

I FLAMER PLUS

SF-90 PLUS

USER MANUAL



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★ Please read this manual carefully before operating this product.

★ Warranty card attached in the manual, please keep it well.

⚠ WARNING

Unauthorized repair are prohibited, it may cause serious incident.

⚠ WARNING

Make sure power supply is consistent with the rated voltage of the equipment, and the socket must be well grounded. Unplug and turn off the machine when not in use.

⚠ WARNING

Before connecting the power cable, communication DMX cable should be well connected and ensure the command is kept at firing OFF status. And safety lock stays at test mode.

⚠ WARNING

Please note that the safe distance between people and inflammables has been marked on the equipment. The equipment can only be placed horizontally.

⚠ WARNING

After turning on the device, no person is allowed to stay in the danger area. Ensure all persons that are part of the show are informed about the safety distance, risks and functions of the device.

⚠ WARNING

Always have a CO₂ fire extinguisher and an extinguishing blanket in case of need.

⚠ WARNING

If there is any abnormal working condition, please immediately stop operating, cut off the power, and check the fuel, fuse, cable and power plug. If unable to solve this problem, please contact the manufacturer.

⚠ WARNING

Be sure to use high quality flame fluid, otherwise, it is easily led to failure or danger. Be careful when refilling the flame fluid tank. Please keep flame fluid away from heat source, sparks, fire or other possibility of ignition.

⚠ WARNING

The operator responsible for the control of I FLAMER PLUS 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.

⚠ WARNING

The device shall not be altered and applied to other use purpose.

FOREWORD

Thanks for choosing SPARK FABRICA I FLAMER PLUS.. 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 I FLAMER PLUS.. If you have any doubts, please contact SPARK FABRICA by marketing@sparkfabrica.com. We assume the person who use or come in contact with the device are familiar with how the device should be handled. This includes proper use, maintenance and repair of the machine as defined in this user manual.

DISCLAIMERS

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

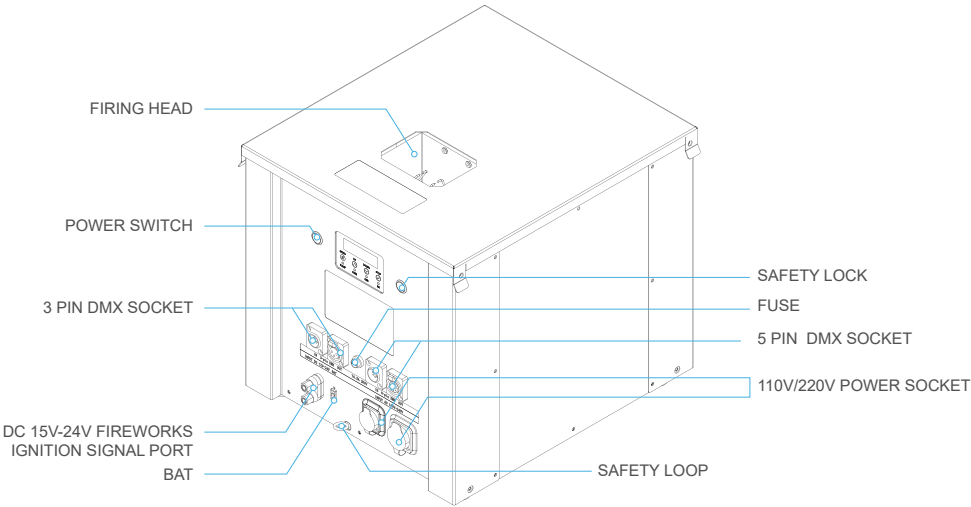
1. Anoring warnings or regulations as shown on i flamer plus or this manua
2. Use for other applications or circumstances other than those indicated herein.
3. Changes to the i flamer plus.Including use of non-original spare parts.
4. Removed safety cover without authorization from spark fabrica.
5. Use this machine by unqualified or untrained personnel.
6. Improper use of machine.

If the information contained in the manual or the product specifications are changed, spark fabrica willnot inform you further and responsible for any errors or omissions. Our company reserves the right tomodify the user manual at any time.

