

USER MANUAL

SPARKULAR® JET II

V1.1

2025/06/16



Showven Technologies Co., Ltd.

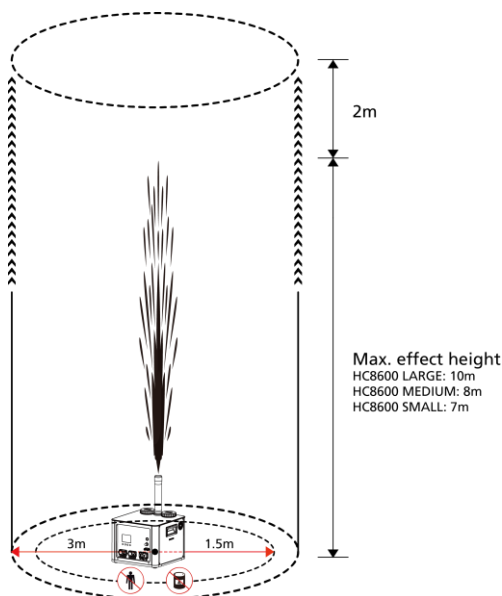
Thanks for choosing SPARKULAR® JET II, we wish it will sparks up your show. Please read the following manual carefully before operating this product.

▲ Safety Instructions

- ⚠ Unauthorized repair are prohibited, it may cause serious incident.
- ⚠ SPARKULAR® JET can be used in rain, but after use please clean it, and store it at dry environment.
- ⚠ Make sure lid of feeding hopper are well covered when use SPARKULAR® JET II.
- ⚠ Accidentally burning of consumable in the hopper can only use sands to extinguish.
- ⚠ Consumable should keep away from moisture and stored in a dry sealed environment.
- ⚠ Check whether there is consumable aggregate in the output nozzle both before and after each show, if any, please clean it up, or it will affect the firing effect or even damage SPARKULAR® JET II.
- ⚠ Please be noted that there may sparks or remains fall to the ground. Make sure there is no flammable objects such as carpet on the ground within the safety radius around machine.
- ⚠ Maximum cascade of SPARKULAR® JET II is 3 units with a standard power cable. Exceed connecting may result in damage or even cause fire.
- ⚠ For better heat dissipation, block the air intake and air outlet is prohibited.
- ⚠ Cover the output nozzle of SPARKULAR® JET II is forbidden, inspect the machine before each show, making sure no objects or material will block the output nozzle.
- ⚠ Never touch the nozzle of SPARKULAR® JET II, danger of getting burnt
- ⚠ Never touch the sparks which shooting out from the nozzle
- ⚠ Ensure that children, animals and unauthorized persons don't have access to the SPARKULAR® JET II.

Safety Distance

- ⚠ Keep audience and flammable material at a minimum distance of 1.5m (when use HC8600 SMALL) or 3m (when use HC8600 MEDIUM or LARGE) from SPARKULAR® JET II.
- ⚠ Make sure sparks shoot out from SPARKULAR®JET II can NOT touch any objects. And keep a clearance with minimum 2m from the setting maximum effect height.
- ⚠ In windy environment, increase the safety distance according to the wind direction and speed.
- ⚠ The safety zone area shifts accordingly when machine use angled extension tube. Please increase the safety distance in the angled direction.
- ⚠ Sparks and consumables from the machine can lead to serious eye injury. Always wear safety goggles when enter the safety zone.



