USER MANUAL
CIRCLE FLAMER
X-F1800

V2.1

2022/09

Showven Technologies Co., Ltd.

Foreword

Thanks for choosing SHOWVEN CIRCLE FLAMER X-F1800, we wish it will bring you lots of exciting moments. Please read the following manual carefully 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 CIRCLE FLAMER X-F1800. If you have any doubts, please contact SHOWVEN technologies Co., Ltd by info@showven.cn

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.

Warning

- This product is only suitable for qualified or skilled operators who has experience with the technology of the device and is particularly informed about the types of fuel used by the device.
- Unauthorized repair are prohibited, it may cause serious incident
- Make sure power supply in consistent with the rated voltage of the equipment, and the socket must well grounded. Unplug and turn off the machine when not use
- Before connect the power cable, communication DMX cable should well connected and ensure the command keep at firing OFF status. And safety switch on CIRCLE FLAMER X-F1800 stay at TEST MODE.
- Before power on the machine, please check carefully the safety distance and make sure it meets the requirements in this manual.
- The device can only be placed horizontally.
- After turning on the device, no person allows to stay in the danger area. Ensure all persons that are part of the show be informed about the safety distance, risks and functions of the device
- Always have a CO2 fire extinguisher and an extinguishing blanket in case of needed
- 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. If fail to fire correctly, immediately shut down and check it accordingly
- Be sure to use high quality flame fluid, otherwise, it is easily leads to failure or danger. Be careful when refill the flame fluid tank. Please keep flame fluid away from heat source, sparks, fire or other possibility of ignition. Do not smoke!
- The operator responsible for the control of Circle Flamer 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
- The device shall not be altered and applied to other use purpose

Disclaimers:

SHOWVEN technologies Co., Ltd excludes liability for unsafe situations, accidents and damages resulting from:

1. Ignoring warnings or regulations as shown on circle flamer or this manual
2. Use for other applications or circumstances other than those indicated herein
3. Changes to the circle flamer, including use of non-original spare parts
4. Removed safety cover without authorization from SHOWVEN.
5. Use this machine by unqualified or untrained personnel.
6. Improper use of machine.

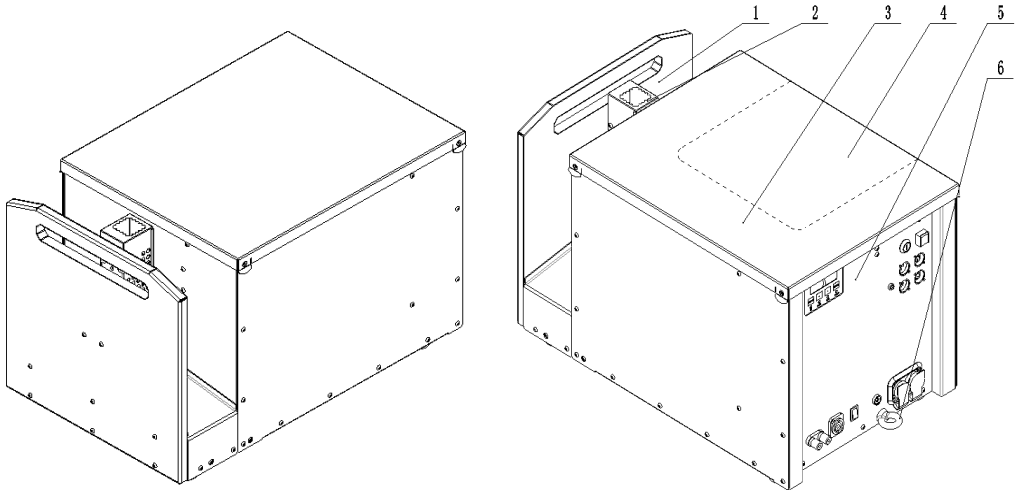
Functional Characteristics

- Fluid driven flamer system with 210° swiveling angles
- Up to 88 preset firing sequences
- Nozzle front design, safer for operator
- Safety lock with switchable test mode
- Stainless steel nozzle, reliable and durable
- Double electromagnetic valves design for additional safety
- Double pump ensure stable pressure
- Fitted with 9-60V pyro signal interface, compatible with fireworks firing system
- Neutrik ® powerCON TRUE1 in/out, Neutrik ® 3-pin & 5-pin DMX in/out
- Compatible with SHOWVEN original host controller

Technical Specifications

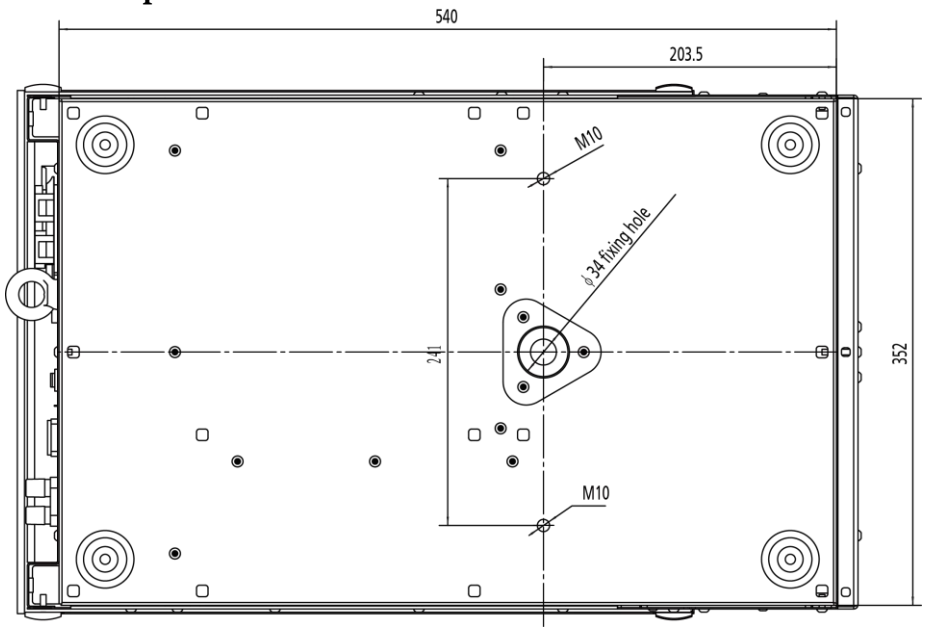
- **MODEL:** X-F1800
- **DIMENSION:** 590×360×370mm
- **WEIGHT:** 30kg
- **VOLTAGE:** AC100-120V or AC200-240V, 50/60Hz
- **POWER:** 380W
- **USAGE IN RAIN:** YES
- **CONTROL:** DMX, 9-60V pyro signal
- **INTERFACE:** Neutrik ® powerCON TRUE1 IN/OUT
  Neutrik ® 3-pin& 5-pin XLR IN/OUT
- **FLAME HEIGHT:** up to 8-10m (no wind)
- **FIRING ANGLES:** 210°(±105°)
- **FUEL:** ISOPAR-G, H, L, M; ISOPROPANEL
- **FUEL TANK CAPACITY:** 10L
- **FUEL CONSUMPTION RATE:** 60ml/s
- **EXT. BATTERY POWERED:** YES

