# USER MANUAL
# uFlamer X1800

V1.1
2022.09


SHOWVEN Technologies Co., Ltd

Thanks for choosing SHOWVEN uFlamer X1800, we wish it will bring you lots of exciting moments.
Please read the following manual carefully before operating this product.

## 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 power on the machine, please check carefully the safety distance and make sure it meets the requirements in this manual.
- Please connect DMX cable before turn on the power supply, make sure communication command stay at non firing status, and safety switch of X1800 stay at TEST MODE.
- 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 $CO_2$ 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. Any questions please always contact SHOWVEN (info@showven.cn) for help.
- Be sure to use high quality flame fluid according to below requirement, otherwise, it is easily leads to failure or danger.
- The operator responsible for the control of uFlamer X1800 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 uFlamer X1800 or this manual.
2. Use for other applications or circumstances other than those indicated herein.
3. Changes to the uFlamer X1800, including use of non-original spare parts, lack of maintenance etc.
4. Dismantling uFlamer X1800 without authorization from SHOWVEN.
5. Use this machine by unqualified or untrained personnel.
6. Use other type of fuel instead of ISOPAR as indicated in this manual.
7. Improper use of machine.

## Functional Characteristics

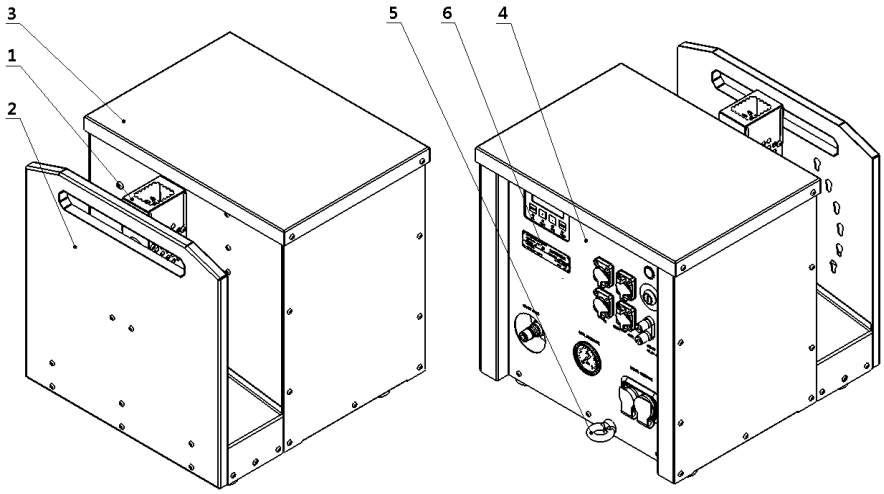
- 210° swivel angles
- Waterproof design, can be used in rain
- Dual solenoid valve for extra safety
- Dual igniter ensure successful ignition
- 88 preset firing sequences, easy to operate
- Support 9-60V pyro signal

- Flames up to 10m
- Stainless steel housing
- Built-in accumulator
- DMX control, both 3-pin and 5-pin XLR

## Technical Specifications

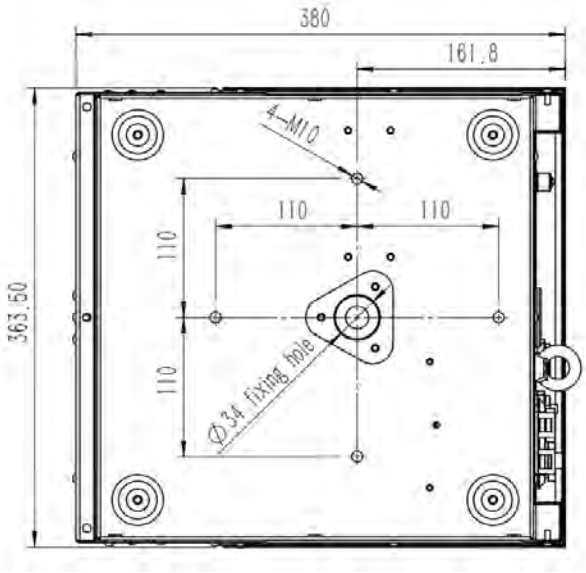
- **Model:** uFlamer X1800
- **Dimension:** 370×380×380mm
- **Weight:** 19 kg
- **Input:** 220V, 110V
- **Quick Coupler:** ISO7241B G1/4 male
- **Work Power:** 260W
- **Usage in Rain:** YES
- **Work Pressure Range:** 8-12Bar
- **Installation Angles:** Any direction, bottom plate need protective cover to achieve waterproof function
- **Fuel:** ISOPAR L
- **Accumulator:** YES
- **Flame Height:** 8-10m(Nozzle M)
- **Ignition:** Dual, high voltage electron ignition
- **Fuel Consumption:** 60ml/s (Nozzle M), 30ml/s (Nozzle L)
- **Control:** DMX , 9-60V pyro signal
- **Min. Firing Duration:** 0.1S
- **Firing Angle.**: 210° (±105°)

