

# **USER MANUAL**

## **cFlamer Quad**

V1.0

2025/05/30

**SHOWVEN®**



**SHOWVEN Technologies Co., Ltd.**



Thanks for choosing SHOWVEN cFlamer Quad, we wish it will bring you lots of exciting moments. Please read the following user's manual and related product installation guide carefully before operating this device.

## **△ Safety Instructions**

### **1. Safety icons explanation**

Safety instructions warn of hazards when handling equipment and provide information on how to avoid those hazards. They are classified according to the severity of the hazard and are divided into the following groups. Please do follow all safety instructions in this document!

**DANGER:** Indicates a hazardous situation that, if not avoided, will result in death or serious injury. (This signal word is limited to the most extreme situations)

**WARNING:** Indicates a hazardous situation that, if not avoided, could result in serious injury.

**CAUTION:** Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**NOTICE:** Provide additional or supplementary information.

### **2. General Safety Instructions**

- ✖ Unauthorized repair are prohibited, it may cause serious incident.
- ✖ 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 use.
- ✖ Please connect DMX cable before power on cFlamer Quad, and ensure that the communication command is disabled, and the safety switch of device is under test mode.
- ✖ After turning on the device, no person allows to stay in the safety isolation zone. 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<sub>2</sub> 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 fuels, otherwise, it is easily leads to failure or danger. Please keep fuels away from heat source, sparks, fire or other possibility of ignition. Do not smoke!
- ✖ The operator responsible for the control of flame system 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 be near operator. So that operator can turn off the power of all devices in case of abnormal.
- ✖ Please connect device with SHOWVEN E-STOPPER so that operator can stop the device immediately if there is any emergency case.
- ✖ The device shall not be altered and applied to other use purpose.

### **3. Disclaimers:**

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

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

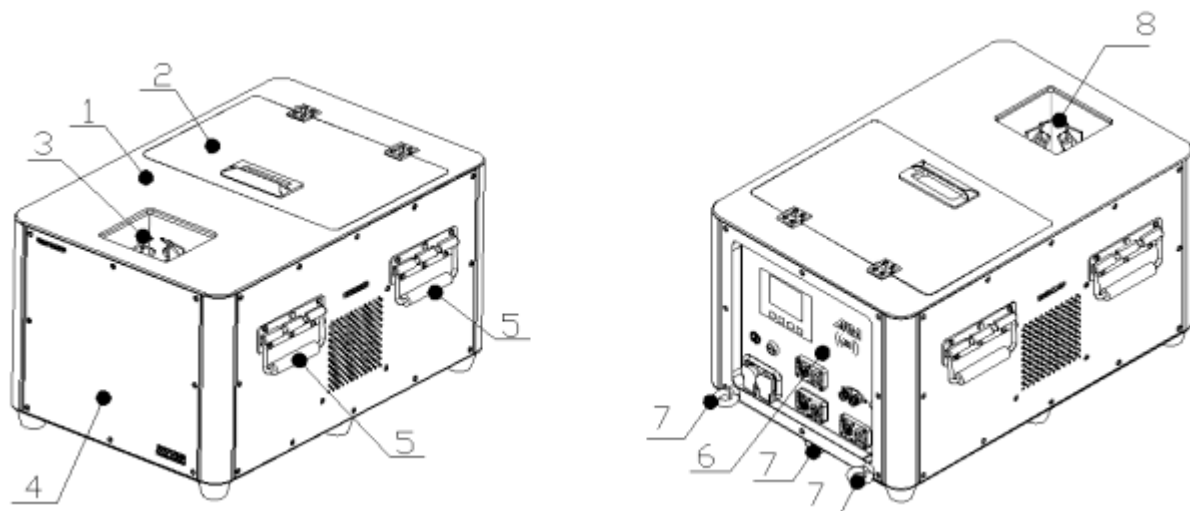
#### **Warning:**

A dry powder fire extinguisher, a carbon dioxide fire extinguisher and a fire blanket must be equipped next to the equipment. Someone must be on duty during operation. In case of fire accident, 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.

## ▲ Technical Specifications

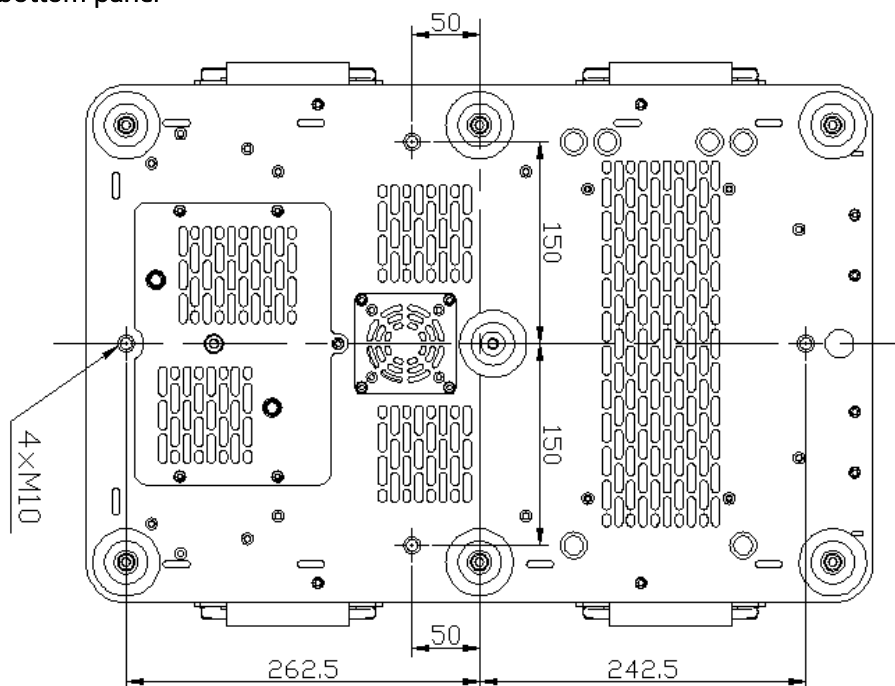
- \\ **Model:** cFlamer Quad
- \\ **Housing Material:** Stainless steel + Aluminum
- \\ **Dimension:** 585×419×330mm
- \\ **Weight:** 51kg
- \\ **Input:** AC100-120V / AC 200-240V, 50/60Hz
- \\ **Work Power:** 1500W
- \\ **Ignition:** Quad igniters, high voltage electron ignition
- \\ **Control:** DMX , 9-60V pyro signal, Wireless with Wireless DMX Receiver (5-PIN DMX IN with DC5V power supply)
- \\ **DMX:** 3-pin and 5-pin DMX IN / OUT
- \\ **E-Stop Interface:** Yes, can be connected in series
- \\ **Effect Direction:** Vertical
- \\ **Flame Height:** 8-10m(no wind, Combo NOZZLE cH, SHOWVEN color fluid, ISOPAR L, ISOPROPANOL);  
5-6m (no wind, Combo NOZZLE cL,SHOWVEN color fluid, ISOPAR L, ISOPROPANOL);
- \\ **Color Changing Flames:** Yes
- \\ **Tank Capacity:** 2.5L \* 4
- \\ **Fuel:** SHOWVEN color fluid, ISOPAR L, ISOPROPANOL
- \\ **Color Optional:** Red, Gren, Blue, Yellow, Purple (only compatible with SHOWVEN original color fluid)
- \\ **Fuel Tube Filter:** Yes
- \\ **Tip sensor:** Yes
- \\ **Usage in Rain:** Yes
- \\ **ARM light:** Yes