Structure of Circle Flamer



1.Handle
2. Firing Head
3.Top Panel
4.Fuel Bottle Area
5. Control Panel
6. Safety Loop

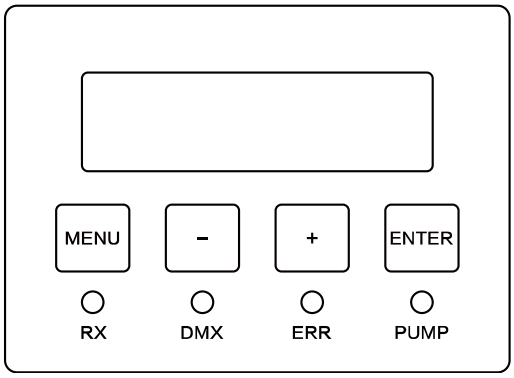
Diagram of bottom panel



Rear Panel

1. LCD screen operate panel
2. Safety Lock
3. Indicator Light
4. DC 5V output
5. 3-pin DMX IN/OUT
6. 5-pin DMX IN/OUT
7. Power IN/OUT
8. Fuse
9. ON/OFF switch
10. 12V Battery Power Input
11. DC 9V-60V pyro signal port

▵ Operation Panel



1. LED Display Area:

RX: Radio receiving (reserved)
DMX: DMX signal. Flash means DMX signal available, otherwise no DMX signal
ERR: Light on when there is an error
PUMP: Light on when pump is running

2. Button Functions:

MENU: Switch interface to setup parameter;
+: Parameter Up
-: Parameter Down
ENTER: Confirm and save parameters (screen will flash when parameters saved)
Note: screen display will switch to main interface if not press button in 10s.

3. Welcome Interface:

First Line: Product model and software version
Second Line: Equipment series number

4. Main Interface:

First Line: DMX address;
Second Line: "P: 100" means Pressure100 (100=10bar); "V: 13.6" means internal voltage is 13.6V;

5. Alert Message:

Alert Message	Why it appears	How to remove
E0 Test Mode	Safety Switch at TEST MODE	Switch to USER MODE
E0 Factory Mode	Factory mode	Switch to Normal mode
E0 Invert On	Invert function ON	Set Invert to OFF
E0 FireForbidden	Fire Forbidden ON	Set Fire Forbidden to OFF
E4 ExtIgnite ON	Ext Ignite ON	Set Ext Ignite to OFF

6. Error Message

Error Message	Why it appears	Reason / How to remove
E1 Pressure Err	Pressurize for 8s, if pressure value failed to reach target value	No fuel, pump failure, pipeline fuel leakage etc reason, please check accordingly
E2 P Relief Err	Depressurize for 2.5s, if pressure value ≥ 50% of target value	Pressure release valve failure
E5 Voltage Err	DC input < 10V or > 15v	Make sure DC input between 10-15V
E6 Tip Err	Machine slant over 45°	Tip setting set to OFF, or horizontal install machine.

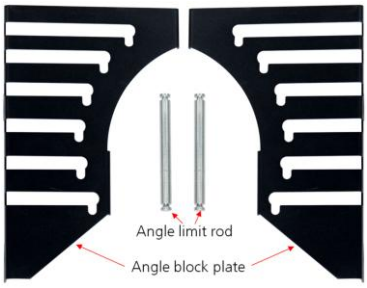
7. Interface setup:

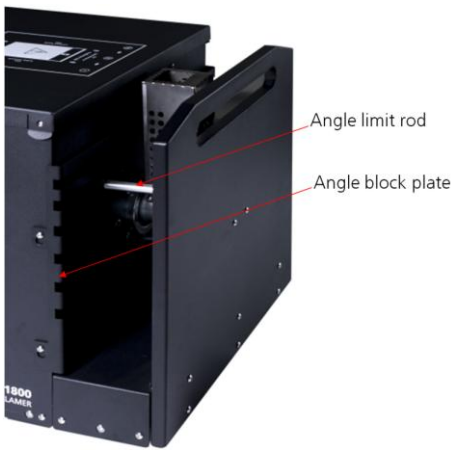
Press "MENU" to switch through setup menu

Menu	Range	Explanation
Set DMX Address	1~512	DMX address setup
Angle Limit	Maxi. ANGLE : NO.1 - NO.15	Restrict nozzle rotate angles: Set by "+" and "-" , and confirm by "ENTER"
	Mini. ANGLE : NO.1 - NO.15	
Limit Test	OFF / ON	Test the angle limit function after setting angle limit.

Steps setting the angle limit and install angle blocks.

a) Set the "Maxi. Angle" and "Mini. Angle", press "ENTER" to save the changes.
b) Install the angel block plates.
c) Running the Limit Test by set it to ON, and press ENTER, nozzle will move from Mini. Angle to Maxi. Angle, then to the middle.
d) After confirm the software angle limit control works well, then put angle limit rod at corresponding Mini. Angle and Maxi. Angle. Running Limit test again to reconfirm the angle limit rod was correctly installed.