## Structure




1. Flame chamber
2. Front Panel
3. Top Panel
4. Rear panel
5. Safety loop
6. Label

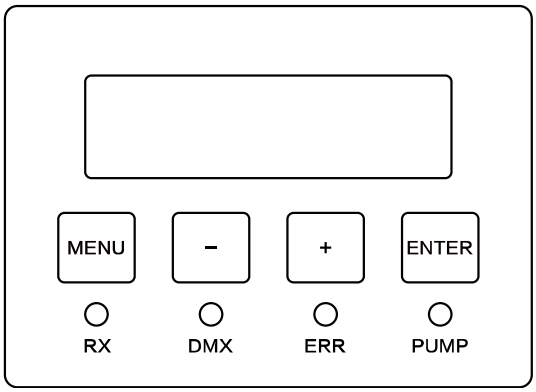
## Diagram of bottom panel




## Rear Panel


1. Display area
2. Pressure gauge
3. Fuel IN quick coupler (ISO7241B G1/4 male) (Fuel input pressure 8-12bar)
4. Pressure indicator light
5. 3-PIN DMX
6. Safety switch
7. 5-PIN DMX
8. 9-60V pyro signal port
9. Power IN / OUT

## Δ 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 : Indicate light (reserved)

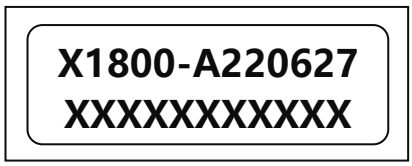
### 2. Button Functions:

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 don't press button in10s.*

### 3. Pressure Indicator Light Status Explanation

| Status | Pressure |
|---|---|
| OFF | Current Pressure < P. Low Limit |
| ON | P. Low Limit ≤ Current Pressure < P. Upper Limit |
| BLINK | P. Upper Limit ≤ Current Pressure |

### 4. Welcome Interface




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

### 5. Main Interface


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

## 6. Alert Message

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

## 7. Error Message

| Error Message | Why it appears | How to remove |
|---|---|---|
| E5 Voltage Err | DC input < 10V or > 15v | Make sure DC input between 10-15V |
| E6 Tip Err | Machine slant over 45° , it stops running | Tip setting set to OFF, or horizontal install machine. |

## 8. Interface setup

Press “MENU” to switch through setup menu

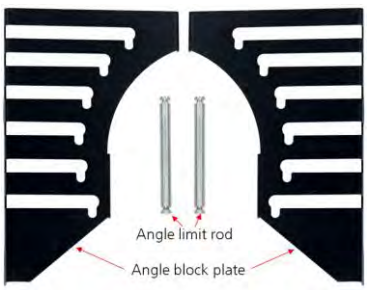
| Menu | Range | Default | Explanation |
|---|---|---|---|
| Set DMX Address | 1~512 | 1 | DMX address setup |
| Angle Limit | MAX NO.1 - NO.15 | MAX NO. 15 | Restrict nozzle rotate angles: Set by "+" and "-" , and confirm by "ENTER" |
| | MIN NO.1 - NO.15 | MIN NO. 1 | |

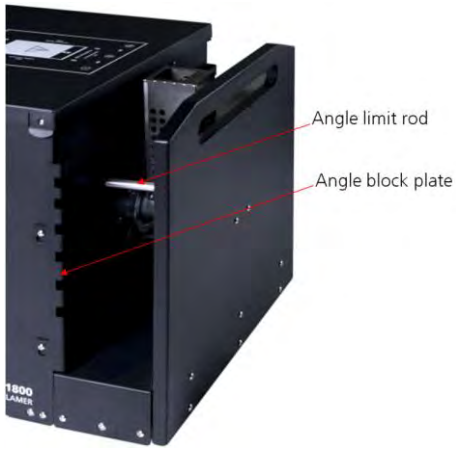
Steps setting the angle limit and install angle blocks.