## ▲ Structure

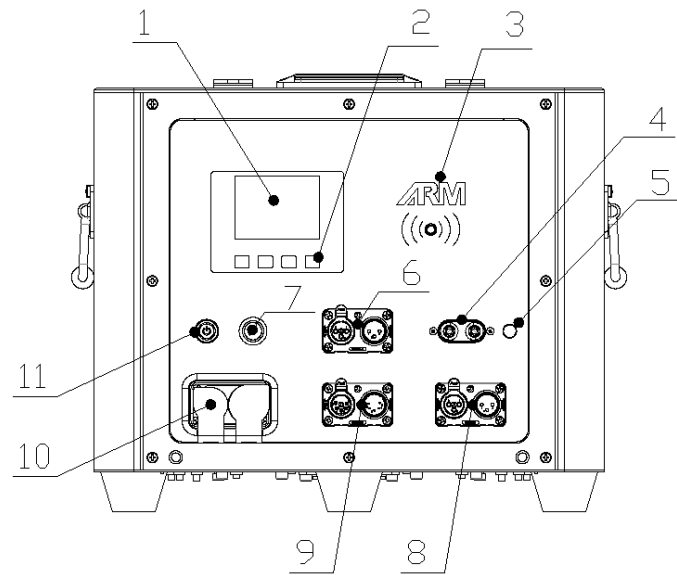


1. Top panel
2. Fuel tank cover
3. Fire box
4. Front panel
5. Handle
6. Rear panel
7. Safety loop (optional)
8. Igniter

Diagram of bottom panel



## △ Rear Panel



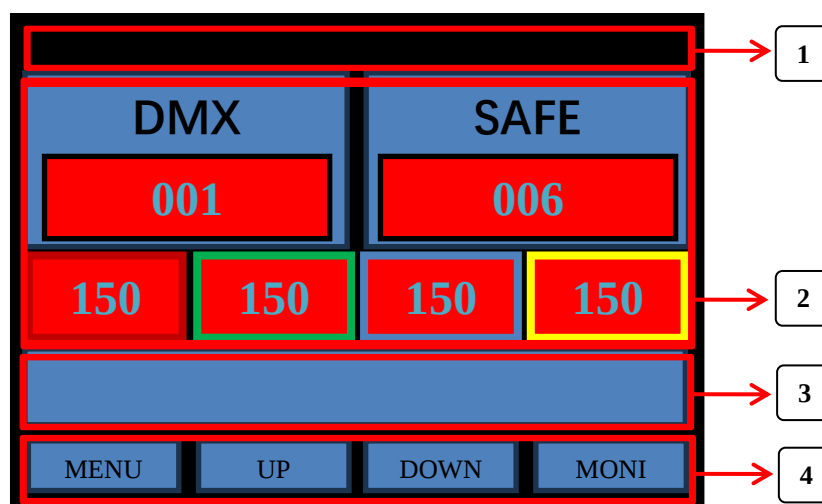
1. LCD screen
2. Touch button
3. ARM indicator light
4. 9-60V pyro signal port
5. Rubber stopper
6. 3-pin XLR IN/OUT
7. Safety switch
8. E-stop interface
9. 5-pin XLR IN/OUT (5-PIN XLR IN can charge for wireless DMX pen through pin1 and 4, pin4 with DC5V power supply)
10. Power Switch (with Power indicator light)
11. Power IN / OUT

## △ Display and setting

### 1. Welcome interface

|                |             |
|----------------|-------------|
| Version        | FA03-250214 |
| Serial Number  | *****       |
| Pump Run Time  | 00:00:00    |
| Ignition Times | xx          |

### 2. Main interface



### 1.) Status Bar

 : appears when "External Trigger" is "No.1-No.69"

 : appears when "safety switch" stay at "USER MODE"

**6N/6M/6P:** DMX channel mode

### 2.) Data Bar

**DMX:** DMX address, Background turns from BLACK to RED when DMX cable was connected.

**SAFE:** Safety address, Background turns from BLACK to RED when DMX cable was connected and safety channel activated.

**PRES:** Value in below 4 blocks are pressure value of each pipeline. Background turns from BLACK to RED when pressure reached / exceed 90% of "set pressure" value.

### 3.) Message Bar

USER MODE / error or alert information display, Background color turns to RED when under "USER MODE".

### 4.) Touch Button function display:

**First Button:** MENU / BACK

**Second Button:** UP / LEFT

**Third Button:** DOWN / RIGHT

**Fourth Button:** MONI / EDIT / SAVE

## 3. ARM indicator light



Operators can enable/disable the arm indicator light by set the "ARM STATE" in ADVANCED menu. If "ARM STATE" is ON, there will be three status:

**OFF:** DMX signal input

**BLINK:** DMX armed or Ext Ignite in advanced menu is ON

**ON:** no DMX signal and Ext Ignite in advanced menu is OFF

## 4. Alert Message

| Alert Message         | Why it appears                              | How to remove                                    |
|-----------------------|---------------------------------------------|--------------------------------------------------|
| E0 Test Mode          | Safety Key Switch at TEST MODE              | Switch Key to USER MODE                          |
| E0 Factory Mode       | Factory mode                                | Switch to Normal mode                            |
| E0 ExtIgnite ON       | "External Trigger" is set to No.1 to No.69  | Set "External Trigger" to "OFF" in Advanced menu |
| E0 Ignition Disenable | Any one of "Ignition" of 1-4 is "Disenable" | "Enable" all 1-4 "Ignition" in Factory menu      |
| E0 Pump Disable       | Any one of "Pump" of 1-4 is "Disable"       | "Enable" all 1-4 "Pump" in Advanced menu         |
| E0 Key Lock           | Touch button no operation in 30s            | Restart machine                                  |