8. Advanced Interface:

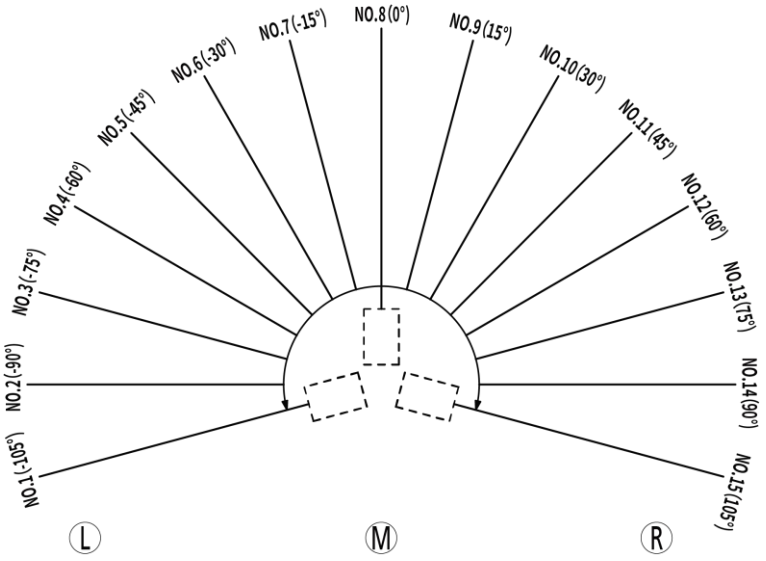
Press "MENU" 3s enter advanced interface, press "MENU" to switch interface, press "MENU" 3s can back to main interface

Items	Contents	Description
Drive Test	OFF / Motor/ Pump / Igniter / Relief Valve / Jet Valve	
	1. Motor	Swiveling and stop at target angle.
	2. Pump	Pump running, if pressure reached the target value, the pump will not running.
	3. Igniter	Ignite 1s
	4. Relief Valve	Relief valve will be on and off for 3 times

	5. Jet Valve 1	Safety lock located at USER MODE, pressure relief valve on, then related jet valve will be on and off for 3 times.
	6. Jet Valve 2	
Ext Ignite	OFF / ON	Trigger through 9-60V Pyro igniter signal
Set Ext Sequence	1~88	Preset sequence triggered by pyro signal
Language	English / Chinese	Language switch
Mode Select	Normal Mode / Factory Mode	Factory mode is for test in factory only
Tip Setting	OFF / ON	Turn ON/OFF tip over function
Head to middle	OFF / ON	Channel 1=0, Firing head will back to middle position (NO.8) after running a preset sequence.
Invert	OFF / ON	When turned on, all angles will be mirrored.
Motor Disabled	OFF / ON	When turned on, the position of the firing head should be moved or set manually, and the motor of firing head will be disabled. (The flamer should be restarted before it takes effect.)
Default Parameter	OFF / ON	Reset default parameter settings

▵ Firing Angles:

The firing angle for CIRCLE FLAMER is ±105°, from the Audience Side view, there are altogether 15 firing angles as below.



▵ Drive time for Effects:

Time needed for the motor drive from NO.8 to relevant angle.

No.	Angles	Drive time needed
NO.1	-105°	170ms
NO.2	-90°	150ms
NO.3	-75°	130ms
NO.4	-60°	110ms
NO.5	-45°	90ms
NO.6	-30°	70ms
NO.7	-15°	50ms
NO.8	0°	0ms
NO.9	15°	50ms

NO.10	30°	70ms
NO.11	45°	90ms
NO.12	60°	110ms
NO.13	75°	130ms
NO.14	90°	150ms
NO.15	105°	170ms

For example for the motor drive from 0°to 45°, it need 90ms, when operator design a show to synchronize to music, this drive time must be calculated.

▵ CIRCLE FLAMER X-F1800 Firing Sequences

CIRCLE FLAMER X-F1800 has 88 preset sequences, operator use related channel DMX value or sequence No. to access certain sequence. Below, you can find sequence list and single ignitions.

Single Ignition Sequence List

No.	Ignition angle	Description	Nozzle Movement	Firing Duration (For reference)	CH5 DMX Reference Value
1	-105°	Single Ignition SHORT flame	Static	0.19s	3-5
2	-90°	Single Ignition SHORT flame	Static	0.19s	6-7
3	-75°	Single Ignition SHORT flame	Static	0.19s	8-10
4	-60°	Single Ignition SHORT flame	Static	0.19s	11-12
5	-45°	Single Ignition SHORT flame	Static	0.19s	13-15
6	-30°	Single Ignition SHORT flame	Static	0.19s	16-17
7	-15°	Single Ignition SHORT flame	Static	0.19s	18-20
8	0°	Single Ignition SHORT flame	Static	0.19s	21-22
9	15°	Single Ignition SHORT flame	Static	0.19s	23-25
10	30°	Single Ignition SHORT flame	Static	0.19s	26-28
11	45°	Single Ignition SHORT flame	Static	0.19s	29-30
12	60°	Single Ignition SHORT flame	Static	0.19s	31-33
13	75°	Single Ignition SHORT flame	Static	0.19s	34-35
14	90°	Single Ignition SHORT flame	Static	0.19s	36-38
15	105°	Single Ignition SHORT flame	Static	0.19s	39-40
16	-105°	Single Ignition LONG flame	Static	0.56s	41-43
17	-90°	Single Ignition LONG flame	Static	0.56s	44-45
18	-75°	Single Ignition LONG flame	Static	0.56s	46-48
19	-60°	Single Ignition LONG flame	Static	0.56s	49-50
20	-45°	Single Ignition LONG flame	Static	0.56s	51-53
21	-30°	Single Ignition LONG flame	Static	0.56s	54-56
22	-15°	Single Ignition LONG flame	Static	0.56s	57-58
23	0°	Single Ignition LONG flame	Static	0.56s	59-61
24	15°	Single Ignition LONG flame	Static	0.56s	62-63
25	30°	Single Ignition LONG flame	Static	0.56s	64-66
26	45°	Single Ignition LONG flame	Static	0.56s	67-68
27	60°	Single Ignition LONG flame	Static	0.56s	69-71
28	75°	Single Ignition LONG flame	Static	0.56s	72-73
29	90°	Single Ignition LONG flame	Static	0.56s	74-76
30	105°	Single Ignition LONG flame	Static	0.56s	77-79

Step Sequences List

No.	Ignition angle NO.	Description	Nozzle movement	Firing Duration (For reference)	CH5 DMX Reference Value
31	Step from 1-15	SHORT flame Step sequence	L -> R	2.66s	80-81
32	Step from 15-1	SHORT flame Step sequence	R -> L	2.66s	82-84
33	Step 5>8>11	SHORT flame Step sequence	L -> R	0.92s	85-86