a) Set the “Maxi. Angle” and “Mini. Angle”, press “ENTER” to save the changes.

b) Test the SEQUENCE 31 or push the CH1 DMX value from 0 to 255 on DMX console to drive flame nozzle movement manually, confirm the nozzle is waving only in the preset limited angles instead of from -105° to +105°. If not, please reset the ANGLE LIMIT and check. (SEQUENCE 31 of X-F3600 is short flame step sequence from -105° to +105°, after set the angle limit, it can only waving between the Mini. Angle and Maxi. Angle).

c) After confirm the software angle limit control works well, then install the angle block plate and put angle limit rod at corresponding Mini. Angle and Maxi. Angle. Test sequence 31 again to reconfirm the angle limit rod was correctly installed.



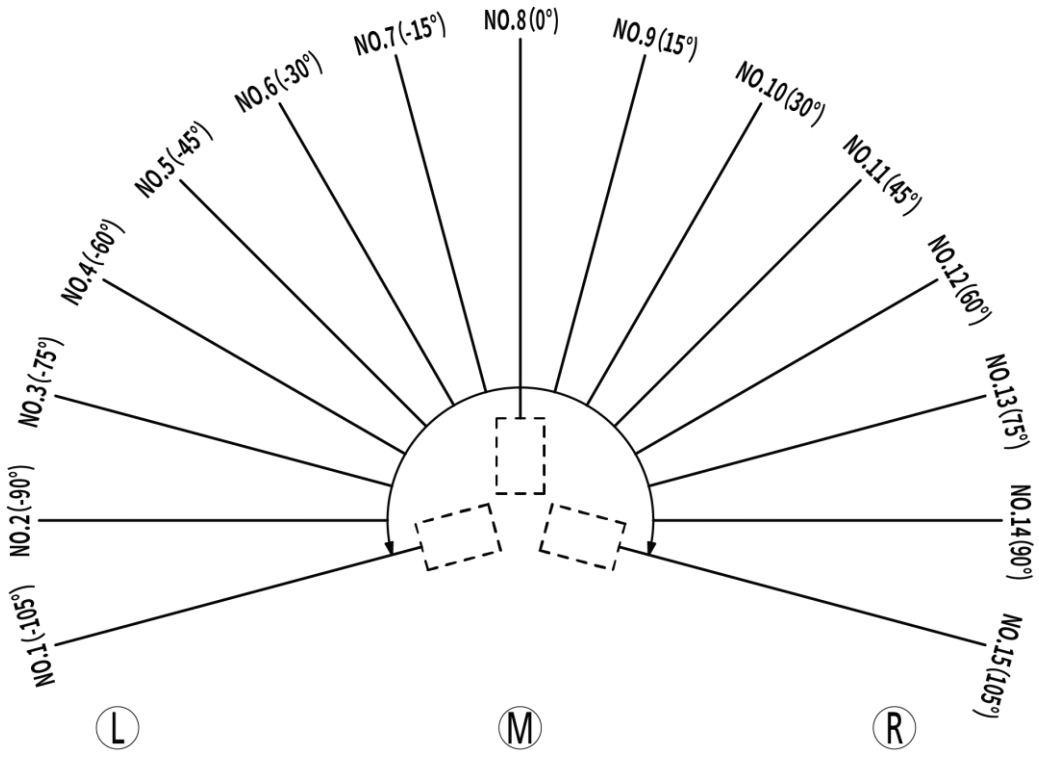

## 9. Advanced Interface

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

| Items | Contents | Default | Description |
|---|---|---|---|
| Drive Test | OFF / Motor / Igniter / Jet Valve 1 / Jet Valve 2 | | |
| | 1. Motor | | Swiveling and stop at target angle. |
| | 2. Igniter | | Ignite 1s |
| | 3. Jet Valve 1 | | Safety lock located at user mode, pressure release valve on, then related jet valve will be on and off for 3 times |
| | 4. Jet Valve 2 | | |
| Ext Ignite | OFF / ON | OFF | Trigger through 9-60V pyro ignition signal |
| Set Ext Sequence | 1~88 | OFF | Preset sequence triggered by pyro signal |
| 语言 (Language) | English / Chinese | English | Language switch |
| Mode Select | Normal Mode / Factory Mode | Normal Mode | Factory mode is for test in factory only |
| Tip Setting | OFF / ON | OFF | Turn ON/OFF tip over function |
| Head to middle | OFF / ON | OFF | Channel 1=0, Firing head will remain in middle position (NO.8) after running a preset sequence. |