1 PRODUCT INTRODUCTION

This product belongs to special effects equipment, only for professional use.
This product belongs to a fire simulator.
This product is widely used in concerts, sports events, theme activities and so on.Stimulate your interestand light up your activity.

1.1 PRODUCT OVERVIEW



1.2 PRODUCT ACCESSORIES

1.6 Meter Power Plug or 3 Meters Power Pair Cable
3 Meters DMX Pair Cable
Safety Ring
User Manual

NOTICE

Open the package carefully and check to make sure the goods are in good condition.

1.3 FUEL ALLOWED

ISOPAR

1.4 FUNCTIONAL CHARACTERISTICS

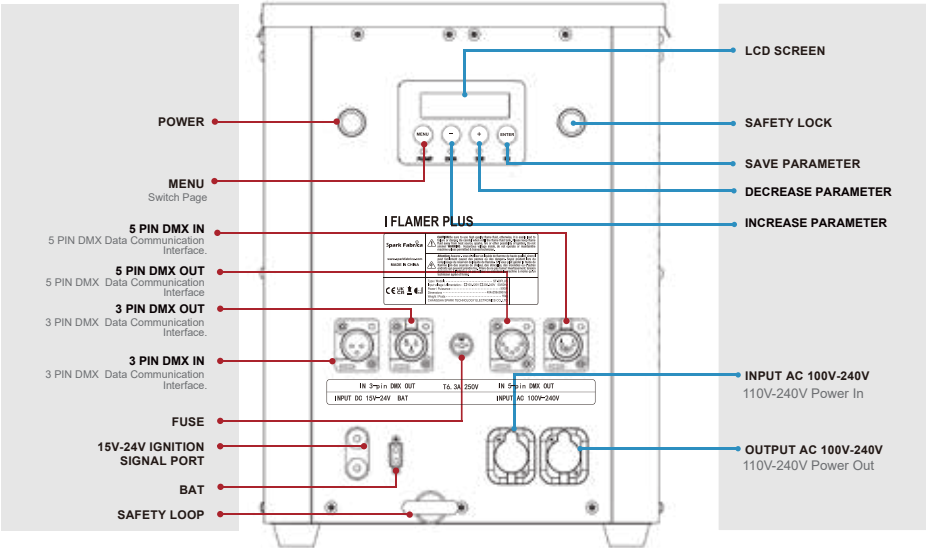
- ★ Direct shooting of liquid fuel, the maximum height is 8-10 m.
- ★ Compact pumping system ensure compact size of machine.
- ★ Strengthened and rustproof metal panel, water-proof design.
- ★ 10L Built-in fuel tank without external pipeline.
- ★ Double electromagnetic valves design for additional safety.
- ★ Unique safety lock design which makes test easily and avoids spurious triggering.
- ★ Tilt protection, the tilt sensor will be activated when machine slant Over 45°.
- ★ Safe and reliable intelligent electronic control system with alarm function, etc.
- ★ Standard DMX signal control which can work with any DMX console.
- ★ Fitted with fireworks ignition signal port, can be triggered by fireworks ignition.
- ★ Support Chinese & English menu switch for operation easier.

2 TECHNICAL PARAMETERS

Identification	Manufacturer	SPARK FABRICA
	Name	I FLAMER PLUS
	Model	SF-90 PLUS
AC Power	Input Voltage & Frequency	AC 100-120V, 60HZ AC 200-240V, 50 HZ
	Power	500W
	Power Input Connector	SEETRONIC
	Power Output Connector	SEETRONIC
	DMX Signal Interface	3PIN&5PIN
Interface Type	Signal Interface	Double DMX Interface
	Signal Interface	15V-24V Fireworks Ignition Signal Interface
Waterproof	Waterproof	IPX5
Hopper	Fuel Bottle Capacity	10L
Control	Control Protocol	DMX-512
	Control Mode	Standard DMX Signal Control
	Effect Angles	vertical
Accessory	Power Plug	SEETRONIC (1.6Meter)
	DMX Cable	√ 3Meter
	Power Cable	√ 3Meter
	Safety Ring	√
	Safety Loop	√
	Update Box	Optional
Oil Consumption	Firing Head	60ml/s
Ignition	Ignition Mode	High Voltage Electronic Ignition
Weight	Net Weight	18kg
	Gross Weight (2 Units Flight case)	58.5kg
Dimensions	Machine Dimensions - L*W*H	404mm*359mm*366mm
	Size of 2 Units Flight case Size- L*W*H	970mm*510mm*620mm
Fuel Oil	Kind	ISOPAR