34	Step 11>8>5	SHORT flame Step sequence	R -> L	0.92s	87-89
35	Step 6>10	SHORT flame Step sequence	L -> R	0.75s	90-91
36	Step 10>6	SHORT flame Step sequence	R -> L	0.75s	92-94
37	Step 4>6>8>10>12	SHORT flame Step sequence	L -> R	1.27s	95-96
38	Step 12>10>8>6>4	SHORT flame Step sequence	R -> L	1.27s	97-99
39	Step 8>6>10>4>12	SHORT flame Step sequence	M>L>R>L>R	1.60s	100-101
40	Step 8>10>6>12>4	SHORT flame Step sequence	M>R>L>R>L	1.60s	102-104
41	Step from 1-15	LONG flame Step sequence	L -> R	7.78s	105-107
42	Step from 15-1	LONG flame Step sequence	R -> L	7.78s	108-109
43	Step 5>8>11	LONG flame Step sequence	L -> R	1.82s	110-112
44	Step 11>8>5	LONG flame Step sequence	R -> L	1.82s	113-114
45	Step 6>10	LONG flame Step sequence	L -> R	1.25s	115-117
46	Step 10>6	LONG flame Step sequence	R -> L	1.25s	118-119
47	Step 4>6>8>10>12	LONG flame Step sequence	L -> R	2.68s	120-122
48	Step 12>10>8>6>4	LONG flame Step sequence	R -> L	2.68s	123-124
49	Step 8>6>10>4>12	LONG flame Step sequence	M>L>R>L>R	2.88s	125-127
50	Step 8>10>6>12>4	LONG flame Step sequence	M>R>L>R>L	2.88s	128-130

Wave Sequence List

No.	Ignition angle NO.	Description	Nozzle movement	Firing Duration (For reference)	CH5 DMX Reference Value
51	Wave 5 -->11	Middle wave sequence	L -> R	1.87s	131-132
52	Wave 11-->5	Middle wave sequence	R -> L	1.87s	133-135
53	Big wave 1--15	LONG wave sequence	L -> R	4.08s	136-137
54	Big wave 15--1	LONG wave sequence	R -> L	4.08s	138-140
55	Wave 8-->1	Middle wave sequence	M -> L	2.09s	141-142
56	Wave 8-->15	Middle wave sequence	M -> R	2.09s	143-145
57	Wave 1-->8	Middle wave sequence	L -> M	2.31s	146-147
58	Wave 15-->8	Middle wave sequence	R -> M	2.31s	148-150
59	Wave 8-->11	SHORT wave sequence	M -> R	0.99s	151-152
60	Wave 8-->5	SHORT wave sequence	M -> L	0.99s	153-155
61	Wave 5-->8	SHORT wave sequence	L -> M	1.08s	156-158
62	Wave 11-->8	SHORT wave sequence	R -> M	1.08s	159-160

Additional Sequences List

No.	Ignition angle NO.	Description	Nozzle movement	Firing Duration (For reference)	CH5 DMX Reference Value
63	Step 3>13	SHORT flame Step sequence	L -> R	0.93s	161-163
64	Step 13>3	SHORT flame Step sequence	R -> L	0.93s	164-165
65	Step 3>13	LONG flame Step sequence	L -> R	1.63s	166-168
66	Step 13>3	LONG flame Step sequence	R -> L	1.63s	169-170
67	Step 8-13	SHORT flame Step sequence	M -> R	1.55s	171-173
68	Step 13-8	SHORT flame Step sequence	R -> M	1.55s	174-175
69	Step 8-13	LONG flame Step sequence	M -> R	3.24s	176-178
70	Step 13-8	LONG flame Step sequence	R -> M	3.24s	179-181
71	Step 8-3	SHORT flame Step sequence	M -> L	1.54s	182-183
72	Step 3-8	SHORT flame Step sequence	L -> M	1.54s	184-186
73	Step 8-3	LONG flame Step sequence	M -> L	3.24s	187-188
74	Step 3-8	LONG flame Step sequence	L -> M	3.24s	189-191
75	Step 3-13	SHORT flame Step sequence	L -> R	1.98s	192-193
76	Step 13-3	SHORT flame Step sequence	R -> L	1.98s	194-196
77	Step 2-14	SHORT flame Step sequence	L -> R	2.32s	197-198
78	Step 14-2	SHORT flame Step sequence	R -> L	2.32s	199-201

79	Step 8>5>11	SHORT flame Step sequence	M>L>R	0.93s	202-203
80	Step 8>11>5	SHORT flame Step sequence	M>R>L	0.93s	204-206
81	Step 5-11	SHORT flame Step sequence	L -> R	1.28s	207-209
82	Step 11-5	SHORT flame Step sequence	R -> L	1.28s	210-211
83	Wave 8-->13	Middle wave sequence	M -> R	1.70s	212-214
84	Wave 13-->8	Middle wave sequence	R -> M	1.70s	215-216
85	Wave 8-->3	Middle wave sequence	M -> L	1.60s	217-219
86	Wave 3-->8	Middle wave sequence	L -> M	1.60s	220-221
87	Wave 3-->13	LONG wave sequence	L -> R	3.06s	222-224
88	Wave 13-->3	LONG wave sequence	R -> L	3.06s	225-226
>89	8(0°)	Single Ignition LONG flame	Static	max. 8s	227-255

▵ DMX CONTROL

CIRCLE FLAMER X-F1800 occupies 6 channels.

