TOPCAT®

HF-90S FLAME MACHINE

USER MANUAL

1. BEFORE YOU BEGIN

1.1. What Is Included

HF-90S Flame Machine × 1   Power Cord × 1   Warranty Card × 1   User Manual × 1

1.2. Unpacking Instructions

Carefully unpack the product immediately and check the container to make sure all the parts are in the package and are in good condition.

If the box or the contents (the product and included accessories) appear damaged from shipping, or show signs of mishandling, notify the carrier or dealer/seller immediately. In addition, keep the box and contents for inspection.

1.3. Symbols

Symbol	Meaning
⚠	**Caution** Critical installation, configuration, or operation information. Not following these instructions may make the product not work, cause damage to the product, or cause harm to the operator.
ⓘ	**Important** Important installation or configuration information. Failure to comply with this information may keep the product from working correctly.
💬	**Information** Useful information.

1.4. Disclaimer

Thanks for choosing DJPOWER Flame Machine HF-90S. When you purchase this machine, you will recognize the following instructions by default. Please read following manual carefully and completely before operating this product. Operate according to instructions is very important for safety, and can elongate the service life of the machine. Strictly follow the instruction in the manual when operate flame machine HF-90S. If you have any doubts, please contact DJPOWER.

Use the HF-90S only under the rules and instructions from this manual. Contact DJPOWER in case of doubts about the usage.

We assume that you, your employees and others who use or come in contact with the machine are familiar with how the machine should be handled. This includes proper use, maintenance and repair of the machine as defined in this user guide. This also means that employees are familiar with the use of machinery through training or experience.

DJPOWER excludes liability for unsafe situations, accidents and damages resulting from:

1. The machine is not arranged for use by professionals, and the machine is still used when the machine malfunctions or is damaged.

2. The Flame Fluid Can was not emptied before the machine was shipped.

3. Ignoring warnings or regulations as shown on Wave flame machine or this manual.

4. Use for other applications or circumstances other than those indicated herein

5. Use this machine by unqualified or untrained personnel. including use of non-original spare parts.

6. Removed safety cover without authorization from DJPOWER.

DJPOWER is not liable for the damages caused by failure of the wave flame machine.

The information and specifications contained in this manual are subject to change without notice and keep the right to modify or revise this manual at any time. Copyright© 2022 DJPOWER all rights reserved.

1.5. Safety Notes

Please read the following Safety Notes carefully before working with the product. The notes include important safety information about installation, usage, and maintenance.

1.5.1. Personal Safety

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

• After the machine is turned on, it is strictly forbidden to stay in the dangerous area of the machine. **Safety distances for HF-90S： At least 5m in all projection directions.**

• Please prepare dry powder and fire extinguishing equipment at the machine use place. Always have a dry powder fire extinguisher, CO2 fire extinguisher, and an extinguishing blanket in case of needed.

1.5.2. Mounting and Rigging

• CAUTION: When transferring product from extreme temperature environments, (e.g. cold truck to warm humid ballroom) condensation may form on the internal electronics of the product. To avoid causing a failure, allow product to fully acclimate to the surrounding environment before connecting it to power.

• Do not mount the product on a flammable surface (linoleum, carpet, wood, paper, carton, plastic, etc.). Keep a safe distance from the unit, the unit can only be placed horizontally.

1.5.3. Power and Wiring

• Please use a grounded socket to avoid the risk of electric shock.

• Make sure power supply in consistent with the rated voltage of the equipment, Unplug and turn off the machine when not use.

• Check that the power cord is not pinched or damaged.

• Do not connect the machine to a dimming controller or varistor.

• Do not disconnect the power supply by pulling the power cord.

1.5.4. Operation

• The maximum ambient temperature is 40 ° C. Do not operate the machine in a high temperature environment.

• Do not operate this product if the machine casing or cable is damaged. Immediately ask the authorized technician to replace the damaged part.

- Make sure there are no flammable materials around the machine before operation, and keep a safe distance between the person and the equipment. The Safe distance for the HF-90S is: at least 5m in all projection directions.