## 5. Error Message

| Error Message                    | Why it appears                                                                                                                                                                                                                                                                                | How to remove                                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E1.1/1.2/1.3/1.4<br>Pressure Err | Consecutive pressurize failure times exceed "Pressure Fail Cnt" setting value in factory menu. Possible reasons:<br>1. Fuel tank empty<br>2. Pump failure<br>3. Fuel leakage<br>4. Pressure sensor damage<br>5. Pressure relief valve malfunction<br>6. Pipe system cannot maintain pressure. | Restart machine and check below items accordingly<br>1. Fill tank<br>2. Check pump<br>3. Check whether there is leakage inside machine<br>4. Check pressure sensor<br>5. Check relief valve<br>6. Check relief valve and check valve, or whether there is leakage inside machine. |
| E2.1/2.2/2.3/2.4 P<br>Relief Err | Pressure high after depressurize.                                                                                                                                                                                                                                                             | Restart machine and check below                                                                                                                                                                                                                                                   |

|                                      |                                                                                                    |                                                                                    |
|--------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                      | Possible reasons:<br>1. Pressure relief valve malfunction<br>2. Fuel pipe block                    | items accordingly<br>1. Pressure relief valve<br>2. Check fuel pipe                |
| <b>E3.1/3.2/3.3/3.4 Press Sensor</b> | Pressure sensor disconnect / damage                                                                | please check related pressure sensor.                                              |
| <b>E5 DC Err</b>                     | 1. Switching power supply damage<br>2. Main board malfunction or mainboard voltage detection error | 1. Replace switching power supply.<br>2. Check or replace main board               |
| <b>E6 Tip Err</b>                    | 1. Machine slant over 45° , it stops running.<br>2. Main board malfunction                         | 1. Tip setting set to OFF, or horizontal install machine.<br>2. Replace main board |

## 6. Monitoring Interface

Press "MONI" enter below interface

| Menu                  | Explanation                                                                  |
|-----------------------|------------------------------------------------------------------------------|
| <b>Pressure 1</b>     | Current pressure value of pipeline 1. -62 means pressure sensor disconnected |
| <b>Pressure 2</b>     | Current pressure value of pipeline 2. -62 means pressure sensor disconnected |
| <b>Pressure 3</b>     | Current pressure value of pipeline 3. -62 means pressure sensor disconnected |
| <b>Pressure 4</b>     | Current pressure value of pipeline 4. -62 means pressure sensor disconnected |
| <b>DC voltage</b>     | DC power supply voltage                                                      |
| <b>User Mode</b>      | <10V is under test mode                                                      |
| <b>Pump Run Time</b>  | Accumulative pump working time                                               |
| <b>Ignition Times</b> | Accumulative ignition times                                                  |

## 7. Menu Interface

Press "MENU" enter below interface

| Menu            | Explanation                     |
|-----------------|---------------------------------|
| <b>MAIN</b>     | Main menu                       |
| <b>ADVANCED</b> | Advanced menu                   |
| <b>TEST</b>     | Test menu                       |
| <b>FACTORY</b>  | Factory menu (factory use only) |

## 8. Main menu

Select "MAIN" in menu interface, press "EDIT" enter main menu. Use UP / DOWN / SAVE to change the parameters.

| Menu                      | Range             | Default | Explanation                             |
|---------------------------|-------------------|---------|-----------------------------------------|
| <b>Set DMX Address</b>    | 1-507             | 1       | DMX address setup                       |
| <b>DMX Mode Select</b>    | 6CH-N/6CH-M/6CH-P | 6CH-N   | DMX mode setup                          |
| <b>Set Safety Address</b> | 1-512             | 6       | Safety address setting under 6CH-P mode |

## 9. Advanced menu

Select "ADVANCED" in menu interface, press "EDIT" enter advanced menu. Use UP / DOWN / SAVE to change the parameters.

| Items             | Contents         | Default | Description                                                                                                                                               |
|-------------------|------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| External Trigger  | OFF / No.1-No.69 | OFF     | Trigger through 9-60V pyro ignition signal. OFF: Turn off external trigger<br>No.1-No.69: related preset firing sequence trigger through External trigger |
| Tip Setting       | OFF / ON         | ON      | Turn ON/OFF tip over function                                                                                                                             |
| Pump 1            | Enable / Disable | Enable  | Pump 1 Enable / Disable setting                                                                                                                           |
| Pump 2            | Enable / Disable | Enable  | Pump 2 Enable / Disable setting                                                                                                                           |
| Pump 3            | Enable / Disable | Enable  | Pump 3 Enable / Disable setting                                                                                                                           |
| Pump 4            | Enable / Disable | Enable  | Pump 4 Enable / Disable setting                                                                                                                           |
| Key Sound         | ON/OFF           | ON      | Touch button sound ON / OFF                                                                                                                               |
| ARM State         | ON/OFF           | ON      | ARM indicator light ON/OFF setting                                                                                                                        |
| LCD Backlight     | ON/OFF           | ON      | LCD backlight ON/OFF. When ON, screen will flash when firing; OFF: LCD screen will turn off when no operation.                                            |
| Key Lock          | ON/OFF           | OFF     | ON: Touch button will disable if there is no operation in 30s. restart machine to active touch button.                                                    |
| Default Parameter | ON/OFF           | OFF     | Reset default parameter settings                                                                                                                          |

## 10. Test menu

Please disconnect DMX connection before enter test menu.

Select "TEST" in menu interface, press "EDIT" enter test menu. Use UP / DOWN / SAVE to change the parameters.

"External Trigger" will disable after enter TEST menu, Pressure relief valve will open, below related items will shows "Running" when testing, shows "Finish" after test finished.

| Items            | Description                                                                                                                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ARM Test         | Test ARM indicator light, blink once/s, blink 3 times                                                                                                                                                                                 |
| Jet 1 Valve Test | Jet valve of output 1 ON/OFF 3 times, 1s per time.<br>Operation: choose related "Jet Valve X Test", turn safety switch to "User Mode", press "ENTER". Below Jet Valve test are the same.                                              |
| Jet 2 Valve Test | Jet valve of output 2 ON/OFF 3 times, 1s per time.                                                                                                                                                                                    |
| Jet 3 Valve Test | Jet valve of output 3 ON/OFF 3 times, 1s per time.                                                                                                                                                                                    |
| Jet 4 Valve Test | Jet valve of output 4 ON/OFF 3 times, 1s per time.                                                                                                                                                                                    |
| Relief 1 Test    | Relief valve 1 ON/OFF 3 times, 1s per time                                                                                                                                                                                            |
| Relief 2 Test    | Relief valve 2 ON/OFF 3 times, 1s per time                                                                                                                                                                                            |
| Relief 3 Test    | Relief valve 3 ON/OFF 3 times, 1s per time                                                                                                                                                                                            |
| Relief 4 Test    | Relief valve 4 ON/OFF 3 times, 1s per time                                                                                                                                                                                            |
| Igniter Test     | Igniter ON/OFF 3 times, 1s per time. Start from Igniter 1 to 4.                                                                                                                                                                       |
| Pump 1 Test      | Pump 1 will pressurize to "Set Pressure" value and keep 0.2s, and display "F". If pressurize time exceed setting value of "Max Pressure Limit", means pump test fail, it will display "E". Display "R" means machine is pressurizing. |
| Pump 2 Test      | Pump 2 will pressurize to "Set Pressure" value and keep 0.2s, and display "F". If pressurize time exceed setting value of "Max Pressure Limit", means pump test fail, it will display "E". Display "R" means machine is pressurizing. |

|                    |                                                                                                                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pump 3 Test</b> | Pump 3 will pressurize to "Set Pressure" value and keep 0.2s, and display "F". If pressurize time exceed setting value of "Max Pressure Limit", means pump test fail, it will display "E". Display "R" means machine is pressurizing. |
| <b>Pump 4 Test</b> | Pump 4 will pressurize to "Set Pressure" value and keep 0.2s, and display "F". If pressurize time exceed setting value of "Max Pressure Limit", means pump test fail, it will display "E". Display "R" means machine is pressurizing. |

## ▲ DMX CONTROL

cFlamer Quad with 3 different channel mode: 6CH-N, 6CH-M and 6CH-P.