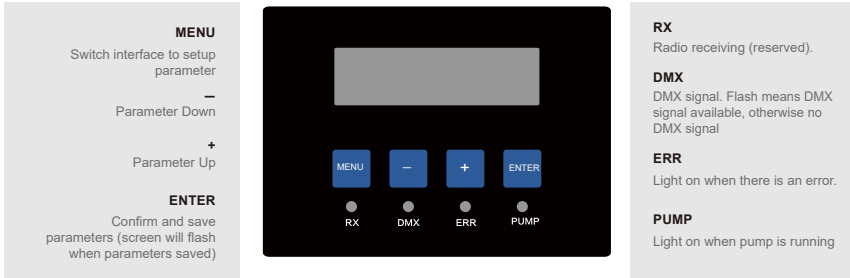
3 BACK PANEL GUIDE

3.1 BACK PANEL INTRODUCTION



4 INTERFACE

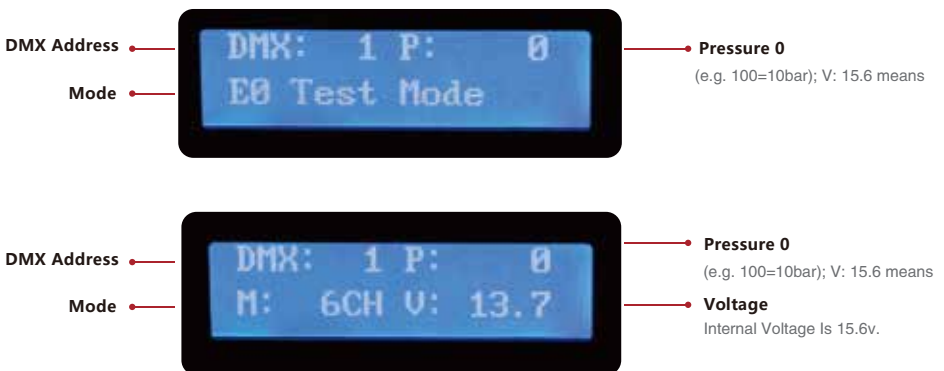
4.1 LED DISPLAY AREA



NOTICE

Screen display will switch to main interface if don't press button for a long time.

4.2 MAIN INTERFACE



4. 4 ALERT MESSAGE

ALERT MESSAGE		EXPLANATION
E0	Test Mode	Safety lock located at TEST MODE.
	Factory Mode	DMX signal blocked in factory mode.
	Invert ON	When turned on, all angles will be mirrored.
E1 Pressure Err		Pressurize for about 13s, pressure value failed to reach 100%, system will report E1. Possible fault: No fuel, pump failure, pipeline problem etc.
E2 P Relief Err		Pipeline can't release pressure leads to pressure relief error. Possible fault: pressure release valve failure, pipeline problem or control system problem etc.
E3 Motor Err		Possible fault: swiveling nozzle stuck, motor failure etc.
E4 ExtIgnition ON		When Ext Ignite is ON, device will pressurize automatically when switch safety lock to USER MODE; decompression when switch to TEST MODE. 15V-24V fireworks ignition signal will trigger related firing sequences.
E5 Voltage Err		Battery voltage>15V or <10V for continuous 5s, machine stops running. Possible fault: the battery is low.
E6 Tip Err		If the machine slant over 45° , it stops running, system will report E6.