| Invert | OFF / ON | OFF | When turned on, all angles will be mirrored. |
| Motor Disabled | OFF / ON | OFF | When turned on, the position of the firing head should be moved or set manually, and the motor of firing head will be disabled.<br>(The flamer should be restarted before it takes effect.) |
| DefaultParameter | OFF / ON | OFF | Reset default parameter settings |

## Firing Angles

The firing angle for X1800 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.*

## ▵ uFlamer X1800 Firing Sequences

uFlamer X1800 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

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

| CH6: Mode setup | | | |
|---|---|---|---|
| DMX Value | 0-49 | 50-200 | 201-255 |
| Mode | Firing OFF | Firing ON | Firing OFF |

## Δ Operation

### 1. Safety Distance
### Definition and Instructions

Safety distance for uFlamer X1800 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 zone when flamer was armed.

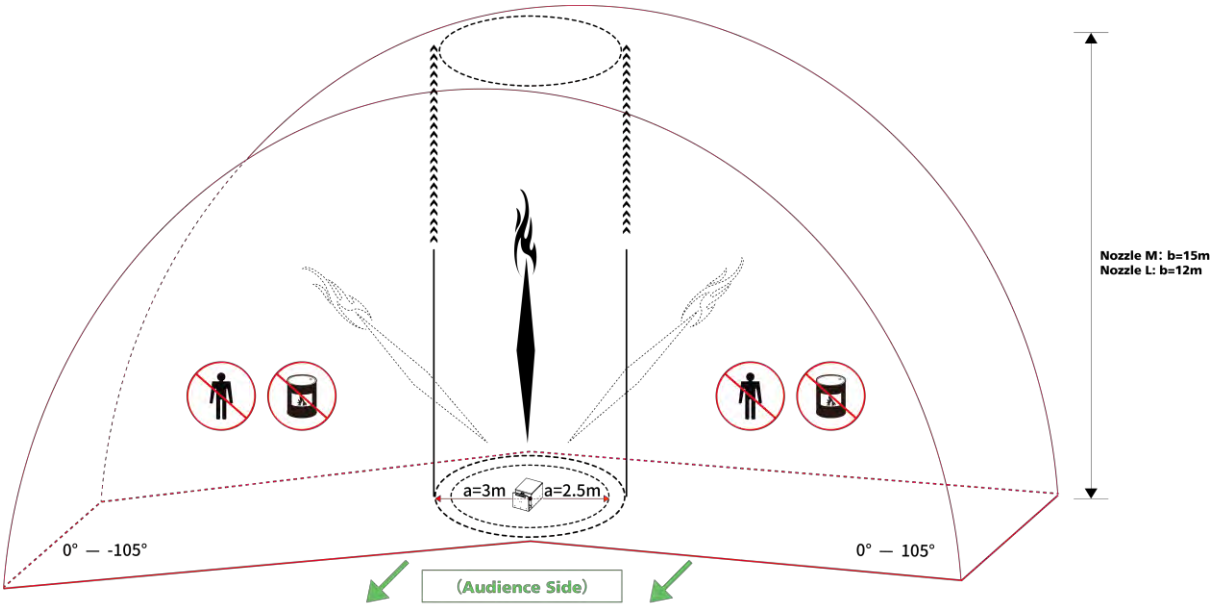
The safety radius around machine depends on the firing height (nozzle size), with a radius from 2.5m to 3m.

For safety distance at firing direction equals to maximum firing height * 1.5. uFlamer X1800 with maximum ±105° waving firing angles, when firing step sequence, wave sequence or additional sequences the safety zone is a three-dimensional sector area.

| Nozzle Type | Max. Flame Height | Safety Radius around uFlamer X1800 (a) | Safety Distance at Firing Direction (b) |
|---|---|---|---|
| SFSMA002 Nozzle M | 10m | 3m | 15m |
| SFSMA003 Nozzle L | 8m | 2.5m | 12m |

The uFlamer X1800 safety 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 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 uFlamer X1800, then the safety 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 uFlamer X1800.