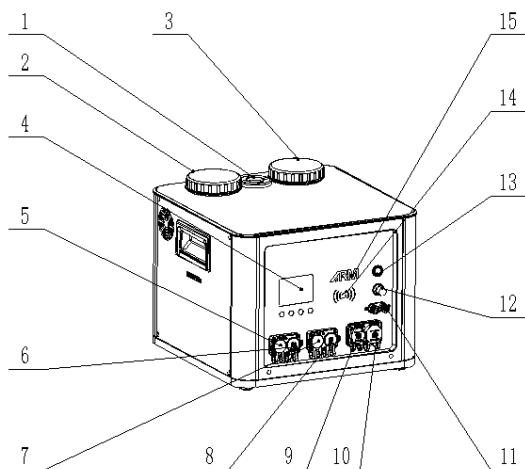
Δ Description

SPARKULAR® JET II is a brand new upgrade based on our first generation of SPARKULAR® JET combined with valuable feedbacks from our customers, latest technologies and our years of experiences. It is with much shorter firing delay and allows triple continuous shots within 1s delay. Besides, it updated to our latest rear interface design with ARM indicator light. Except both 3 and 5-pin DMX interface, it can also be triggered by 9-60V pyro signal. It is perfect effects solution for stadium, concerts etc. medium to large events.

Δ Technical Specifications

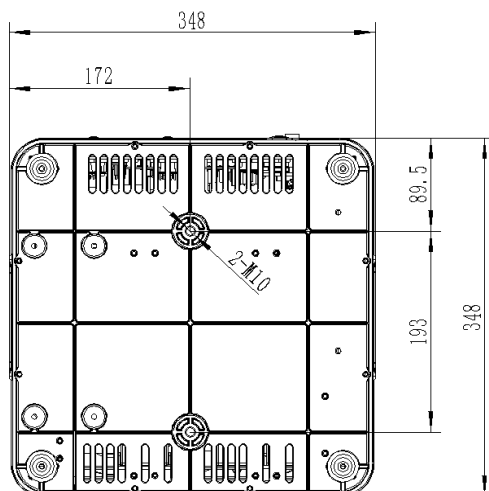
- \\ **Model:** BT93 / BT94
- \\ **Dimension:** 348×348×290mm
- \\ **Weight:** 25kg
- \\ **Housing material:** Aluminum
- \\ **Input:** AC 100V-120V,50/60Hz, Max.cascade:3PCS
 AC 200V-240V,50/60Hz, Max.cascade:3PCS
- \\ **Work power:** 800W
- \\ **Work Temp.:** -20 °C~50 °C
- \\ **Effect height:** HC8600 LARGE(9-10m) / HC8600 MEDIUM (7-8m) / HC8600 SMALL (6-7m)
- \\ **Hopper capacity:** 450g * 2
- \\ **Trigger delay:** 0.5s
- \\ **HC8600 consumption:** HC8600 LARGE/MEDIUM 20-25g/shot; HC8600 SMALL 12-15g/shot
- \\ **Interface:** 3-pin and 5-pin DMX IN/OUT, 9-60V pyro signal, NEUTRIK POWERCON TURE 1
- \\ **Control:** Standard DMX 2 Channels

Δ Structure of SPRKULAR® JET II



1. Output Nozzle
2. Feeding Hopper 1
3. Feeding Hopper 2
4. LCD screen
5. 5-PIN DMX OUT
6. 5-PIN DMX IN
7. 3-PIN DMX OUT
8. 3-PIN DMX IN
9. POWER IN
10. POWER OUT
11. 9-60V External Trigger
12. Fuse
13. Power Switch
14. RFID Card Swipe Area
15. ARM Indicator Light

Bottom diagram



Δ Operation Panel

1. Display area



MENU: Press enter setting interface

UP: Parameter up

DOWN: Parameter down

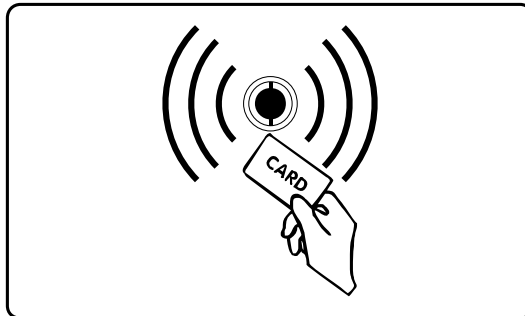
MONI: Status monitoring of main part inside machine

2. Monitoring Interface

From this interface, we can check the pressure, PCB TEMP. and motor status of machine.