### 6CH-N(6N):

In 6CH-N channel mode cFlamer Quad occupies 6 functional channels.

| Channel | Function                | Value                                                                                                                                            |
|---------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| CH1     | Manual Output setup     | 0~64: output 1<br>65~128: output 2<br>129~192: output 3<br>193~255: output 4                                                                     |
| CH2     | -                       | reserved                                                                                                                                         |
| CH3     | Firing ON/OFF           | 0~253: Firing OFF<br>254~255: Firing ON                                                                                                          |
| CH4     | Firing Duration setup   | 0 and 255: permanent fire (2s is limit duration time)<br>1~254: 10~2540ms duration time<br>(Manual firing duration = DMX Value * 10ms)           |
| CH5     | Preset sequence setup   | 0-2: no preset sequence<br>3-255: preset sequence<br>DMX value = 2 + Sequence No. * 2.55 (ROUND OFF)<br>Preset sequence will disable CH1 and CH4 |
| CH6     | Firing Enable / Disable | 0~49 and 201~255: Firing Disable (Emergency STOP)<br>50~200: Firing Enable                                                                       |

### 6CH-M(6M):

In 6CH-M channel mode cFlamer Quad occupies 6 functional channels. Each output nozzle allocate a separate channel.

| Channel | Function                | Value                                                                      |
|---------|-------------------------|----------------------------------------------------------------------------|
| CH1     | Output 1 Firing         | 0~253: Firing OFF<br>254~255: Firing ON                                    |
| CH2     | Output 2 Firing         | 0~253: Firing OFF<br>254~255: Firing ON                                    |
| CH3     | Output 3 Firing         | 0~253: Firing OFF<br>254~255: Firing ON                                    |
| CH4     | Output 4 Firing         | 0~253: Firing OFF<br>254~255: Firing ON                                    |
| CH5     | -                       | reserved                                                                   |
| CH6     | Firing Enable / Disable | 0~49 and 201~255: Firing Disable (Emergency STOP)<br>50~200: Firing Enable |

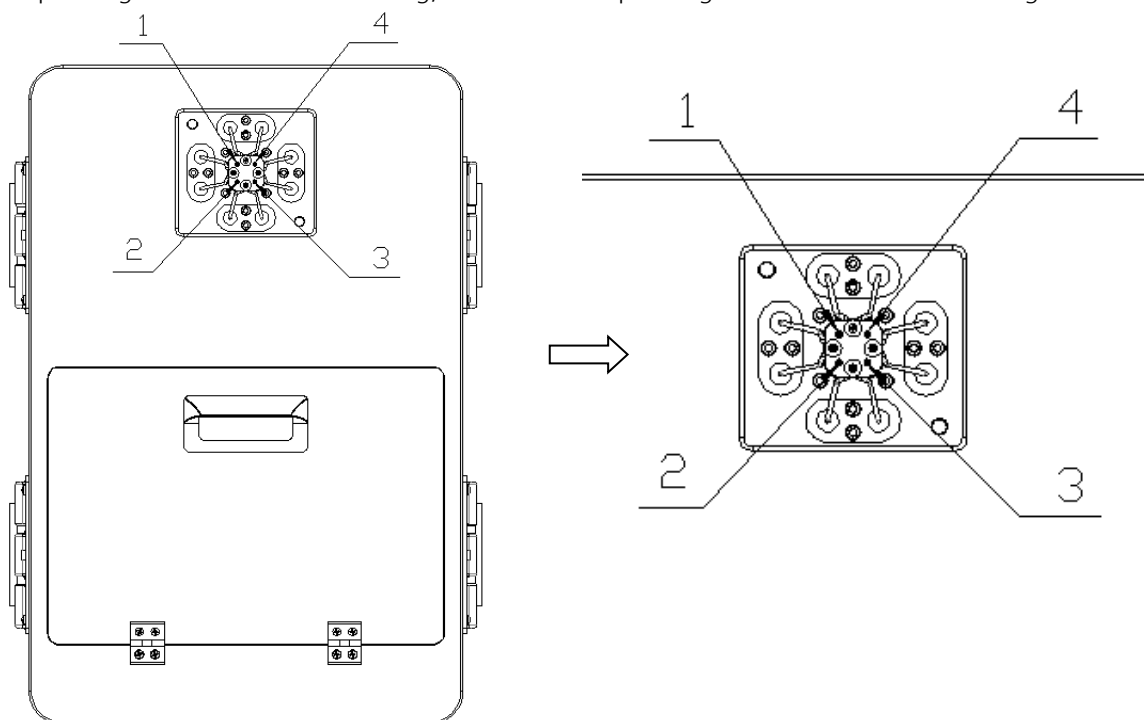
### 6CH-P(6P):

In 6CH-P channel mode cFlamer Quad occupies 5 functional channels and a separate safety channel CH-S (this channel is independent from operational channel, can be shared with other machine).

| Channel | Function                | Value                                                                                                                                          |
|---------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| CH1     | Manual Output setup     | 0~64: output 1<br>65~128: output 2<br>129~192: output 3<br>193~255: output 4                                                                   |
| CH2     | -                       | reserved                                                                                                                                       |
| CH3     | Firing ON/OFF           | 0~253: Firing OFF<br>254~255: Firing ON                                                                                                        |
| CH4     | Firing Duration setup   | 0 and 255: permanent fire (2s is limit duration time)<br>1~254: 10~2540ms duration time<br>(Manual firing duration = DMX Value * 10ms)         |
| CH5     | Preset sequence setup   | 0-2: no preset sequence<br>3-255: preset sequence<br>DMX value = 2 + Sequence No.*2.55 (ROUND OFF)<br>Preset sequence will disable CH1 and CH4 |
| CH-S    | Firing Enable / Disable | 0~49 and 201~255: Firing Disable (Emergency STOP)<br>50~200: Firing Enable                                                                     |

### ▲ Firing Nozzle Explanation

The firing nozzle of cFlamer Quad is a combo nozzle of 4, as you can see from below picture. Nozzle 1 corresponding to fuel tank with RED tag; Nozzle 2 corresponding to fuel tank with Green tag; Nozzle 3 corresponding to fuel tank with Blue tag; Nozzle 4 corresponding to fuel tank with Yellow tag.