- Before connect the power cable, communication DMX cable should well connected and ensure the command keep at firing OFF status. And safety lock stay at test mode

- The operator responsible for the control of Wave flame machine must always have a clear view of the device, so that he/she can stop the show immediately when there is danger. The main AC power switch should near operator. So that operator can turn off the power of all devices in case of abnormal.

- If there be any doubt as to the safety operation of the device in any circumstances, the device should be taken out of service immediately. Be sure the device is in good operating condition before use, check the sparkle oil, fuse, cable and power plug. If fail to fire correctly, immediately shut down and contact the factory.

- **Empty the Flame Fluid Can before transporting the machine.**

- The machine does not contain any user disassembled and self-repaired or modified parts. Do not attempt to repair or modify the machine yourself without any training or authorized technicians to avoid damage or malfunction.

- Notes for use of Battery power supply: HF-90S with stable internal circuit design, please support the unit with battery voltage higher than 12V. The driving speed of motor won't change because of the decrease of battery power supply. Battery options: 12V lead-acid battery (above 30AH, with more than 24h standby). For Lithium battery, please use battery with output above 30A. 4 pin sound coupliers (1+ connect 12V anode, 1- connect 12V cathode). Connecting power cables should be above 14AWG.

- **Be sure to use the suitable flame fuel indicated in the user manual, otherwise, it is easily lead to failure or danger. Do not add any material other than the specified proportion of castor oil in the oil drum. Be careful when refill the flame fluid tank. Please keep flame fluid away from heat source, sparks, fire or other possibility of ignition.**

☺ Please save this manual for future use. Sell the machine again, be sure to attach the instructions.

2. INTRODUCTION

2.1. Description

HF-90S is DJPOWER's newly upgraded vertical flame machine, and flame effect reaches up to 8-10m. It is equipped with dual ignition, rainproof structure design, built-in fuel tank and pumping system which makes it easy to operate and powerful. It is suitable for all kinds of shows to create excellent atmosphere.
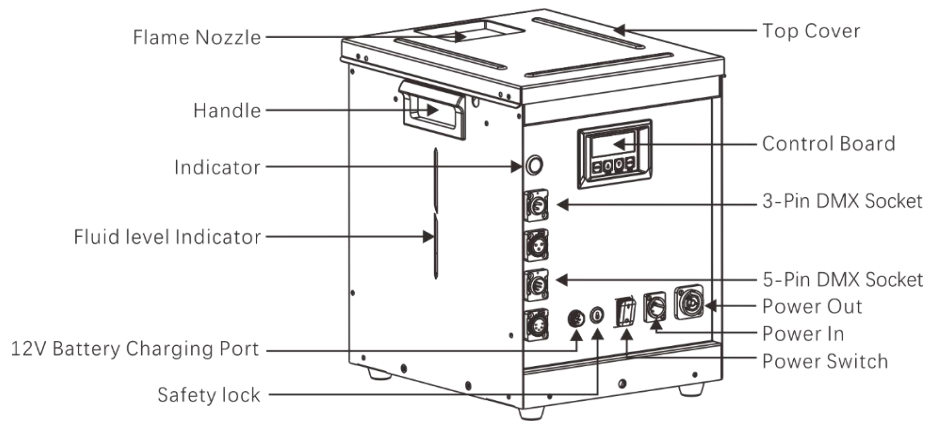
2.2. Features

- Dual ignition ensures successful ignition;

- Fast and precise flame burst;

- Rainproof structure design, IPX3 waterproof grade;

- Intelligent electronic control system (Pressure & no-fluid monitoring; Safety & Failure warning);

- Built-in LCD control, 3-pin and 5-pin DMX control;

- Full set of SEETRONIC rainproof power connectors;
- With battery interface, support external 12V battery supply.

Note: The actual effect may be affected by the use environment.