4. 5 INTERFACE SETUP

Press MENU key to enter the setting interface, press MENU to enter different options until return to the main interface.

MENU	RANGE	EXPLANATION
Set DMX Address	1~512	DMX address setup.
Set DMX Channel	2/6	Select channel mode

4.6 ADVANCED INTERFACE

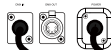
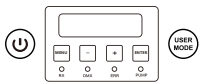
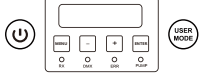
Press “MENU” 3s enter advanced interface, press “MENU” to switch interface, press “MENU” 3s can back to main interface.

ITEMS	CONTENTS	DESCRIPTION
Drive Test	Pump	Swiveling and stop at target angle.
	Ignite	Swiveling and stop at target angle.
	Relief Valve	Relief valve works for 3 times.
	Jet Valve 1	Safety lock must be user mode, release pressure for 5s, jet valve will work for 3 times.
	Jet Valve 1	
	OFF	Test closed.
Ext Ignite	OFF / ON	Trigger through 15-24V fireworks ignite signal.
Set Ext Ignite Time	0.8-8s	Shooting time after triggered by fireworks ignite.
Language	English/Chinese	Language switch.
Mode Select	Normal Mode Factory Mode	Factory mode is for test in factory only.
Tilt Switch	OFF / ON	Turn on tilt switch(Tilt over 45 degrees will stop shooting.)
Restore Default Settings	OFF / ON	Restore device default parameter settings.

5 OPERATION GUIDE

5.1 FAST OPERATION GUIDE

After receiving the product, remove the package and confirm whether anything is in good condition.Considering that the use of flame machine has certain danger, please refer to the following operation procedure to operate one by one to ensure safety.

OPERATION STEPS	CONTENTS	SCHEMATIC DIAGRAM AND EXPLANATION	REMARK
1	Installation	The device can only be placed horizontally, if placed on truss, please locked with extra safety ropes.	
2	Power and DMX cable connection.		Two kind of power supply optional: 110V/220V main power supply 12V battery power supply
3	Fueling		Please fueling with high quality fuel according to requirement of this manual.
4	Switch ON the machine		Before turning on the power switch, make sure that the User Mode is in the non-on state, also called test mode
5	The test mode		USER MODE a non-on state means test mode, the device can simulate ignition action. However, the fuel injection function is disabled and no fuel or flame will be emitted. USER MODE open state means usage mode, the device can be used normally. You need to strictly observe the requirements related to safety distances in the first part of the content of the manual, and clear all staff and flammable and explosive materials within the safety distance.
6	Set DMX address		I FLAMER PLUS occupy 6 channels. Detail information please refer to the table of page20-22.
7	Pressure		Controller: Press "HEAT" (lights on) DMX console: Switch DMX value of channel 6 to 50-200.
8	Check device status in TEST MODE.		Before testing, reconfirm that the unit is not on (test mode). In this status, the igniter will be activated, but there is no flame.
9	Pressure Relief.		Host controller: Press "HEAT" key. DMX console: switch DMX value of channel 6 to 0-49/201-255.
10	Switch to USER MODE.		Before switch to USER MODE, Please strictly follow the safety distance requirement, remove all human, animal or flammable objects in the danger area.
11	Pressuriser		Host controller: Press "HEAT" . DMX console: switch DMX value of channel 6 to 50-200.
12	Firing		Set firing sequence Host controller: Press "FIRING" key DMX console: switch DMX value of channel 3 to 254-255
13	Pressure Relief		Relief pressure when show finished or I FLAMER PLUS. not use for a long period. Host controller: Press "HEAT" key. DMX console: switch DMX value of channel 6 to 0-49/201-255.
14	Make sure the USER MODE in non-on condition		Guarantee safety use for next time.
15	Power off		Power off I FLAMER PLUS, tear down power cable and DMX cable, pack up the device when it is cooled down.