## ▲ cFlamer Quad Preset Firing Sequences

cFlamer Quad has 69 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 Nozzle | Description                 | Single Shot Duration                        | Firing Duration (For reference) | CH5 DMX Value |
|-----|-----------------|-----------------------------|---------------------------------------------|---------------------------------|---------------|
| 1   | 1               | Single Ignition             | Firing duration controlled by CH3, max. 2s. |                                 | 3-5           |
| 2   | 2               | Single Ignition             | Firing duration controlled by CH3, max. 2s. |                                 | 6-7           |
| 3   | 3               | Single Ignition             | Firing duration controlled by CH3, max. 2s. |                                 | 8-10          |
| 4   | 4               | Single Ignition             | Firing duration controlled by CH3, max. 2s. |                                 | 11-12         |
| 5   | 1               | Single Ignition SHORT flame | 0.06s                                       | 0.06s                           | 13-15         |
| 6   | 2               | Single Ignition SHORT flame | 0.06s                                       | 0.06s                           | 16-17         |
| 7   | 3               | Single Ignition SHORT flame | 0.06s                                       | 0.06s                           | 18-20         |
| 8   | 4               | Single Ignition SHORT flame | 0.06s                                       | 0.06s                           | 21-22         |

### Step Sequences List

| No. | Ignition Nozzle | Description                | Single Shot Duration | Firing Duration (For reference) | CH5 DMX Value |
|-----|-----------------|----------------------------|----------------------|---------------------------------|---------------|
| 9   | Step from 1-4   | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 23-25         |
| 10  | Step from 4-1   | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 26-28         |
| 11  | Step 1>3>2>4    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 29-30         |
| 12  | Step 3>1>4>2    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 31-33         |
| 13  | Step 1>4>3>2    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 34-35         |
| 14  | Step 1>4>2>3    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 36-38         |
| 15  | Step 2>4>1>3    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 39-40         |
| 16  | Step 4>2>1>3    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 41-43         |
| 17  | Step 2>4>3>1    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 44-45         |
| 18  | Step 4>2>3>1    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 46-48         |
| 19  | Step 2>3>4>1    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 49-50         |
| 20  | Step 3>1>2>4    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 51-53         |
| 21  | Step 3>2>4>1    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 54-56         |
| 22  | Step 3>4>2>1    | SHORT flame Step sequence  | 0.06s                | 0.6s                            | 57-58         |
| 23  | Step 1>3        | SHORT flame Step sequence  | 0.06s                | 0.24s                           | 59-61         |
| 24  | Step 3>1        | SHORT flame Step sequence  | 0.06s                | 0.24s                           | 62-63         |
| 25  | Step 2>4        | SHORT flame Step sequence  | 0.06s                | 0.24s                           | 64-66         |
| 26  | Step 4>2        | SHORT flame Step sequence  | 0.06s                | 0.24s                           | 67-68         |
| 27  | Step 1-4        | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 69-71         |
| 28  | Step 4-1        | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 72-73         |
| 29  | Step 1>3>2>4    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 74-76         |
| 30  | Step 3>1>4>2    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 77-79         |
| 31  | Step 1>4>3>2    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 80-81         |
| 32  | Step 1>4>2>3    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 82-84         |
| 33  | Step 2>4>1>3    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 85-86         |
| 34  | Step 4>2>1>3    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 87-89         |
| 35  | Step 2>4>3>1    | MEDIUM flame Step sequence | 0.4s                 | 1.6s                            | 90-91         |

|     |              |                              |                                                             |       |         |
|-----|--------------|------------------------------|-------------------------------------------------------------|-------|---------|
| 36  | Step 4>2>3>1 | MEDIUM flame Step sequence   | 0.4s                                                        | 1.6s  | 92-94   |
| 37  | Step 2>3>4>1 | MEDIUM flame Step sequence   | 0.4s                                                        | 1.6s  | 95-96   |
| 38  | Step 3>1>2>4 | MEDIUM flame Step sequence   | 0.4s                                                        | 1.6s  | 97-99   |
| 39  | Step 3>2>4>1 | MEDIUM flame Step sequence   | 0.4s                                                        | 1.6s  | 100-101 |
| 40  | Step 3>4>2>1 | MEDIUM flame Step sequence   | 0.4s                                                        | 1.6s  | 102-104 |
| 41  | Step 1>3     | MEDIUM flame Step sequence   | 0.4s                                                        | 0.8s  | 105-107 |
| 42  | Step 3>1     | MEDIUM flame Step sequence   | 0.4s                                                        | 0.8s  | 108-109 |
| 43  | Step 2>4     | MEDIUM flame Step sequence   | 0.4s                                                        | 0.8s  | 110-112 |
| 44  | Step 4>2     | MEDIUM flame Step sequence   | 0.4s                                                        | 0.8s  | 113-114 |
| 45  | Step 1-4     | LONG flame Step sequence     | 1s                                                          | 4s    | 115-117 |
| 46  | Step4-1      | LONG flame Step sequence     | 1s                                                          | 4s    | 118-119 |
| 47  | Step 1>3>2>4 | LONG flame Step sequence     | 1s                                                          | 4s    | 120-122 |
| 48  | Step 3>1>4>2 | LONG flame Step sequence     | 1s                                                          | 4s    | 123-124 |
| 49  | Step 1>4>3>2 | LONG flame Step sequence     | 1s                                                          | 4s    | 125-127 |
| 50  | Step 1>4>2>3 | LONG flame Step sequence     | 1s                                                          | 4s    | 128-130 |
| 51  | Step 2>4>1>3 | LONG flame Step sequence     | 1s                                                          | 4s    | 131-132 |
| 52  | Step 4>2>1>3 | LONG flame Step sequence     | 1s                                                          | 4s    | 133-135 |
| 53  | Step2>4>3>1  | LONG flame Step sequence     | 1s                                                          | 4s    | 136-137 |
| 54  | Step 4>2>3>1 | LONG flame Step sequence     | 1s                                                          | 4s    | 138-140 |
| 55  | Step 2>3>4>1 | LONG flame Step sequence     | 1s                                                          | 4s    | 141-142 |
| 56  | Step 3>1>2>4 | LONG flame Step sequence     | 1s                                                          | 4s    | 143-145 |
| 57  | Step 3>2>4>1 | LONG flame Step sequence     | 1s                                                          | 4s    | 146-147 |
| 58  | Step 3>4>2>1 | LONG flame Step sequence     | 1s                                                          | 4s    | 148-150 |
| 59  | Step 1>3     | LONG flame Step sequence     | 1s                                                          | 2s    | 151-152 |
| 60  | Step 3>1     | LONG flame Step sequence     | 1s                                                          | 2s    | 153-155 |
| 61  | Step 2>4     | LONG flame Step sequence     | 1s                                                          | 2s    | 156-158 |
| 62  | Step 4>2     | LONG flame Step sequence     | 1s                                                          | 2s    | 159-160 |
| 63  | Step 1-4     | 3 SHORT flame Step sequence  | 0.06s                                                       | 2.04s | 161-163 |
| 64  | Step 1-4     | 3 MEDIUM flame Step sequence | 0.4s                                                        | 4.8s  | 164-165 |
| 65  | Step 1-4     | 3 LONG flame Step sequence   | 1s                                                          | 12s   | 166-168 |
| 66  | Step 4-1     | 3 SHORT flame Step sequence  | 0.06s                                                       | 2.04s | 169-170 |
| 67  | Step 4-1     | 3 MEDIUM flame Step sequence | 0.4s                                                        | 4.8s  | 171-173 |
| 68  | Step 4-1     | 3 LONG flame Step sequence   | 1s                                                          | 12s   | 174-175 |
| >68 | 1            | Single Ignition              | Firing duration controlled by CH <sub>3</sub> ,<br>max. 2s. |       | 176-255 |