2.3.   Product Overview

Flame Nozzle — Top Cover
Handle
Indicator — Control Board
Fluid level Indicator — 3-Pin DMX Socket
5-Pin DMX Socket
Power Out
12V Battery Charging Port — Power In
Safety lock — Power Switch

2.4.   Product Dimensions

335 mm   297.3 mm   383.4mm
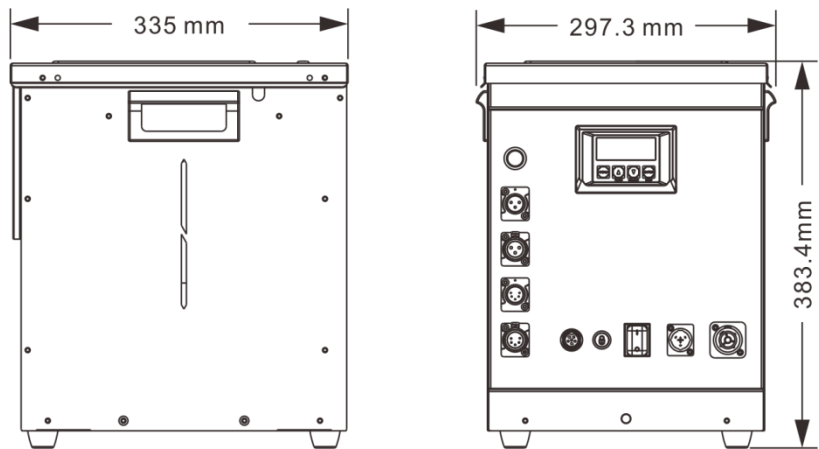
3. TECHNICAL SPECIFICATIONS

Voltage	AC 100 V-240 V, 50/60 Hz
Power	450W
Tank Capacity	5L
Horizontal placement	√
Tilt	×
Side placement	×
Up-side-Down	×
Hang	×
Body Control	LCD control panel
Wireless Control	×
Wire Control	√
Maximum Output Height	Appr. 8 meters(no wind condition)
DMX Channel	Six or two
Fluid Consumption Rate	Appr. 0.4 min/L
Consumable	ISOPAR-G (isopropanol or bio-ethanol is optional only under special request, please consult sales manager first. In order to protect the fuel pump and pipeline, 10-20ml of hemp oil must be added to every 10L of fuel, otherwise the fuel pump and components will be damaged)
Machine Net Weight	17.5 kg
Gross Weight	20.8 kg
Machine Dimensions	335× 297.3 × 383.4 mm
Packing Dimensions	480 × 430 × 505 mm

4. SETUP

4.1. AC Power

The machine has a fixed voltage power supply and can work with an input voltage of AC 100V-240V 50/60HZ , depending on the specific model.

To determine the product's power requirements (circuit breaker, power outlet, and wiring), use the current value listed on the label affixed to the product's back panel, or refer to the product's specifications chart. The listed current rating indicates the product's average current draw under normal conditions.

⚠️ **Always connect the product to a protected circuit (circuit breaker or fuse). Make sure the product has an appropriate electrical ground to avoid the risk of electrocution or fire.**

ⓘ **Never connect the product to a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel serves only as a 0 to 100% switch.**

4.2. AC Plug

The Flame Machine HF-90S comes with a power input cord terminated with a Lockable power connector on one end. The other end is EU plug.

If the power input cord that came with your product has no plug, or if you need the change the plug, use the table below to wire the new plug:

| Connection	Wire（China）	Wire (Europe)	Wire (U.S.)
AC Live	Brown	Brown	Black
AC Neutral	Blue	Blue	White
AC Ground	Yellow-green	Yellow-green	Green

5. OPERATION

5.1. Preparing for Operation

Before operating the machine, please follow the below steps to prepare:

- Before operation, please ensure that there are no flammable materials around the machine, and people and equipment should maintain a certain safe distance. Safety distances for HF-90S: At least 15m in all projection directions, at least 5m to the other sides of the device.

- After checking that all the parts are intact and complete, position the machine on flat.

- Please connect the communication line before the power is turned on, and ensure that the communication command is non-injected and the device is in test mode.