MONITOR	
PRESSURE	70
PCBA Temperature	7
Pump Motor Sensor	00.0A
ShaftA Motor Sensor	00.0A
ShaftB Motor Sensor	00.0A
External Trigger	0
BACK	UP
DOWN	MONI

3. RFID area



RFID card come with consumable HC8600 bags, swiping card to identify parameters and types of granules. The RFID card is disposable, one card can only use one time. Each card can increase single machine 30 shots, the maximum recharge shots for SPARKULAR® JET II is 120 shots.

4. ARM alarming light



OFF: DMX connected.

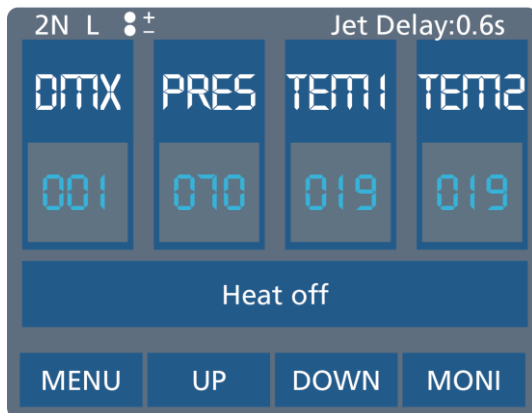
BLINK: DMX armed, ready for firing

ON: No DMX connection.

NOTE: you can turn off the ARM light in ADVANCED menu by switch the ARM State to OFF status.

Δ Display Interface

1. Main Interface:



a) Status Bar

2N / 6N: channel mode

L / M / S: consumable selection HC8600 LARGE / MEDIUM / SMALL

:± : External trigger ON

Jet Delay: Jet delay duration

b) Data Bar

DMX: DMX address, red background means DMX connected.

PRESS: Device present pressure value, 70 means 7bar. RED background means machine pressure ready to shot.

TEMP 1: Temp. of first heating chamber, RED background means machine temp. reached set temp. and ready to shot. BLACK ground and display 995 means temp. sensor disconnect.

TEMP 2: Temp. of second heating chamber, RED background means machine temp. reached set temp. and ready to shot. BLACK ground and display 995 means temp. sensor disconnect.