**Direction Explanation**


There is direction explanation on top panel of uFlamer X1800 as show above picture.

1. 1 to 15 is the firing angle of X1800, 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.

**Fuels for uFlamer X1800**


1. Water content in fuel should less than 0.5%
2. For maximum safety, please use fuel with flash point between 60-80°C, ISOPAR L is highly recommended.

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 uFlamer X1800 and Pump Station**

a) Choose the correct nozzle, ensure the installation position of uFlamer X1800 meet above safe distance requirements. New uFlamer X1800 supplied with a nozzle M which generate up to 10m flame.

b) Pump station can only be installed horizontally on a firm level surface. The installation place must be well ventilated, do not install it in the open air or in a confined space. The equipment must be far away from heat sources, fire sources, and objects that can cause fire. Always have a dry powder fire extinguisher, a $CO_2$ fire extinguisher and an extinguishing blanket next to the equipment in case of needed. 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.

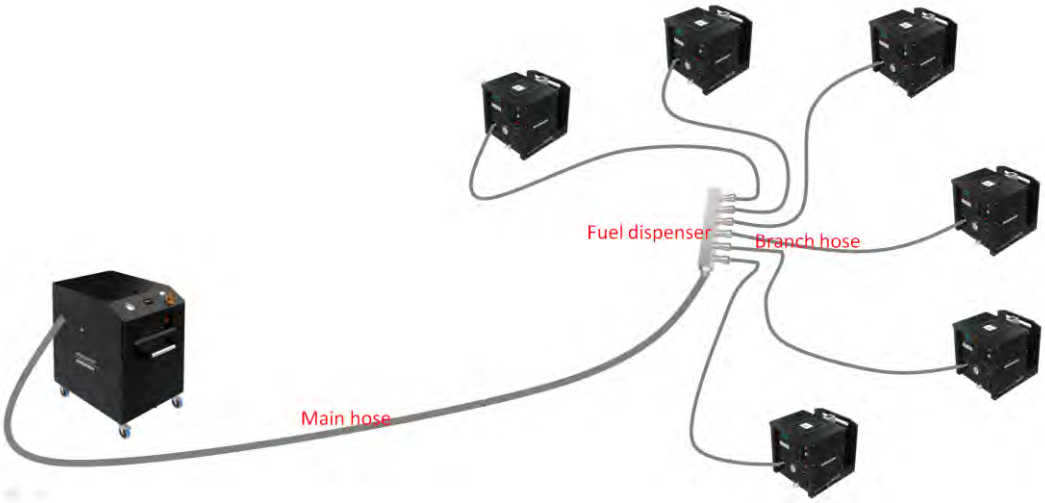
c) uFlamer X1800 can be installed in any direction, be aware the bottom panel of uFlamer X1800 is not waterproof if need installed in angles or upside down please install bottom panel waterproof shield (RMSTE1062, optional part).

d) Make sure uFlamer X1800 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.
e) Double confirm the machine are firmly installed.

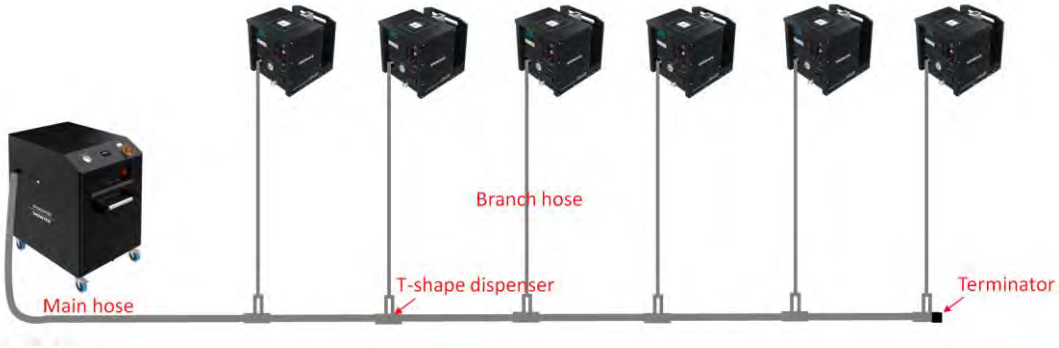
**3. Hose connection between flame head X1800 and pump station**

According to the position of flame heads and pump station, various connection methods can be flexibly adopted. Below are some examples.