Channel	Function	Value
CH1	Manual Angle setup	**0~255:** angle change from -105° to 105° **128:** straight upward (0°)
CH2	Manual Nozzle Waving Speed setup	**0 and 255:** Max Speed **1~254:** Speed increase
CH3	Ignition ON/OFF	**0~253:** Ignition OFF **254~255:** Ignition ON
CH4	Firing Duration setup	**0 and 255:** permanent fire (10s is limit duration time) **1~254:** 10~2540ms duration time (Manual firing duration = DMX Value * 10ms)
CH5	Preset sequence setup	**0-2:** no preset sequence **3-255:** preset sequence DMX value = 2 + Sequence No.*2.55 (ROUND OFF)
CH6	Mode setup	**0~49:** Depressurize (Emergency Stop) **50~200:** Pressurize **201~255:** Depressurize (Emergency Stop)

Channel 1 (CH1): Manual Angle Setup

Angle No.	Angle	DMX Value
1	-105°	0
2	-90°	18
3	-75°	36
4	-60°	54
5	-45°	73
6	-30°	91
7	-15°	109
8	0°	128
9	15°	146
10	30°	165
11	45°	183
12	60°	201
13	75°	219
14	90°	237
15	105°	255

1. The first channel controls the firing angle. It defines to which angle the nozzle of CIRCLE FLAMER move to. The angle can be chosen anywhere between -105° to +105° (DMX value 0 to 255)
2. The DMX value for angle of 0° is 127.5 (round up 128). Use this value, following formula can be used to calculate all other angles ∠ in degree. Please always note the prefix of the angle

DMX Value = 127.5 + (∠*1.2145)

Channel 2 (CH2): Manual Nozzle Waving Speed Setup

CH2: Nozzle Waving Speed Setup			
DMX Value	0	1-254	255
Speed	Max Speed	Incremental of Speed	Max Speed

The second channel defines the nozzle waving speed. It work together with Channel 1 for manual firing

Channel 3 (CH3): Ignition ON/OFF

CH3: Ignition		
DMX Value	0-253	254-255
Ignition	Igniter disable (ignition OFF)	Igniter enable (ignition ON)

The third channel activates the actual ignition. If the DMX value of this channel higher than 253, the CIRCLE FLAMER will ignite.

Channel 4 (CH4): Firing Duration setup

CH4: Manual Firing Duration setup								
DMX Value	0	1	2	3	4	……	254	255
Firing Duration	Permanent	10ms	20ms	30ms	40ms		2540ms	Permanent

The fourth channel is the firing duration setup

Below formula can be used to calculate the firing duration (ms):

DMX Value = t/10

Channel 5 (CH5): Program Sequence setup

The fifth Channel allows to firing a preset sequence. Three DMX values can be used for one of the programmed firing sequence from above sequence list (refer to above sequence list table).

Below formula can be used to calculate firing sequence:

DMX Value = 2 + Sequence No.*2.55

CH5: Sequence List							
DMX Value	0~2	3~5	6~7	8~10	11~12	.....	225-226
Sequence No.	N/A	1	2	3	4		88

Channel 6 (CH6): Mode setup

The sixth channel is the working mode of pump.

When the safety lock located at TEST MODE, set DMX value between 50-200 to test the system. For safety, the device will not pressurize.

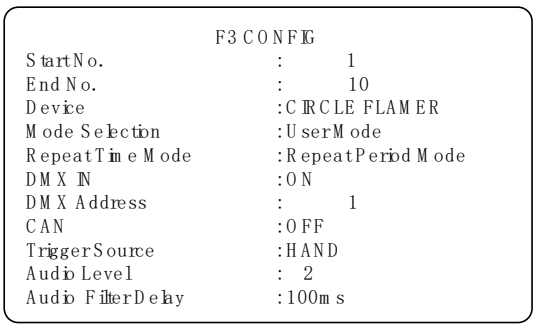
When the safety lock located at USER MODE, the device pressurize activated by set DMX value between 50-200. The device can generate flames under Pressurize mode.

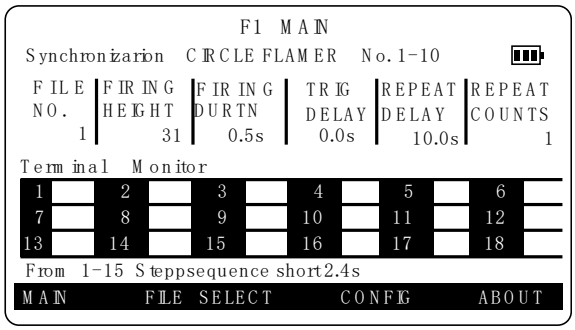
CH6: Mode setup			
DMX Value	0-49	50-200	201-255
Mode	Depressurize Mode	Pressurize Mode	Depressurize Mode

▵ Control with SHOWVEN Host Controller ZK6200/ZK6300

If use SHOWVEN Host Controller ZK6200 or ZK6300 to program the CIRCLE FLAMER X-F3600, please set on Host Controller. The setting step is:

Press “F3” on Host Controller – find “Device” – choose the right device “CIRCLE FLAMER”.
Host Controller with bi-directional communication with device, please allocate a unique DMX address for each unit of CIRCLE FLAMER X-F3600.
Press “Pre-heat” to start to pressurize CIRCLE FLAMER X-F3600.
Firing the preset flame effect by enter the preset sequence No. to FIRING HEIGHT.





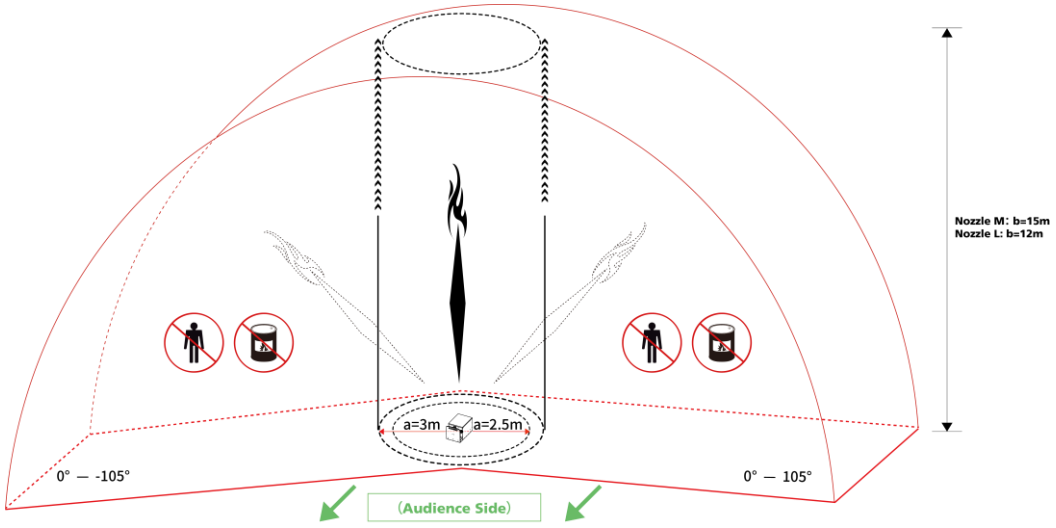
Operation

1. Safety Distance
Definition and Instructions

Safety distance for CIRCLE FLAMER X-F1800 divided into two parts safety radius around machine (a) and safety distance at firing direction (b). No person and flammable materials are allowed to stay inside the safety isolation zone when flamer was armed.
The safety radius around machine depends on the firing height (nozzle size), with a radius from 2.5m to 3m.
For safety distance at firing direction equals to maximum firing height * 1.5. CIRCLE FLAMER X-F1800 with maximum ±105° waving firing angles, when firing step sequence, wave sequence or additional sequences the safety isolation zone is a three-dimensional sector area.