c) Message Bar

Shows device status, remaining shots and error information if any

d) Touch Keypad Bar

MENU / BACK: MENU or BACK

UP / LEFT: Parameters up, tiems switch up or left

DOWN / RIGHT: Parameters down, items switch down or right

MONI / EDIT / SAVE: Data monitoring, edit or save

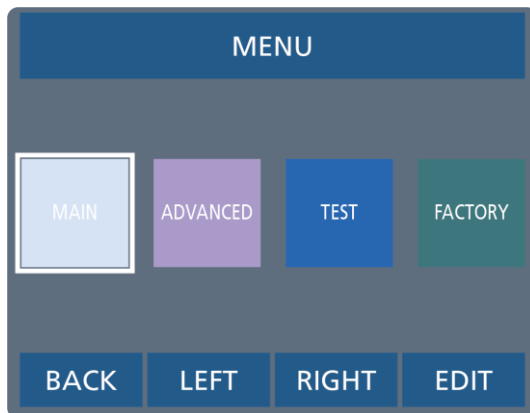
2. Error information

Error information	Why it appear	How to remove
E0 System IC3	Systematic error, use fake RFID card	Contact SHOWVEN or local distributor
E1 Shaft Motor Stall	- Chain is too tight - Shaft is blocked - Shaft motor is damaged - Mainboard malfunction	- Check whether the chain can be turned easily, if too tight please loosen the chain - Check whether shaft can be turned manually, if not means it is blocked, please disassemble and clean it or replace a new one. - Check whether shaft motor is working, if not please replace a new shaft motor - Replace a new mainboard Set "motor protect" to OFF in advanced interface and restart the machine to check whether it is mainboard malfunction
E2 Temp. Sensor	- Temp. sensor wire terminal connection loose - Temp. sensor damage - Mainboard malfunction	- Check the Temp. sensor wire connection - Replace a new Temp. sensor - Replace a new mainboard
E3 P Temp. Over	Machine chassis over temperature, maybe because: - Cooling fan wire terminal connection loose - Cooling fan is damaged - Mainboard malfunction	Stop firing and heating up, let the machine cooling down itself. - Check the cooling fan wire connection - Replace a new cooling fan - Replace a new mainboard
E4 Time Remain	Remaining firing shot is less than 10shots	Swipe a new V2.0 RFID card, it is in SHOWVEN original HC8600 package box
E5 K Temp. Over	- Firing duration is too long - Mainboard malfunction	- Stop firing and let the machine cool down itself - Replace a new mainboard
E6 Heat Fail	- Heating PCB or heating coil wire terminal loose - Heating PCB is damaged - Heating coil is damaged - Mainboard malfunction	- Check heating PCB and Heating coil wire terminal connection - Replace a new heating PCB - Replace a new heating coil - Replace a new mainboard
E7 Tip Over	- Tip over more than 45° - Mainboard malfunction	- Place the machine on a horizontal position or set the Tip over to OFF status if necessary - Replace a new mainboard
E8 Pressure Sensor	- Pressure sensor wire terminal connection loose - Pressure sensor is damaged - Mainboard malfunction	- Check the pressure sensor wire terminal connection - Replace a new pressure sensor - Replace a new mainboard
E9 Pressure Err	- Air compressure pump is damaged - Pressure hose leakage - Mainboard malfunction	- Replace a new air compressure pump - Check the pressure hose to find the leakage and repair it - Replace a new mainboard

E10 Pressure Over	1. Pressure sensor is damaged 2. Mainboard malfunction	1. Replace a new pressure sensor 2. Replace a new mainboard
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3. Set Up Menu

Press "MENU" enter setup menu, press LEFT, RIGHT to choose main menu, advanced menu, test interface or factory menu. Press "EIDT" can entering related menu and setting up related parameters.



4. Main Menu

Parameters in main menu show in below table, press "UP"/ "DOWN" to change the value, please remember to press "SAVE" to save the setting.

Options	Range	Default	Explanation
Set DMX Address	1-512	1	Set DMX Address
DMX Channel Mode	2CH-N / 6CH-N	2CH-N	2 / 6 channel mode switch
Manual Clear	ON/OFF	OFF	Manual clear material ON/OFF

5. Advanced Menu

Options	Range	Default	Explanation
Set Temperature	480-620	580	Setup heating chamber temp.
Auto Heat	ON/OFF	OFF	Auto heating up after power on
Ext Ignite	ON/OFF	OFF	External 9-60V trigger setting
LCD Backlight	ON/OFF	OFF	LCD backlight setting
ARM State	ON/OFF	ON	ARM indicator light setting
Mode Selection	Factory Mode User Mode	User Mode	Factory mode is for factory use only. When in Factory mode machine can't controlled by DMX console
Key Sound	ON/OFF	OFF	Keypad press sound setting

Key Lock	ON/OFF	OFF	Keypad auto lock after 30s no operation
Tip Over	ON/OFF	ON	Tilt function switch, when machine slant over 45 degree it will stop working.
Standby Switch	ON/OFF	ON	When ON, the machine can firing only when heating up was finished
Material Select	Large / Medium / Small	Large	HC8600 type selection, if not match with the powder in hopper will leads to poor effect
Default Parameter	ON/OFF	OFF	Parameters reset to default setting

*For better performance of SPARKULAR® JET II please don't change the default value without permission from SHOWVEN®.

6. Test Menu

Options	Explanation
Feeding Test	Feeding motor testing
Fan Test	Fan testing
ShaftA Test	Shaft motor A testing
ShaftB Test	Shaft motor B testing

7. DMX Channel Mode

SPARKULAR JET II with 2 different channel mode optional. 2 channel mode 2CH-N and 6 channel mode 6CH-N.

