation of the Sparkular show. (Once again, the Pre-Heat function will turn off and would need to be reset to on position).*

## 3. System Configuration and Connection

### 1) System Configuration



One set system configuration

**1: six units of Sparkular; 2: one unit of Host Controller:**

**3: six pieces of communication cable; 4: six pieces of power supply cable**





## 2) System Connection

### a) Controller and Sparkular



Controller(ZK6200)



DMX Communication Cable Sparkular (BT02)



### b) Sparkular Power Main Supply Cable

Maximum of 6 units Sparkular in series with the Main power supply cable.



Sparkular (BT02)



Power Con Main Cable

### c) Power Supplier Cable Connection between Sparkular Units



Sparkular (BT02)



Power Extension Supply Cable



Sparkular (BT02)

### d) Communication Cable Connection between Sparkular



Sparkular (BT02)



DMX Communication Cable



Sparkular (BT02)



#### 4. System Preparation and Start

##### 1) Fill the granules to Sparkular Unit

Please fill granules into the hopper on the top of Sparkular unit. Please note the hopper has maximum storage capacity of 200 grams of granules (one pouch).

Please Note that there are 3 styles of the granules 1) Small, 2) Medium and 3) Large. They are of different density, and the effect height varies from 3 feet to 15 feet.

	Small	Medium	Large
Fountain Height	3 ft~8 foot	5 ft~12 foot	6 ft~15 foot

##### a) Open the pouch of granules



# 1 Small

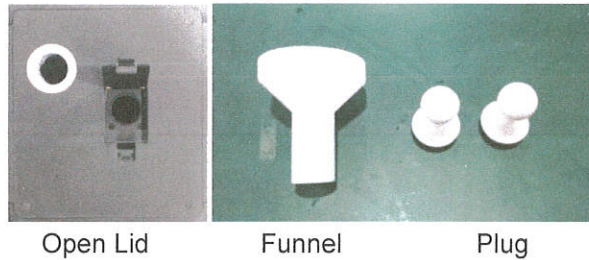


#2 Medium



#3 Large

##### b) Fill in the granules:



Open Lid

Funnel

Plug



Fill in granules

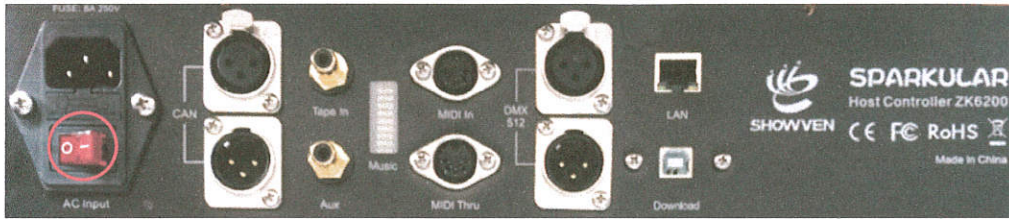
Close Lid

**Warning: Please follow this process to fill in the granules. After filling the Granular materials, please close the Lid. Please shake the unit gently if granules seem to overfill hopper! (do not overfill)**

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2) **Switch on the Host Controller ZK6200**



3) **Turn on the Sparkular unit**



4) **Set Parameters**

Please refer to “Host controller” part to set all of the fountain effects.  
*Sparkular Edit200 soft is designed for ZK6200 and can program lots of special effect.*

5) **Activate Sparkular machine**

To activate the Sparkular unit, RFID card will need to be scanned in defined area. Once activation succeeds, the remaining usage time of the machine will be displayed on the screen (20 minutes per RFID card, total usage time will not exceed 30 minutes). When the remaining usage time is less than 10 minutes E4 will be displayed on Host Controller.





#### 6) Starting the system

After setting of parameters, please click host controller's "Firing" button to start Sparkular. Files can be selected manually or can be selected in any of firing Modes. 8 Files per Mode are available.

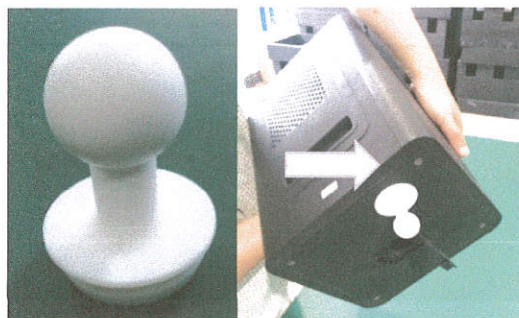
#### 7) Shutting off the system

After show, please shut off Sparkular units and Host Controller. Please cool down the unit to normal temperature before put it back into road case. Turning off the PRE-HEAT button and keeping the unit on will speed up the cooling process. **Never put your fingers or anything nearby or into the nozzle. HOT SURFACE!**

#### 8) Clear material

Step 1) Clear Material button is to clear out those un-projected granules left in the heating chamber of Sparkular unit. You must turn on PRE-HEAT function to do Clear Material procedure. And it is necessary to do this Clear Material procedure after each show.

Step 2) If you are not using the Sparkular machine again soon you will need to empty the un-used granules. Pour the granules out of the hopper and seal in a plastic bag. \*Please note this step can be skipped if the Sparkular unit will be used high frequency or in short time period.



Illustrations How to pour out the granules

***Warning: Please follow this process to clear materials when necessary.***

Please store the left over granular materials in container (like jar, bottle or plastic bag) which needs to be kept in a dry and well-sealed condition. The Sparkular Granules should not be exposed to a Humid environment for long time. If necessary, dispose of the granular materials by burning.

## End Note: Repeat Period/Delay – Explained

**Repeat Delay Mode** is the default setting of the controller. Under this mode, Repeat begins from the last Sparkular unit. This creates a continuous loop of effects.



To enter **Repeat Period Mode** please press F3 on the controller then go to **Repeat Time Mode** option. Under Repeat Period mode, the repeat begins from the first Sparkular unit. The value of Repeat Period needs to be higher than the Firing Duration (for the Synchronize mode) or the total time of the Firing duration and trigger delay.

FILE NO.	FIRING HEIGHT	FIRING DURIN	TRIG DELAY	REPEAT PERIOD	REPEAT COUNTS
1	3	0.6s	0.2s	3.0s	5



Please note that the Sparkular units are not allowed to run without intervals or exceeds single firing duration limit. It has a maximum of 60-90 second intervals. Its standard usage is for programmed sequences for up to 90 seconds. The units will over heat and slow down or stop projecting effects. They will need to cool down prior to continue their use. Continuous overheating will void all warranties. If cleaning is needed, please use a bottle brush to keep the fountain pipe free of debris.



To avoid physical injury, children are forbidden to touch the Sparkular units and are only allowed to stay beyond the safe distance from the working Sparkular unit. This is a special effect that produces sparks and will injure the eyes if they are subjected to the immittance of the sparks.



The proper firefighting extinguishers are **recommended** as follows:

ABC Chemical Extinguishers or

Class “D” Fire Extinguishers for Metal Substance Fires.

**DO NOT USE WATER OR CO2 AS THIS WILL AGGREVATE THE SITUATION!**