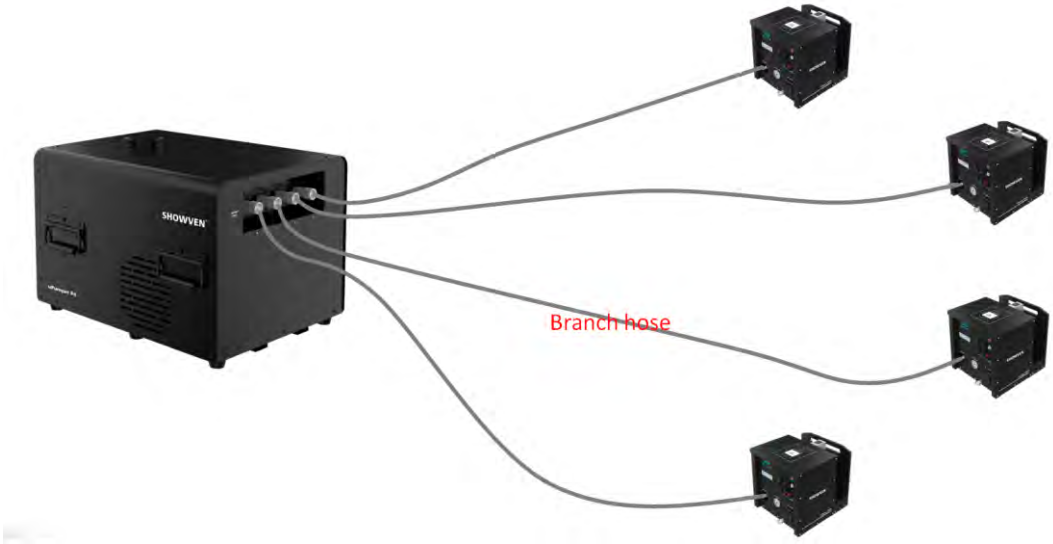
a. Pump Station uPumper P20 – Main hose – Fuel dispenser – Branch hose – uFlamer X1800




b. Pump Station uPumper P20 – Main hose – T-shape dispenser – Branch hose – uFlamer X1800

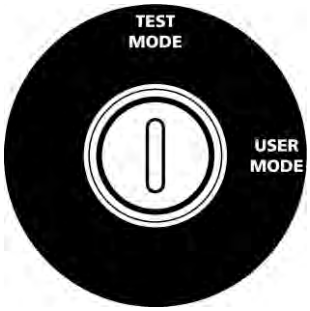



c. Pump Station uPumper P4 – Main hose – T-shape dispenser – Branch hose – uFlamer X1800




**4. Power and DMX cable Connection for flame head**

Before power and/or DMX cable connection, make sure safety lock of uFlamer X1800 stay at TEST MODE.




**If control by DMX, follow below steps:**

a) Connect a power cable to the POWER IN socket of uFlamer X1800. 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 uFlamer X1800 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 all uFlamer X1800
d) Assign DMX address for each unit of X1800. 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 X1800, another head of this DMX cable connect to pump station DMX OUT. If the pump station is controlled separately please connect the other head of this DMX cable to DMX console (such as FXcommander).
f) Connect a DMX cable to the DMX OUT socket of previous X1800, 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 uFlamer X1800. 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 uFlamer X1800 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 all uFlamer X1800
d) Set the Ext Ignite to ON status in advanced interface, set the firing sequence by choose a sequence No. at Set Ext Sequence.
e) Connect the power control cables to the 9-60V pyro signal connector on uFlamer X1800.
f) 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.

## 5. Power and DMX connection for Pump Station

a) Connect a power cable to the POWER INPUT of Pump Station. 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) Connect a DMX cable to the DMX IN socket of Pump Station, the other head of this DMX cable connect to DMX console (such as FXcommander).
c) Power ON the Pump Station and DMX console

## 6. Programming

Program the uFlamer X1800 with DMX console.