Nozzle Type	Max. Flame Height	Safety Radius around CIRCLE FLAMER (a)	Safety Distance at Firing Direction (b)
SFSMA002 Nozzle M	10m	3m	15m
SFSMA003 Nozzle L	8m	2.5m	12m

The CIRCLE FLAMER X-F1800 safety isolation zone is a three-dimensional space with a cross-section of 210° sector enclosed by a and b (check below diagram). We can understand it as a safety area formed by a safety column with diameter of a, height of b rotate of ±105 degrees. Unauthorized persons and objects are strictly prohibited from entering. Depending on the firing sequence / angles the sector area changes accordingly.
For angled installation, the safety distance both around machine and firing direction should shift accordingly.



Safety distance in windy environment

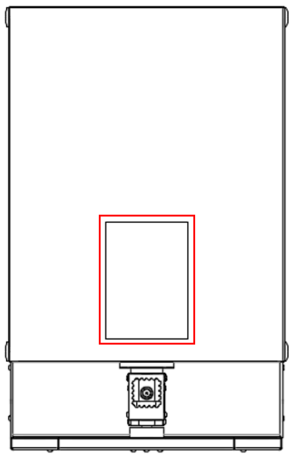
The safety isolation zone radius (a) and safety distance of firing direction (b) increase with wind direction and wind speed (v, m/s). The safety distance in windy conditions can be calculated as below:

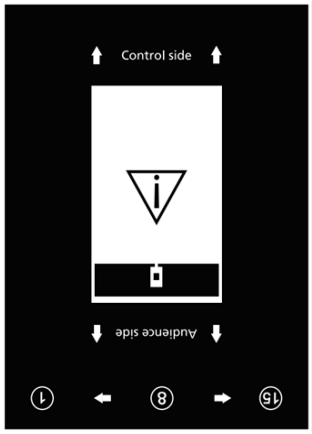
For Nozzle M: a = 3 + v; b = 15 + v

For Nozzle L: a = 2.5 + v; b = 12 + v

For example when the wind speed is 3m/s, we use the Nozzle M on CIRCLE FLAMER X-F1800, then the safety isolation zone radius should be 6m, safety distance of firing direction is 18m.
When the wind speed ≥ 8m/s (wind force ≥ 5), please use it with caution. When wind speed ≥ 17m/s （wind force ≥ 8）, please stop use CIRCLE FLAMER X-F1800.

Direction Explanation



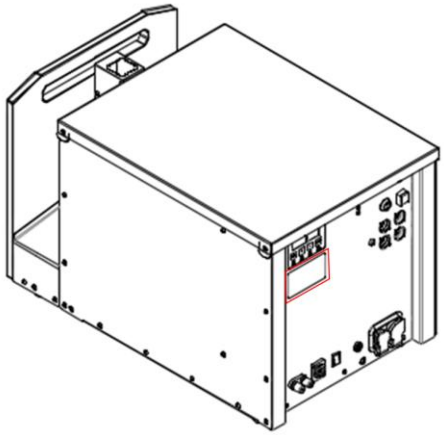


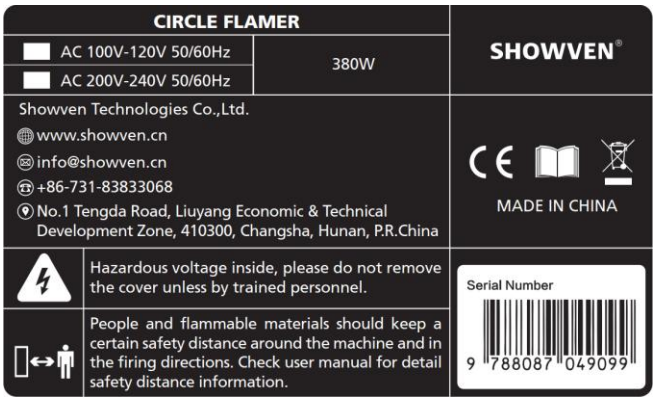
There is direction explanation on top panel of CIRCLE FLAMER X-F1800 as show above picture.
1. 1 to 15 is the firing angle of CIRCLE FLAMER X-F1800, Far Right is position 15, Middle is position 8, Far Left is position 1.
2. Audience side and control side are indicated in above picture.

Note: in order to indicate correct direction, please place the top panel correctly.

Label of CIRCLE FLAMER X-F1800

The label is at rear panel of machine and information is show as below.

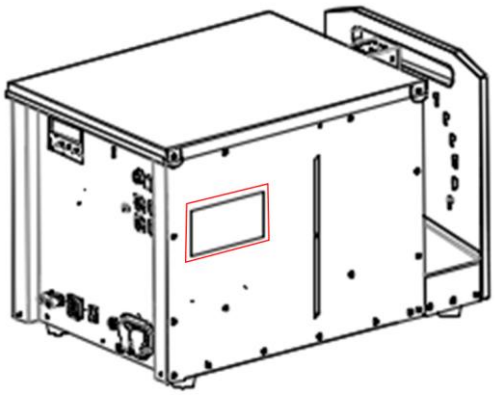




Fuels for CIRCLE FLAMER X-F1800

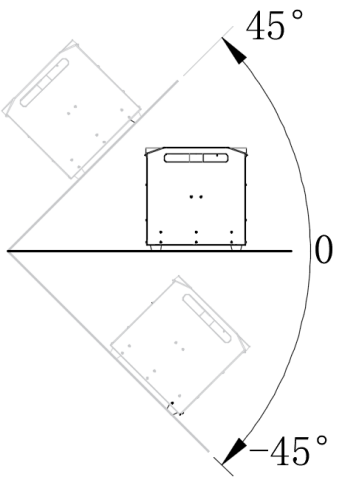
1. Water content in fuel should less than 0.5%
2. For maximum safety, please use fuel with flash point between 60-80℃, ISOPAR L is highly recommended.
3. Ethanol is not suggested due to three reasons, first ethanol is highly flammable makes it not as safe as ISOPAR; secondly the color of flame is very weak; thirdly there are always high water content (> 0.5%) in ethanol.
4. Colored fuels are forbidden to use on CIRCLE FLAMER X-F1800 it may damage the machine.