- Always connect the product to a grounded circuit. Before power on, make sure it is connected with the rated voltage

- The operator should near the machine and be able to directly see the status, and immediately terminate the performance when there is a danger. There should be a total AC power switch near the operator. When an abnormality occurs, the power should be disconnected in time. This is the safest way to do this.

5.2. On-device Control Panel

To access the control panel functions, use the four buttons located underneath the LCD display.
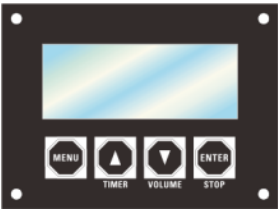
Button	Function
<MENU>	Switch menu pages to select a function
▲	Increases the numeric value of current function
▼	Decreases the numeric value of current function
<ENTER>	Switch between current menu page and Standby Page

5.3. On-device Control Mode & Operation

5.3.1. Programming

- Refer to the Menu Map to understand the menu options. The menu map shows the main level and a variable number of programming levels for each option.

- To go to the desired main level, press <MENU> repeatedly until the option shows on the display. This will take you to the first programming level for that option.

- To select an option or value within the current programming level, press <TIMER> < ▲ > or <VOLUME><▼> until the option shows on the display. If there is another programming level, you will see that first option, or you will see the selected value.

- Press <MENU> repeatedly to switch menu pages.

- Press <STOP> to return to the standby page.

5.3.2. Menu Map

	Display	Description	Parameter Range
Starting Page	HF-90S V1.0		
Standby Page	Wait To Connect P:0 V12	When the external trigger function is OFF, to connect to DMX control, showing this page	
Working Status Page	Ready To Work P:0 V12	Under DMX control, showing the DMX address setting.	
Menu Page	DMX address : 1	Setting DMX address	1~512
	DMX MODE : 2CH	Switch between 2-channel or 6-channel mode	2CH/6CH
	Tip switch ON	Setting the tilt protection (In case it is ON, if the machine tilts over 45° , it stops the unit from firing)	ON/OFF
	Language Chinese	Language setting	
Error and Warning Page	E1: Pressure Err P:0 V12	Pressure failed to reach 100% after 13s pressurizing, system will report E1. Possible fault: No fuel; pump failure; pipeline problem etc.	
	E2: Tip Err P:0 V12	The machine tilts over 45° , it stops running, system will report E2	