# NOTICE

SHORT flame firing duration is 0.06s, interval is 0.12s; MEDIUM flame firing duration is 0.4s, interval is 0; LONG flame firing duration is 1s, interval is 0.

## ▲ Operation

### 1. Safety distance explanation

Safety distance for cFlamer Quad 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.

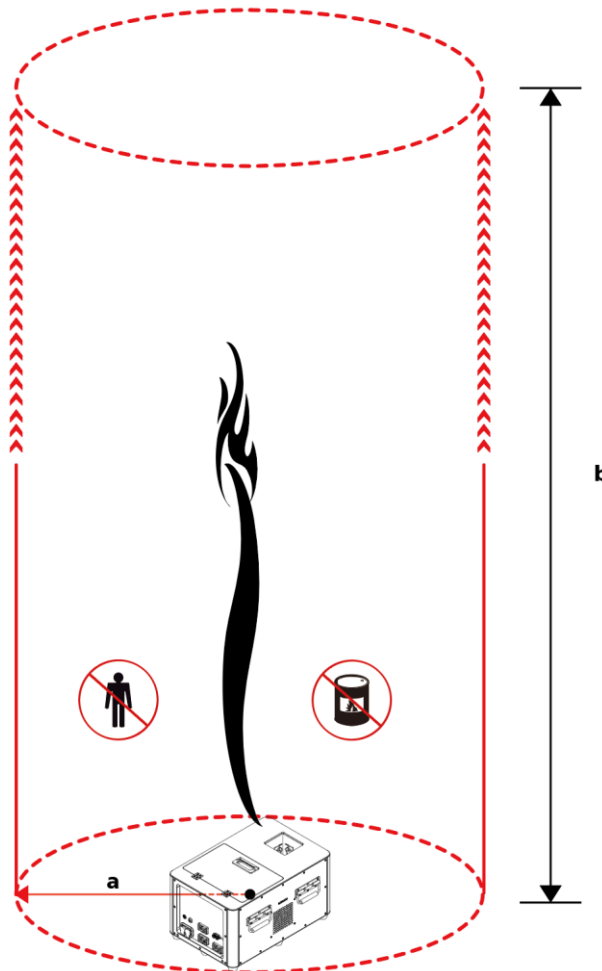
The safety radius around machine with a radius of 3m.

For safety distance at firing direction equals to maximum firing height \* 1.5.

| Nozzle Type     | Max. Flame Height | Safety Radius (a) | Safety Distance at Firing Direction (b) |
|-----------------|-------------------|-------------------|-----------------------------------------|
| Combo Nozzle cH | 8-10m             | 3m                | 15m                                     |
| Combo Nozzle cL | 5-6m              | 3m                | 9m                                      |

The cFlamer Quad safety isolation zone (show as below) is a cylindrical three-dimensional space with Safety radius around machine (a) and Height of b. Unauthorized persons and objects are strictly prohibited from entering.

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



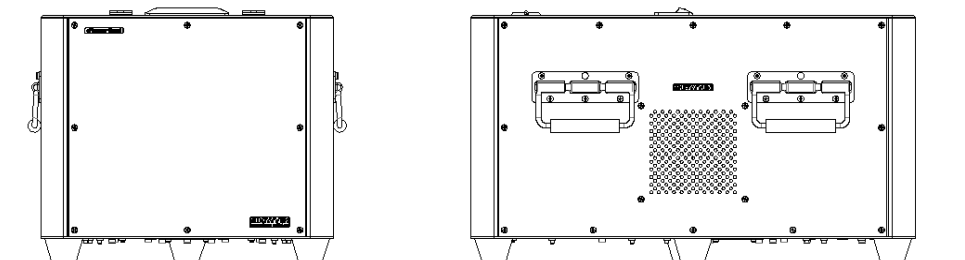
### Safety distance in windy environment

The safety isolation zone radius (a) increase with wind direction and wind speed (v, m/s). The safety distance in windy conditions can be calculated as below:  $a = 3 + v$ ;

For example when the wind speed is 3m/s, then the safety isolation zone radius should be 6m, When the wind speed  $\geq 8\text{m/s}$  (wind force  $\geq 5$ ), please use it with caution. When wind speed  $\geq 17\text{m/s}$  (wind force  $\geq 8$ ), please stop use cFlamer Quad.

## 2. Install cFlamer Quad

- a) Please install cFlamer Quad on firm solid horizontal surface.



### **WARNING:**

Do NOT install cFlamer Quad in tilt position.

- b) 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.
- c) Double confirm the machine was firmly installed.

### **WARNING:**

Ensure the installation position of cFlamer Quad meet above safe distance requirements. cFlamer Quad supplied with a nozzle cH which generate up to 10m flame.

## 3. Color fluid preparation

- a) Ensure all containers, fuel tanks etc are clean and free of impurities. Highly recommended to use container/fuel tank with a fixed color, not mix with different colors. If you have no extra tanks, please wash container / fuel tank with clean water thoroughly before use another color fluid.
- b) When wash the fuel tank, add half of the fuel tank capacity of clean water, shake it repeatedly for 30 seconds, pour out the water, and repeat the cleaning process twice.
- c) Perform the mixing operation according to the instructions on the color additive label. For blue, pay special attention to the proportion and addition order. Add 2 bottles (125ml\*2) of BLUE A liquid to 5L diluent liquid and shake well, and then add 15ml BLUE B liquid. For other colors, just add 125ml color additive to 5L diluent liquid and shake well.
- d) There will be solid precipitate at the bottom of color additive bottle when environment temperature is low, please shake repeatedly to dissolve the solid precipitate before add it to the methanol.
- e) Please shake and mix the color fluid well before use.
- f) The prepared color fluid needs to be stored with a cap and implemented in accordance with the requirements of the diluent liquid MSDS or local regulations.

