

# **Power Fogger Industrial Line and PFI w/ LSG**

Operator's Manual

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**Note: Please read entire manual before operating the Power Fogger Industrial**

# Introduction

The Power Fogger Industrial is a Microprocessor Controlled, Water Based Fog generating system.

## Microprocessor Control

The PFI features dual microprocessor control. From temperature regulation to taper back flow control, all of the functions are monitored and processed by the two on-board processors.

## Water Base Fog Technology

Water Base Fog technology is achieved by pumping a glycol/water mixture through a heat exchanger. This will vaporize the fluid as it passes through the hot unit. The vaporization of the fluid forces the hot mixture through the output nozzle. When mixed with ambient air, it forms an opaque aerosol (fog). The fog is made up of tiny droplets that form around small particles in the air. The suspended droplets refract the light, allowing the fog to take on the color of the light illuminating it.



## Warning

### Important Safety Instructions:

1. Do not touch, place hands or expose skin within 20" (50 cm) of the discharge nozzle.
2. Do not remove the outer case.
3. Persons suffering from asthma or allergenic sensitivity may experience irritation, discomfort or allergic symptoms when exposed to fog effects.
4. Ensure that this unit is grounded at all times. Failure to do so may result in serious injury.
5. Use Ultratec Special Effects fluid **ONLY**.

## Safety Precautions

1. Ensure that any operation of the machine is supervised by suitably trained and authorized personnel.
2. Do not modify the machine or use a machine which has been damaged in any way.
3. Allow sufficient air circulation around the machine at all times.
4. Protect the machine from direct weather effects and wet locations.
5. Only use fluids manufactured by Ultratec Special Effects.
6. Do not continue to produce fog when visibility is reduced to 20" 50cm or below.
7. Avoid directing fog output continuously at people, structures or objects within close proximity of the discharge nozzle.
8. Ensure that adequate exhausting arrangements are available in the event of an emergency.
9. Do not place hands or exposed skin within the first 20" (50 cm) of the discharge nozzle at any time during fog production.
10. Fog effects can trigger smoke alarms and detectors. Please take suitable precautions to prevent false alarms.
11. Ensure sufficient air exchange vs. CO2 released.

# PFI Technical Specifications

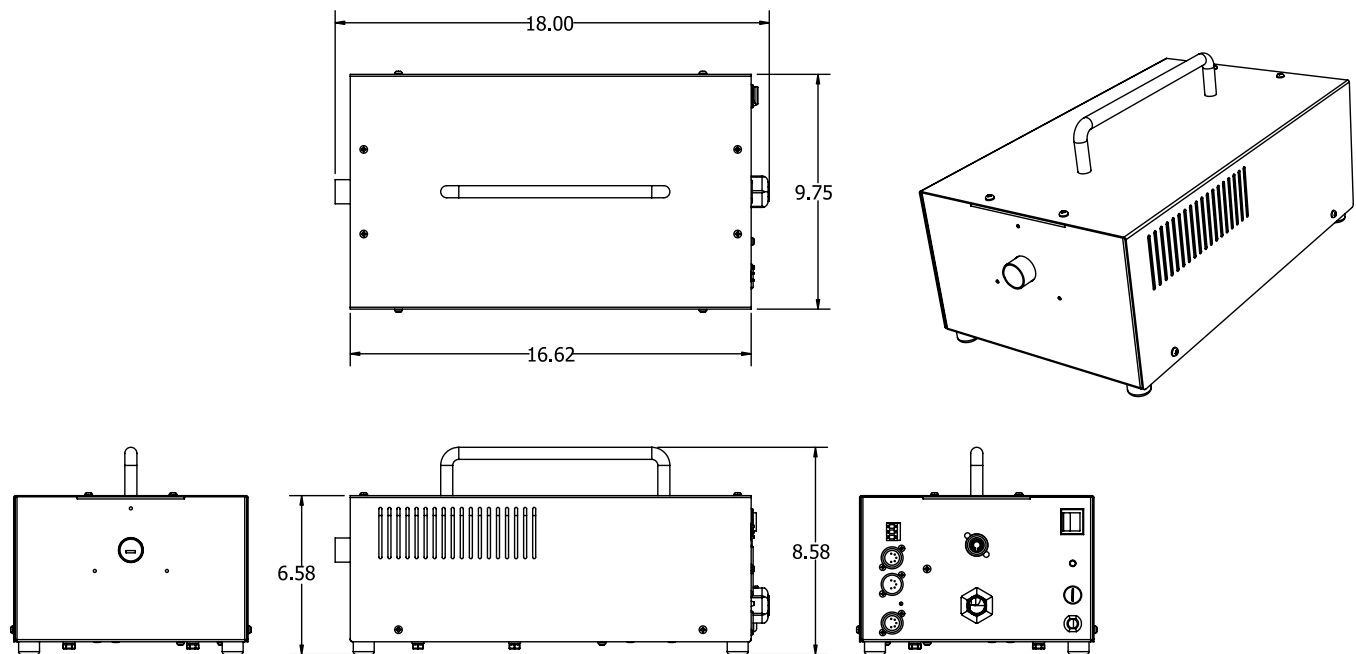
**Model:** PFI/PFI-9D  
**Part Number:** **PFI**  
CLF 4450 / 120 volt  
CLF 4451 / 220-240 volt  
**PFI-9D**  
CLF 4460 / 110 volt  
CLF 4461 / 220-240 volt