|	
``` E3: Bat Err P:0 V12 ```	Machine stops running due to battery voltage higher than15V or lower than 10V for 5s contentiously. Possible fault: the battery is low.
``` E4: System Lock P:0 V12 ```	Safety lock located at TEST MODE
``` E5: Relief Err P:0 V12 ```	Pressure relief error due to pipeline can't release pressure. Possible fault: pressure release valve failure; pipeline problem or control system problem etc.

5.3.3.　Menu Map Setup

Press MENU to enter the setting interface. Press MENU to enter different options until you return to the main interface.

5.4.　Operation

5.4.1.　Orientation

Please read the safety distance print on the top panel of the FLAMER carefully.
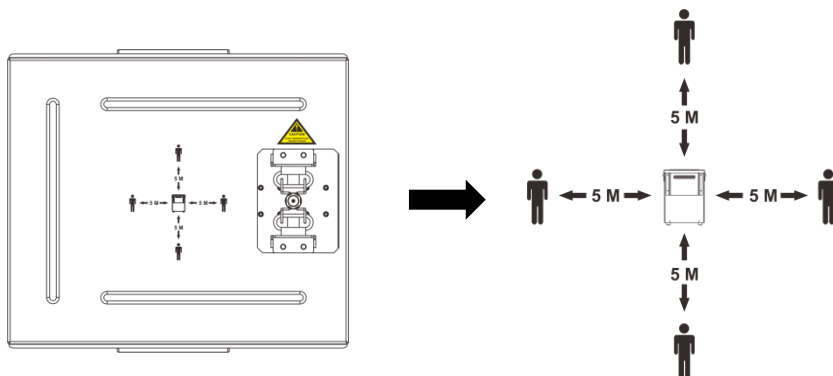
Note:

1. **Safety distances for Vertical flame machine are indicated in above picture. At least 5m in all projection directions, at least 5m to the other sides of the device. In order to indicate correct direction, please place the top panel correctly.**

2. **The nozzle is still hot after the flamer worked, to prevent burns, do not touch, wait for natural cooling.**

5.4.2.   Quick Operation Sheet

Immediately upon receiving the machine, carefully unpack the carton, check the machine received in good condition. Ensure safety operation of machine, please do following below operation procedures when operate flame machine.

Operation step	Schematic diagram	Explanation
1	Installation	The device can only be placed horizontally, if placed on truss, please locked with extra safety cables.
2	Locate safety lock at TEST MODE	Before operate machine please locate safety lock at TEST MODE. Under TEST MODE, operator can test the rotation of nozzle, but the fuel ejection function is disabled to prevent firing. Under USER MODE: the device can run normally. Please strictly follow the safety distance requirement. Human beings, animal or flammable objects shall be away from the danger area.
3	Fueling	Take out the flame fluid can and add fuel; carefully put it back into the cabinet to avoid spilling; ensure that the tube is placed in the fluid can; tighten the container cap. Please use the designated suitable fuels.
4	Power and DMX cable connection	110V/220V main power supply （See the item marked on the main label of the device）
5	Switch ON the machine	Please confirm safety lock located at TEST MODE before switch on the unit.
6	Set DMX address	The vertical flame machine can switch between 2 channel or 6 channel mode.
7	Pressurize	Under DMX control: Channel 6= 50~200.
8	Check device status in TEST MODE	Reconfirm safety lock located at TEST MODE before test. In this status, the nozzle will rotate, and igniter will be activated, but there is no flame effect because no fuel output. In case DMX control is used to test the sequence, It is suggested to set CH1 at 128, so that nozzle stays at straight up position after firing.
9	Pressure Relief	Under DMX control: Channel 6= 0~49 or 201~255.
10	Switch safety lock to USER MODE	Before switching to USER MODE, Please strictly follow the safety distance requirement, make sure no human beings, no animal or no flammable objects are within the danger area.
11	Pressurize	Under DMX control: Channel 6=50-200.
12	Firing	Under DMX control: Channel 3=255.
13	Pressure Relief	Relief pressure when show finished or Wave flame machine will not be used for a long period. Under DMX control: Channel 6= 0~49 or 201~255.

14	Switch safety lock to TEST MODE	Guarantee safety use for next time.
15	Power off	Power off Wave flame machine, tear down power cable and DMX cable, pack the device when it is cooled down.

5.4.3. DMX CONTROL

5.4.3.1. 6-channel mode

Channel	Function	Value	Setting
(CH1)	NO	NO	NO
(CH2)	NO	NO	NO
(CH3)	Ignition	0~253	Ignition OFF
		254~255	Start the ignition. When the DMX value on this channel is higher than 253, the flame machine will ignite.
(CH4)	Opening time	0	Permanent fire
		1~254	In steps of 10ms, to 2540ms Opening time= DMX Value * 10ms
		255	Permanent fire
(CH5)	NO	NO	NO
(CH6)	Mode	0~49	Pressure Relief Mode (Emergency Stop)
		50~200	Compression Mode
		201~255	Pressure Relief Mode (Emergency Stop)

5.4.3.2. 2-channel mode

Channel	Function	DMX Value	Setting
(CH1)	Ignition	0~253	No Fire
		254~255	Start the ignition. When the DMX value on this channel is higher than 253, the flame machine will ignite.
(CH2)	Mode	0~49	Pressure Relief Mode (Emergency Stop)
		50~200	Compression Mode
		201~255	Pressure Relief Mode (Emergency Stop)

6. MAINTENANCE

1. To maintain the system in good performance and running status, it is recommended to running the device at least once per month.

2. In order to lubricate the pipeline and pump it is highly necessary to add 10-20ml castor oil per 10L canister.

⚠ **It must not be pressurized without fuel in the tank, otherwise it will cause damage to the main board and the pump.**