### **NOTICE:**

Ensure that the purity of diluent liquid.

### **NOTICE:**

The optimal viewing condition for the color flame effect is in a dark environment.

### **WARNING:**

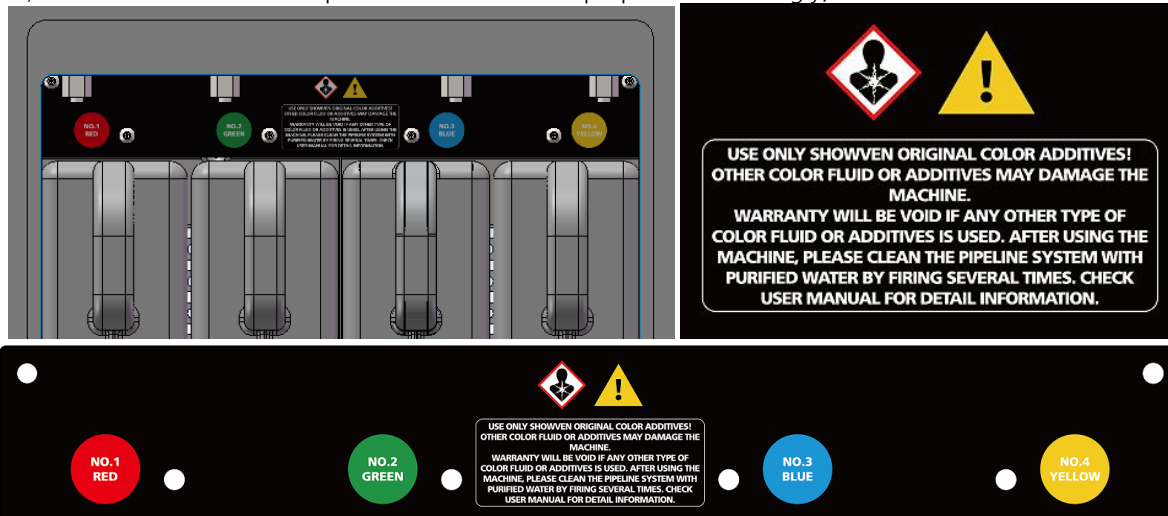
The preparation operation should be carried out in a well-ventilated place, away from fire, sparks and heat sources. Dry powder or carbon dioxide fire extinguishers should be prepared for use in the operation site.

### **WARNING:**

cFlamer series product compatible with color fluid only prepared with SHOWVEN original color additives, other colored fuels are forbidden to use on the product, It will sure damage the machine.

#### 4. Fill the cFlamer Quad

- Switch safety lock to TEST MODE.
- Fill the fuel tank with qualified color fluid we prepared accordingly, do not mix.



- To avoid color mix, it is highly recommended to fix the color used on each output of cFlamer Quad as we suggest. In case need to change to another color fluid please execute pump and pipeline clean process (refer to 11. Pump and pipeline cleaning of this manual).

#### **NOTICE:**

No.1 to No.4 of the color indicator corresponding to output nozzle No.1 to No.4.

#### **WARNING:**

The warranty is void if any other type of color liquid or additive is used.

#### **NOTICE:**

SHOWVEN excludes liability for the losses, damages and accidents caused by not using qualified fuels in accordance with this requirement.

#### 5. E-Stopper / E-stop terminator Connection

E-stop interface is a power cut-off interface, the machine can be powered on normally only when E-STOP in is connected. For safer use of cFlamer Quad we suggest to connect it with E-stopper. For operators who don't want to use E-stopper can plug a E-stop terminator in E-STOP IN to enable the device.

E-Stopper (optional) connect with single unit of cFlamer Quad.



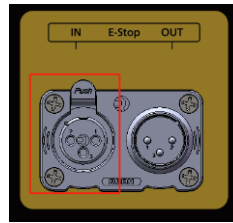
E-Stopper (optional) connect with multi units of cFlamer Quad in daisy chain.



#### **NOTICE:**

A unit of E-Stopper can control maximum 24 units of device.

Use E-stop terminator (standard configuration): if without E-Stopper. Plug the E-stop terminator to the E-STOP IN port to enable the cFlamer Quad.



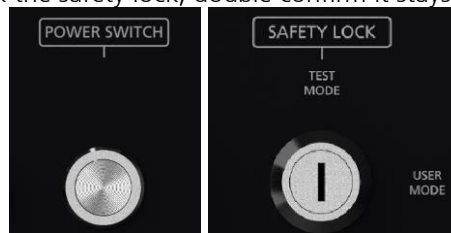
## 6. Connecting cFlamer Quad

Make sure the DMX or pyro controller is disarmed or powered off during cable connection.

### If control by DMX controller, follow below steps:

- Connect a DMX cable to the DMX IN socket of first unit of cFlamer Quad, another head of this DMX cable connect to DMX console (such as FXcommander). Make sure the DMX console is powered off.
- Connect a DMX cable to the DMX OUT socket of previous cFlamer Quad, and the other end to the DMX IN of next machine. Connect all devices in series in this way.
- Suggest to plug in a DMX terminator into the DMX OUT in last unit of machine to improve signal reliability. For distance >200m please use SHOWVEN **DMX splitter 8** to amplify the signal.
- Connect a power cable to the POWER IN socket of cFlamer Quad. Make sure power supply is consistent with the rated voltage of the equipment, and the socket must well grounded.

Power on all cFlamer Quad. Check the safety lock, double confirm it stays at "TEST MODE".



- Assign DMX address for each unit of cFlamer Quad. If use SHOWVEN host controller or FXcommander to control the machine please allocate a unique DMX address for each unit of machine.

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

- Connect a power cable to the POWER IN socket of cFlamer Quad. Connect the other end of power cable to the power source. Make sure power supply is consistent with the rated voltage of the equipment, and the socket must well grounded.
- Connect the power control cables to the 9-60V pyro signal connector on cFlamer Quad.
- Connect the other end of power control cables to the pyro controller (9-60V external trigger source), such as SHOWVEN PyroSlave series module. Before connect please make sure there is no pyro signal input.
- Power on all cFlamer Quad
- Set the Ext Ignite to ON status in advanced interface, set the firing duration.

#### NOTICE:

The ventilation fan will on after cFlamer Quad connect with power cable, no matter machine was power on or not.

## 7. Power ON the DMX console / Pyro controller and programming

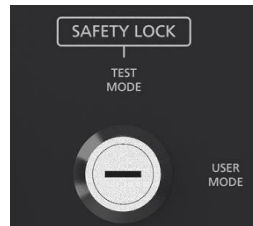
Power on DMX console and program the cFlamer Quad effect on DMX console or Pyro controller.

## 8. Test the ignition function of cFlamer Quad

Test the ignition function of cFlamer Quad, we can check whether the igniters of each unit of cFlamer Quad is working fine. Due to the safety switch is stay at TEST MODE there will be only ignition while jet solenoid valve is not open, so no flames generated.