SHOWVEN excludes liability for the losses, damages and accidents caused by not using qualified fuels in accordance with this requirement.
Always have a dry powder fire extinguisher, a CO_2 fire extinguisher and an extinguishing blanket next to the equipment in case of needed. And someone must be on duty during operation. In case accident occurs, a dry powder fire extinguisher can be used when the fire is large, and a carbon dioxide fire extinguisher can be used when the fire is small.



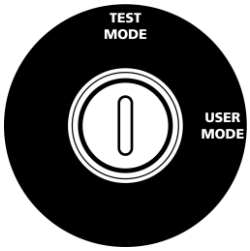
2. Install CIRCLE FLAMER X-F1800

a) Choose the correct nozzle, ensure the installation position of CIRCLE FLAMER X-F1800 meet above safe distance requirements. New CIRCLE FLAMER X-F1800 supplied with a nozzle M which generate up to 10m flame.
b) Horizontal installation is preferred for CIRCLE FLAMER X-F1800. If need to install CIRCLE FLAMER X-F1800 in angles, please turn the TIP Setting to OFF status first. X-F1800 with maximum tilt angle of 45° or -45°, and it can be angled to the direction as show in below picture. Besides please be aware the fuel level in fuel tank to avoid fuel leakage when tilt installation.
c) Make sure CIRCLE FLAMER X-F1800 is securely installed. For truss installations always connect with safety rope to ensure extra safety. If there is any other national or regional guidelines please follow it accordingly.



3. Connect Power and DMX cable to CIRCLE FLAMER X-F1800

Before power and/or DMX cable connection, make sure safety lock of CIRCLE FLAMER X-F1800 stay at TEST MODE as above picture.



If control by DMX, follow below steps:

a) Connect a power cable to the POWER IN socket of CIRCLE FLAMER X-F1800. Connect the other end of power cable to the power source. Make sure power supply in consistent with the rated voltage of the equipment, and the socket must well grounded.
b) Each unit of CIRCLE FLAMER X-F1800 can be connected to power supply directly. 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 POWER IN of the next machine. Do not connect exceed units to a single electrical circuit.
c) Power on CIRCLE FLAMER X-F1800
d) Assign a DMX address for each unit of machine. If use SHOWVEN host controller or FXcommander to control the machine please allocate a unique DMX address for each unit of machine.
e) Connect a DMX cable to the DMX IN socket of first unit of X-F1800, another head of this DMX cable connect to DMX console (such as FXcommander). Make sure the DMX console is powered off.
f) Connect a DMX cable to the DMX OUT socket of previous X-F1800, and the other end to the DMX IN of next machine. Connect all devices in series in this way.
g) 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.

If control by 9-60V pyro signal, follow below steps:

a) Connect a power cable to the POWER IN socket of CIRCLE FLAMER X-F1800. Connect the other end of power cable to the power source. Make sure power supply in consistent with the rated voltage of the equipment, and the socket must well grounded.
b) Each unit of CIRCLE FLAMER X-F1800 can be connected to power supply directly. 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 POWER IN of the next machine. Do not connect exceed units to a single electrical circuit.
c) Connect the power control cables to the 9-60V pyro signal connector on CIRCLE FLAMER X-F1800.
d) Connect the other end of power control cables to the pyro controller (9-60V external trigger source). Make sure the pyro controller is powered off
e) Power on all CIRCLE FLAMER X-F1800
f) Set the Ext Ignite to ON status in advanced interface, set the firing sequence by choose a sequence No. at Set Ext Sequence.

4. Power ON the DMX console or pyro controller

5. Programming

Program the CIRCLE FLAMER X-F1800 with DMX console.

6. Test the ignition function of CIRCLE FLAMER X-F1800

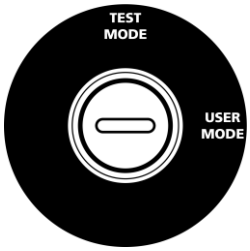
Test the ignition function of CIRCLE FLAMER X-F1800, we can check whether the igniters of each unit of X-F1800 is working fine. Due to the safety switch is stay at TEST MODE the pump won't work, there will be only ignition while no fuel spray out, so no flames generated.

7. Fill the CIRCLE FLAMER X-F1800

Please fill the machine with qualified fuel. The fuels suggested on CIRCLE FLAMER are ISOPAR, ISOPROPANOL, please make sure water content in fuel should less than 0.5%.

8. Firing

a) Double confirm the prescribed safety isolation zone is clear, no person, animal or other property within this region.
b) Switch the safety switch of CIRCLE FLAMER X-F1800 to USER MODE.



c) Pressurize CIRCLE FLAMER X-F1800.

d) Firing, the operator should always have a clear view of the device, so that he/she can stop the show immediately when there is danger.

9. Depressurize

Depressurize all CIRCLE FLAMER after use or if not use for a long time during the show we also suggest to depressurize to ensure the safety.

10. Power OFF

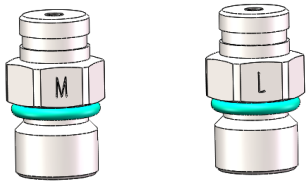
a) Power OFF DMX console
b) Switch safety switch of CIRCLE FLAMER X-F1800 to TEST MODE
c) Power OFF CIRCLE FLAMER X-F1800
d) Unplug power cable, DMX cable.