5.2 DMX CONTROL(6 CHANNEL,DEFAULT))

CHANNEL	FUNCTION
Channel 1 (CH1)	N/A
Channel 2 (CH2)	N/A
Channel 3 (CH3)	Ignite Switch: (0~253) Ignite OFF (254~255) Ignite ON
Channel 4 (CH4)	Set Ignite Time: (0 and 255)shooting timelessly, 8s maximum limit. (1 ~ 254) 10-2540ms,manual ignition time=DMX value*10ms.
Channel 5 (CH5)	N/A
Channel 6 (CH6)	Mode setting: (0~49)Pressure Relief Mode (Emergency stop sequence) (50~200)Normal Shooting Mode (201~255)Pressure Relief Mode (Emergency stop sequence)

5.3 DMX CONTROL(2 CHANNEL)

CHANNEL	FUNCTION
Channel 1 (CH1)	Ignite Switch: (0 ~15) Ignite OFF (16~255) Ignite ON
Channel 2 (CH2)	Mode setting: (0~239)Pressure Relief Mode (Emergency stop sequence) (240~255)Normal Shooting Mode.

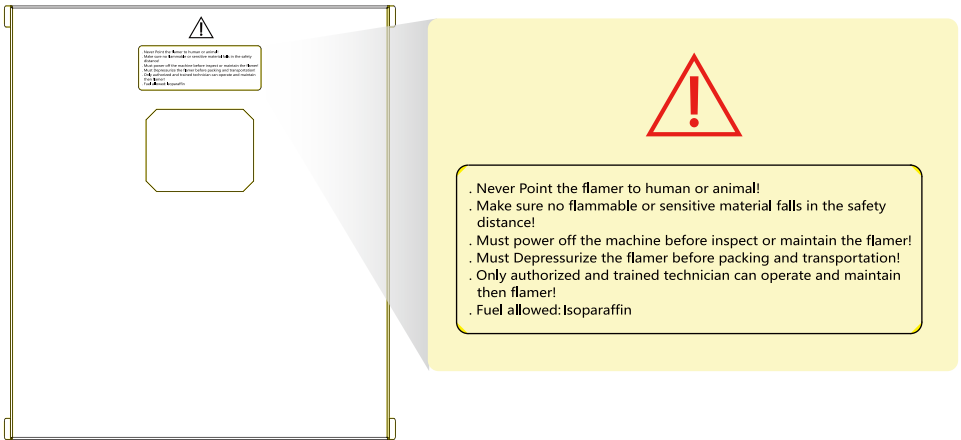
Set I Flamer's address as follows (6 channel mode)

I FLAMER PLUS SEQUENCE	DMX CHANNEL
1	1
2	7
3	13
4	19
5	25
6	31
7	37
8	43
9	49
10	55
11	61
12	67
13	73
14	79
15	85
16	91
17	97
18	103

6 SAFETY

6.1 SAFETY WARNING

Before operating the machine, please read the safety warning on the top panel.



6.2 SAFETY DISTANCE

The safety distance for I Flamer Plus SF-90 comprised two components: the safety radius around the machine (X) and the safety distance in the firing direction (Y). No personnel and flammable materials shall enter the safety isolation zone when the flamer is installed.

The safety radius around the machine is determined by the firing height (nozzle type).

The safety distance in the firing direction is equal to the maximum firing height * 1.5.

Nozzle Type	Flame Height	Flame Height	Safety Radius (X)	Safety Distance (Y)
	Min.	Max.		(Based on Max. Flame Height)
0505 Nozzle	3m	6m	3m	9m
000125 Nozzle	4m	6m	3m	9m
00025 Nozzle	5m	8m	3m	12m
00055 Nozzle	8m	10m	3m	15m

Safety Isolation Zone

The safety isolation zone for I Flamer Plus SF-90 is a cylindrical three-dimensional space with safety radius around machine (X) and height of (Y). Unauthorized persons and objects are strictly prohibited from entering.

For angled installation, the safety distances both around machine and firing direction should shift accordingly.