2CH-N:

Channel	Function	Value
CH1	Firing	0~111: Firing OFF 122-255: Firing ON
CH2	Heating / Clear Material / Enhanced Feeding	0-10: Heating OFF 20-40: Emergency Stop 60-80: Clear Material 100-120: Enhanced Feeding (enhance the first shot effect) 240-255: Heating Up

NOTE:

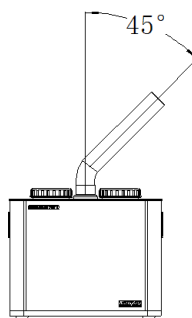
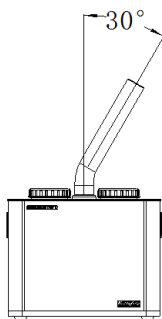
1. If activate enhanced feeding, please firing within 1min, otherwise enhanced feeding effect will disable.
2. SPARKULAR® JET II capable of three continuous shots, but the time gap between each shot should be equal or more than 1s. It takes around 30s to achieve target pressure after 3 continuous shots.

6CH-N:

Channel	Function	Value
CH1	Jet Valve 1 ON	0~111: Firing OFF 122-255: Jet Valve 1 ON
CH2	Heating / Clear Material / Enhanced Feeding	0-10: Heating OFF 20-40: Emergency Stop 60-80: Clear Material 100-120: Enhanced Feeding (enhance the first shot effect) 240-255: Heating Up
CH3	Jet Valve 2 ON	0~111: Firing OFF 122-255: Jet Valve 2 ON
CH4	n/a	Reserved
CH5	Jet Valve 3 ON	0~111: Firing OFF 122-255: Jet Valve 3 ON
CH6	n/a	Reserved

Δ Operation Guide**1. Install SPARKULAR® JET II**

- SPARKULAR® JET II can only installed horizontally. If need to firing SPARKULAR® JET in angles, please use angled extension tube.
- Make sure the machine is securely installed to avoid tipping.
- Check carefully the output nozzle and extension tube of each machine, make sure the output nozzle and extension tube are in good shape and there is no powder aggregate.
- Install the extension tube if use HC8600 MEDIUM and HC8600 LARGE. When use HC8600 SMALL there is no need to install extension tube.
- Beside the standard straight extension tube, there are other two angled extension tubes optional: 30° angled extension tube and 45° angled extension tube.
- Be aware that there will be sparks drop on ground when use angled extension tube.
- Safety distance should shift accordingly when use angled extension tube.



2. Fill SPARKULAR® JET II

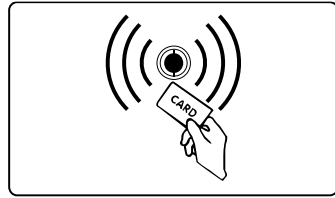
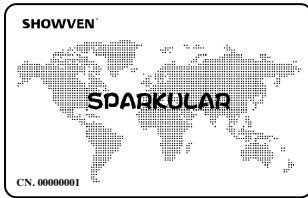
- a) Open powder bags and fill the feeding hopper. There are two hoppers, please fill both of the hoppers. Hopper capacity of SPARKULAR® JET II is 450g each.
- b) Make sure the powder is originally from SHOWVEN directly or SHOWVEN authorized distributor, other types of powder may block even damage the machine.
- c) Choose correct consumable according to the application scenario. SPARKULAR® JET II can only use HC8600 LARGE, MEDIUM and SMALL.
- d) Please be noted that there may sparks or remains fall to the ground. Make sure no flammable material on ground in the safety zone.
- e) Maximum effect height: HC8600 LARGE is 10m, HC8600 MEDIUM is 8m, HC8600 SMALL is 7m.
- f) Make sure the lid of hopper is locked tight after filling.