## 7. Test the ignition function of Flame head uFlamer X1800

Test the ignition function of uFlamer X1800, we can check whether the igniters of each unit of X1800 is working fine. Due to the safety switch is stay at TEST MODE and pump station is under depressurize status, there will be only ignition while no fuel spray out, so no flames generated.

## 8. Fill the Pump Station

Please fill the pump station with qualified fuel.
a) Water content in fuel should less than 0.5%

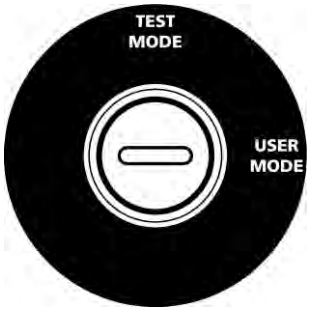
b) The fuels should meet the requirements of both flame head uFalmer X1800 and pump station.
c) uPumper P20 can only use fuel with flash point between 60-80℃, ISOPAR L is highly recommended. ISOPROPANOL, Ethanol etc highly flammable fuels are forbidden to use on uPumper P20.

**9. Pressurize**

Pressurize the pump system through DMX console, we can check the pressure through pressure gauge on both pump station and flame head uFlamer X1800. The working pressure range for uFlamer X1800 is 8-12bar. We can check whether pump station are work normally and hose connection are well connected through this step.
Once confirmed very thing is fine, depressurize the whole system.

**10. Firing**

a) Double confirm the prescribed safety zone is clear, no person, animal or other property within in this region.
b) Switch the safety switch of uFlamer X1800 to USER MODE.




c) Activate the pump station and pressurize for uFlamer X1800.
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.

**11. Depressurize**

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

**12. Power OFF**

a) Power OFF the pump station and DMX console after show
b) If need to disassemble the installation, please disconnect the fuel supply between pump station and hose.
c) Switch safety switch of uFlamer X1800 to TEST MODE
d) Power OFF uFlamer X1800
e) Disconnect power cable, DMX cable and hose connections.

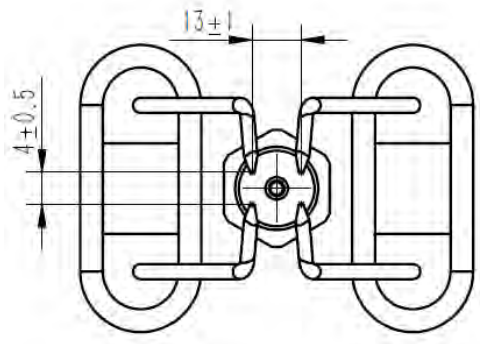
## ▵ Nozzle Replacement

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.

Nozzle disassemble tool: SFMET944

## Igniter Position Adjustment

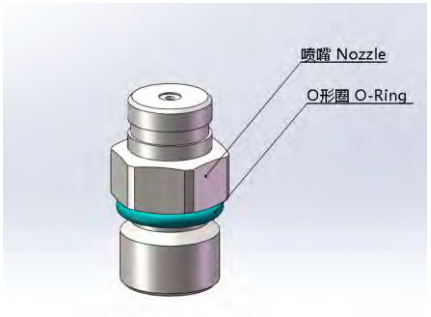
Whenever changed the nozzle or ignition is not good, please check igniter pole position according to below parameters. The right position for each pair of pole should have a gap from tip to tip of 4±0.5mm and a gap between two igniter of 13±1mm. Check the ignition success rate after adjustment by firing.




**Note:** Do unplug the power cable when service flamer.

## 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 uFlamer X1800

| 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 |
| SFSMA002 | nozzle M | 1 |
| SFSMA003 | nozzle L | 1 |
| SFMET944 | Nozzle disassemble tool | 1 |
| RMSMA215 | Angle block assembly | 2 |
| RMSTE472 | | 1 |
| RMSTE473 | | 1 |
| SFCAB065 | Waterproof DMX cable, 6m | 1 |
| RMSTE1062 | X1800 bottom plate waterproof cover | 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

# SHOWVEN®

**PREMIUM FACTORY SAS - DISTRIBUTEUR OFFICIEL**
**1 Route Neuve, 71710 MONTCENIS – FRANCE Office**
**+33 805 69 13 27 | +33 608 630 452**
**info@premiumfactory.eu | www.premiumfactory.eu**