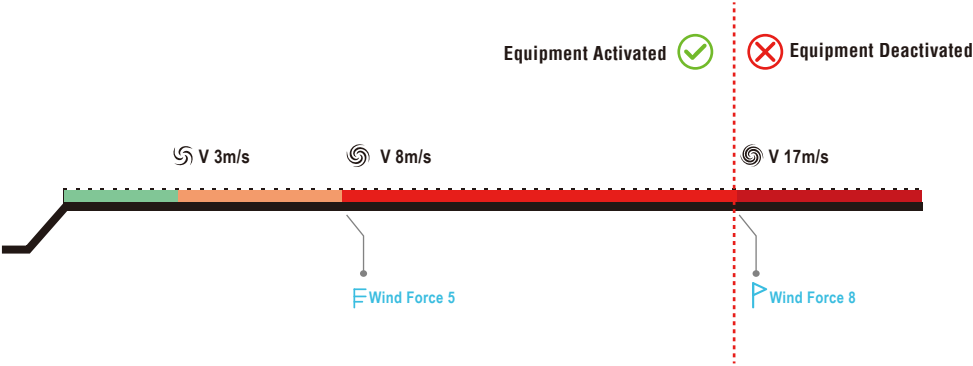
6.3 SAFETY DISTANCE IN WINDY ENVIRONMENT

The radius distance (x) increase with wind direction and wind speed (v, m/s). The safety distance in windy conditions can be calculated as below:

For 00055 nozzle: $x = 3 + v$;

For example when the wind speed is 3m/s, we use the 00055 nozzle, then the radius distance (x) should be 6m.

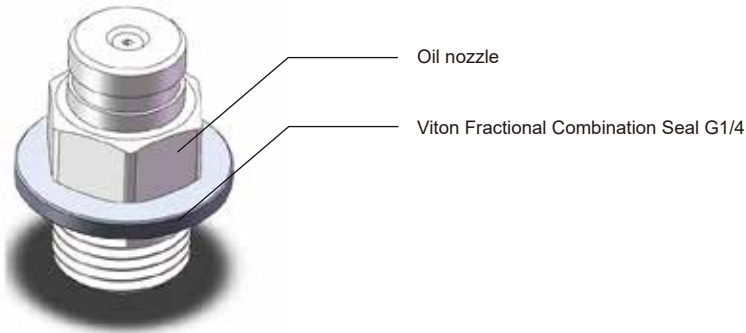
CAUTION: When the wind speed $\geq 8\text{m/s}$ (wind force ≥ 5), please use it with caution. When wind speed $\geq 17\text{m/s}$ (wind force ≥ 8), please stop use I Flamer Plus SF-90.



7 MACHINE MAINTENANCE

Some steps are needed in order to clean and maintain the product for maximum usage. The recommended procedure is as follows;

- * it is recommended to operate equipment at least once a month to keep its best performance and status.
- * Maintenance and inspection for firing head: The nozzle should be removed for cleaning up internal impurities. It is recommended to do so once every six months (depending on the use environment and frequency). It is found that the machine is seriously deformed or the oil shooting line is significantly deformed or thickened, the firing head should be removed immediately for cleaning.
- * Maintenance of the O-ring: If it is found that the O-ring of the nozzle is damaged or ageing when cleaning the nozzle, the O-ring should be replaced in time (Viton Fractional Combination Seal G1/4).
- * In order to lubricate the pipeline and pump it is highly recommended to add 10-20ml castor oil per 10L canister.
- * Software can be upgraded with download cable from SPARK FABRICA.



8 WARRANTY INSTRUCTIONS

Sincere thanks for your choosing I FLAMER SF-90 PLUS, you will receive quality service from us. The product warranty period is one year. 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:

**CAUTION**

Damage caused by improper transportation, usage, management, and maintenance, or damage caused by human factors.

**CAUTION**

Disassemble, modify or repair products without SPARK FABRICA permission.

**CAUTION**

Damage caused by external reasons (lightning strike, power supply etc);

**CAUTION**

Damage caused by improper installation or use.

**CAUTION**

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

*Invoice and warranty card are necessary when applying for maintenance service from SPARK FABRICA.

WARRANTY CARD

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



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