3. Connect Power / DMX cable

- a) Connect a power cable to the POWER IN socket of SPARKULAR® JET II. Connect the other end of power cable to the power source. Make sure power supply is consistent with the rated voltage of the equipment, and the socket must be well grounded.
- b) If connect machine in sequence, please connect a power link cable to the POWER OUT of previous machine, connect the other end of the power link cable to the POWER IN of next machine.
- c) The SPARKULAR® JET II power supply cable maximum allowed cascade is 3 units. Do not connect exceed units to a single electrical circuit.
- d) Power ON all SPARKULAR® JET II.
- e) Assign DMX address for each unit of SPARKULAR® JET II. If use SHOWVEN host controller or FXcommander to control the machine please allocate a unique DMX address for each unit of machine.
- f) Connect a DMX cable to the DMX IN socket of first unit of SPARKULAR® JET II, connect the male connector end of DMX cable to your DMX controller (FXcommander, HOST CONTROLLER, light console etc).
- g) Connect a DMX cable to the DMX OUT of previous machine, and the other end of to the DMX IN of next machine. Connect all devices in series in this way.
- h) Suggest to plug in a DMX terminator into the DMX OUT in last unit of machine to improve signal reliability. Signal amplifier is required for long distance (>200m) DMX signal transmission.

4. Activate SPARKULAR® JET II by swipe RFID card

- a) Swipe an RFID card. Read the card as show below. SPARKULAR® JET II screen flash once if read successfully. SPARKULAR® JET II only compatible with V2.0 RFID card from SHOWVEN.
- b) SPARKULAR® JET II will report E4 when remaining firing times is less than 10times.
- c) Please note each RFID card come with 200g package HC8600 can increase single machine 30 firing times, the maximum recharge times each time for SPARKULAR® JET II is 120 times, when remaining firing times reached 120, it can't recharge anymore RFID card.



5. Programming and Firing

- a) Programming SPARKULAR® JET II, set the “Material Select” in the menu according to the consumable (HC8600 LARGE / MEDIUM / SMALL) you use.
- b) Heating up and pressurize the machine, it takes around 8min.
- c) Make sure the prescribed safety zone is clear.
- d) Suggest to clear material before firing.
- e) Firing. SPARKULAR® JET II capable of three continuous shots, but the time gap between each shot should be equal or more than 1s. For better performance please be aware of this time gap. It takes about 30s for the pressure recovery after 3 continuous shots.
- f) The operator should always have a clear view of the device, so that he/she can stop the show immediately when there is danger.
- g) Clear material for SPARKULAR® JET II after show, clear material will remove the remaining particles from heating chamber.

6. Turn off and clean up

- a) Power off SPARKULAR® JET II, allow SPARKULAR® JET to cool down after show.
- b) Disconnect all POWER and DMX cables.
- c) Empty the remaining HC8600 in hopper, and store the remaining HC8600 in a dry sealed bottle for next time use. Never touch the output nozzle of SPARKULAR® JET II when empty the hopper. DANGER OF GET BURNT!
- d) Operators can use handheld vacuum cleaner to empty the feeding hopper. Do make sure the machine was cool down when clean it. Do NOT use high-power vacuum cleaners to avoid hot consumables being sucked into the vacuum cleaner from the heating chamber and cause fire.
- e) Clean the surroundings to remove powder residues.

Δ Maintenance

- a) Empty the feeding hopper before shipment of machine.
- b) Empty the feeding hopper if long time not use, for high humidity environment we suggest to empty feeding hopper after each show.
- c) Clear material both before and after the show.

Δ Warranty Instructions

- \ Sincere thanks for your choosing our products, you will receive quality service from us
- \ The product warranty period is one year. If there are any quality problems within 7 days after shipping out from our factory, we can exchange a brand new same model machine for you
- \ We will offer free of charge maintenance service for machines which with hardware malfunction (except for the instrument damage caused by human factors) in warranty period. Please don't repair machine without factory permission

Below situations NOT included in warranty service:

- \ Damage caused by use other type of consumable which is not originally from SHOWVEN®.
- \ Damage caused by improper transportation, usage, management, and maintenance, or damage caused by human factors;
- \ Disassemble, modify or repair products without permission;
- \ Damage caused by external reasons (lightning strike, power supply etc.)
- \ Damage caused by improper installation or use;

For product damage not included in warranty range, we can provide paid service.

Invoice is necessary when applying for maintenance service from SHOWVEN®.

SHOWVEN[®]



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