## 9. Firing

- a) Double confirm the prescribed safety isolation zone is clear, no person, animal or other property within this region.
- b) Switch the safety lock of cFlamer Quad to USER MODE.



- c) 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.

### **NOTICE:**

Due to the pump and pipeline cleaning procedure after each show, there will be some water remains in the pipeline, so the first several shots may spray water and fail ignition. Even though please make sure no person, animals or other flammable articles stays in the safety isolation area when firing.

## 10. Depressurize and Power OFF

- a) Depressurize the flame unit after show or not use flamer for a period of time
- b) Power OFF DMX console
- c) Press E-Stopper to power OFF all machine (if connect with E-stopper)
- d) Switch safety lock of cFlamer Quad to TEST MODE
- e) Power OFF each unit of machine
- f) Unplug power cable, DMX cable, E-Stopper connection cable etc.

## 11. Pump and pipeline cleaning

- a) Collect all cFlamer Quad, take the color fluid tank out and replace with water tank with no less than 2L purified water inside.
- b) Connect with power and DMX cables, power on machine.
- c) Pressurize and depressurize cFlamer Quad 3 times of all 4 output pipeline system.
- d) Pressurize machine and firing 3 times with firing duration of 1s, please remember all 4 output nozzle should do this step.
- e) Pressurize and depressurize cFlamer Quad 3 times again of all 4 output pipeline system.
- f) Empty the remaining water in fuel tank

Make sure there is no fuel inside fuel tank when make cleaning procedure, otherwise it may cause fire.

### **DANGER:**

Make sure there is no fuel inside fuel tank when make cleaning procedure, otherwise it may cause fire.

### **WARNING:**

Pump and pipeline cleaning procedure is a mandatory operation after the machine is used, Not to do so will shorten the shelf life of cFlamer series product due to the corrosive of color fluid.

### **WARNING:**

Before clean test, make sure there are sufficient purified water in the fuel tank. During the cleaning process, the flamethrower will spray a large amount of water, please ensure there is no non-waterproof objects or equipment around.

### **NOTICE:**

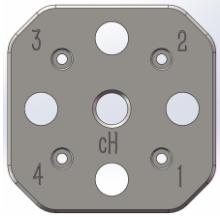
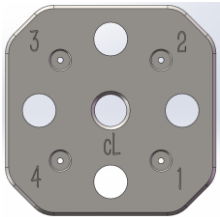
Pump and pipeline cleaning procedure is also a necessary operation when use a different color on cFlamer series product, Not to do so will cause abnormal flame color due to the remaining fluid from previous firing.

## 12. Clean and package machine

- a) Clean the water on machine, wait until it dry
- b) Package the machine after it is cool down

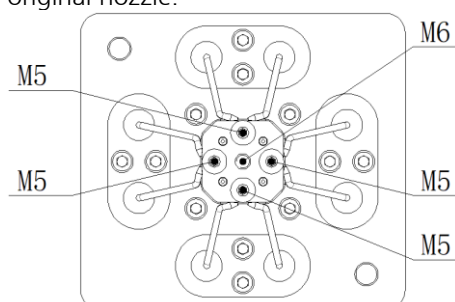
## ▲ Nozzle Replacement and Igniter Position Adjustment

### 1. Nozzle Types and Flame Height

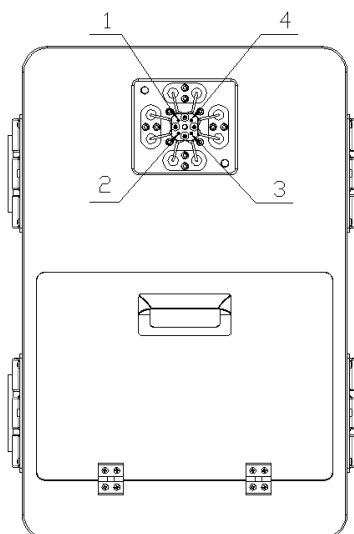
| Nozzle Type                 | Picture                                                                           | Short Flamer Height (m) | Long Flame Height (m) |
|-----------------------------|-----------------------------------------------------------------------------------|-------------------------|-----------------------|
| combo nozzle cH<br>SFSMA035 |  | 5-7m                    | 8-10m                 |
| combo nozzle cL<br>SFSMA039 |  | 3-4m                    | 5-6m                  |

### 2. Nozzle Replacement

Remove the four M5 socket head cap screws. Use an M6 bolt (with a length of  $\geq 180\text{mm}$ ) to screw into the disassembly hole in the middle of the nozzle and take out the nozzle. An air gun can be used to blow and clean the removed original nozzle.

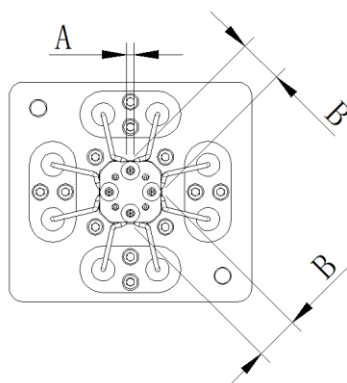


Fix the original nozzle or the new nozzle back to its original position according to the positions shown in the figure below. The nozzle marked "1" is the red fuel nozzle; the nozzle marked "2" is the green fuel nozzle; the nozzle marked "3" is the blue fuel nozzle; the nozzle marked "4" is the yellow fuel nozzle. The positions of the fuel nozzles of each color should be correctly installed in strict accordance with these requirements.



### 3. 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 2.5-3mm (A) and a gap between middle of nearby two igniter of 22mm (B). Check the ignition successful rate after adjustment by firing.



**WARNING:** Do unplug the power cable and power off the machine when service flamer.

#### ▲ Maintenance

1. Execute pump and pipeline cleaning procedure every time after use the machine to clean the pump and pipeline of machine.
2. To maintain the machine in good performance and running status, it is recommended to running the device at least once per month.
3. Check the ignition probes both before and after each show, if there is any foreign objects on it please clean it up.
4. 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.
5. 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 Fluorine rubber O-ring should be replaced in time.

#### ▲ Optional Parts for cFlamer Quad

| Part. No. | Description                                                                   |
|-----------|-------------------------------------------------------------------------------|
| SFSMA035  | combo nozzle cH                                                               |
| SFSMA039  | combo nozzle cL                                                               |
| SFMET1107 | G1-E-Stop connector                                                           |
| FPEST001  | E-STOPPER                                                                     |
| RMFLI001  | High Quality Flightcase 770* 590* 500mm                                       |
| RMPCK337  | Flightcase carton box                                                         |
| RMBOT036  | Safety loop                                                                   |
| RMEMD062  | 5-pin wireless DMX receiver (compatible with FXcommander 2.4GHz wireless DMX) |

## **▲ 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<sup>®</sup>



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