▵ Nozzles and Nozzle Replacement

Nozzles

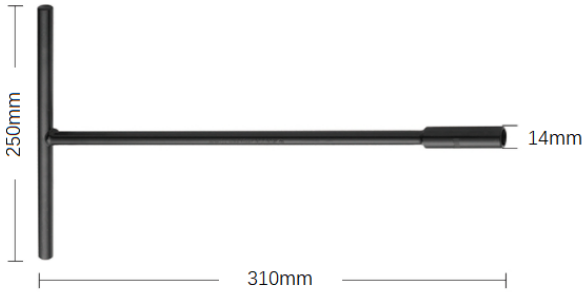
There are two types of Nozzle for CIRCLE FLAMER. Nozzle M and Nozzle L.

Nozzle M: (standard configuration)
Short flame: 5-7m,
Long flame: 8-10m.
Nozzle L:
Short flame: 3-5m,
Long flame: 6-8m.



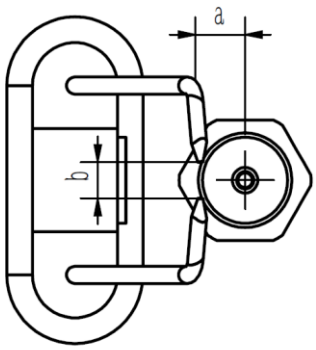
Nozzle Replacement Wrench

Use 14mm outer hexagon socket wrench to disassemble the nozzle, clean the nozzle and nozzle socket with air gun (air compressor), change a different nozzle and install it.



▵ Igniter Position Adjustment

Whenever changed the nozzle or ignition is not good, please check igniter pole position according to below parameters. The right position for ignition pole should have a gap from tip to tip of 4±0.5mm and a gap between ignition pole and fuel stream of 4±0.5mm (Nozzle M) or 2.5±0.5mm (Nozzle L). Check the ignition success rate after adjustment by firing.

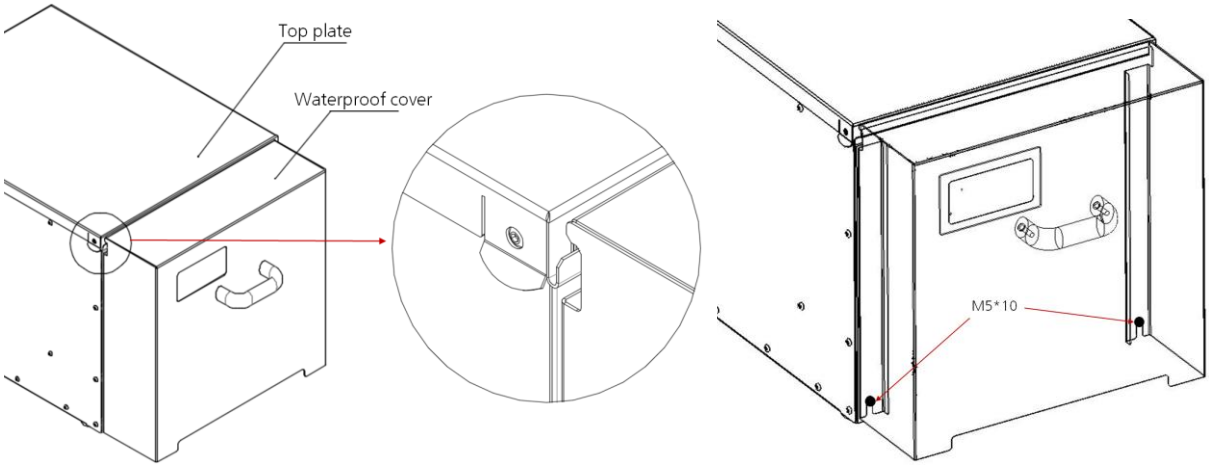


Nozzle	a (mm)	b (mm)	Short flame	Long flame
M	4±0.5	4±0.5	5~7m	8~10m
L	2.5±0.5	4±0.5	3~5m	6~8m

Note: Do unplug the power cable when service flamer.

Waterproof cover installation

Hang the waterproof cover on the rear panel side of the top cover and fix it with 2pcs of M5*10 screws as shown in below picture.

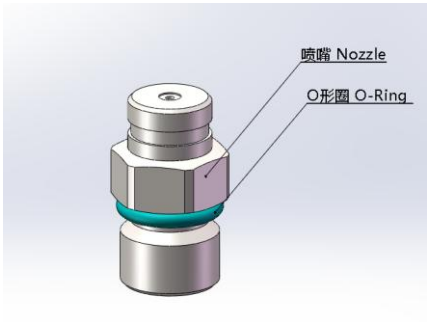


Battery Recommendation

CIRCLE FLAMER can be driven by battery, for use of Battery power supply: CIRCLE FLAMER X-F1800 with stable internal circuit design, please support X-F1800 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. Socket type: NEUTRIK-NL4FX, 4 pin audio connector (1+ connect 12V anode, 1- connect 12V cathode). Connecting power cables should above 14AWG.

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. Check the ignition probes both before and after each show, if there is any foreign objects on it please clean it up.
3. Maintenance of the nozzle: Nozzle needs to be cleaned from time to time, and it is recommended that once every six months (depending on the environment and frequency of use). In the process of using the equipment, if the flame shape is seriously deformed or the fuel injection line is significantly deformed or coarsened, the nozzle should be removed immediately for cleaning. If after clean, there are still problems please replace new nozzle.
4. 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 (material and size of O-ring: fluororubber O-ring, the outermost diameter is 14 mm, and the line diameter is 2 mm).



5. Switchable power input design, switchable between 110V and 220V as show above picture (voltage will show on it). The power supply is located on the side of the electric control, and you should remove the cover before switch it.

Optional Parts for CIRCLE FLAMER X-F1800

Part. No.	Description	pcs / unit
RMWAS025	O ring for nozzle	1
RMBOT036	Safety ring	1
RMMET045	Safety rope	1
RMEMD062	Wireless receiver (for wireless control with FXcommander)	1
RMCAB057	DC patch cord, charge for wireless receiver	1
SFSMA002	nozzle M	1
SFSMA003	nozzle L	1
SFMET944	Nozzle disassemble tool	1
RMSMA215	Angle block assembly	2
RMSTE472		1
RMSTE473		1
SFMET455	Waterproof cover for control panel	1
SFCAB021	DMX cable, CCLINE-06, 6m	1
SFCAB022	DMX cable, CCLINE-06, 12m	1
SFCAB023	DMX cable, CCLINE-06, 18m	1

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 unqualified fuels;
- 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

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