**Power Rating:** 120 Volt A.C. 50/60 Hz. 13 Amps.  
240 Volt A.C. 50/60 Hz. 6.5 Amps.

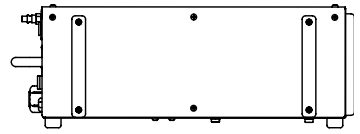
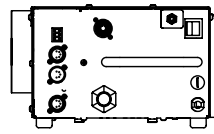
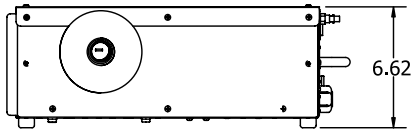
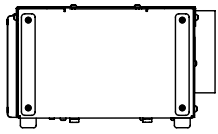
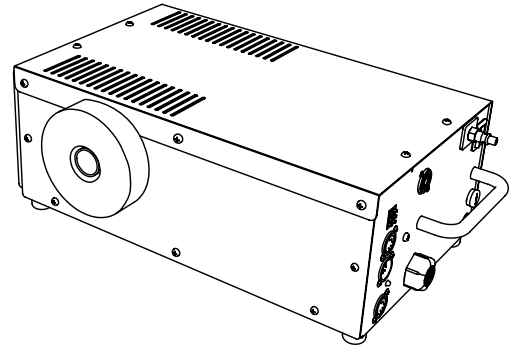
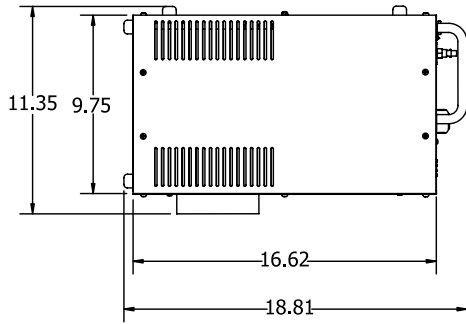
**Fluid:** Water Base Fog Fluid (Use only Ultratec Fluid)

## PFI Technical Drawings

### Power Fogger Industrial

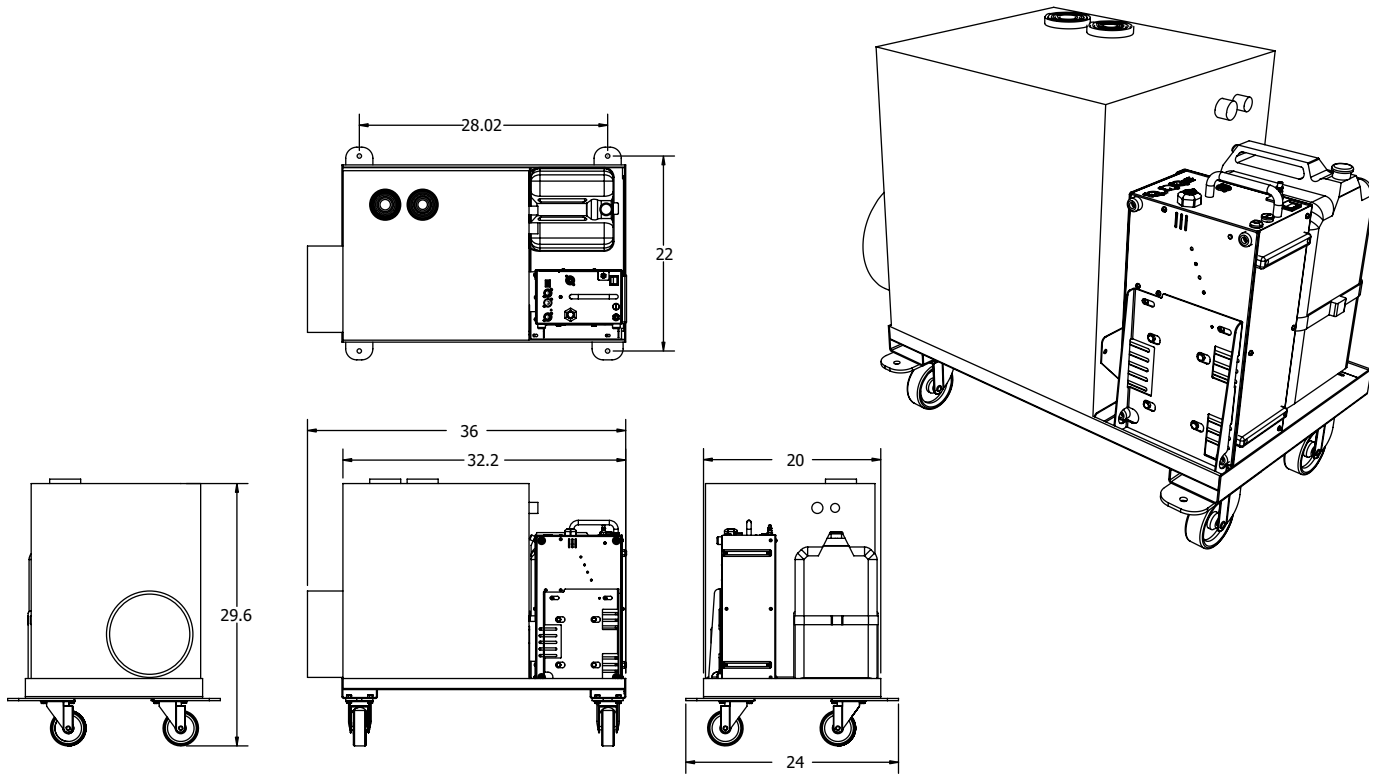


# Power Fogger Industrial 9D

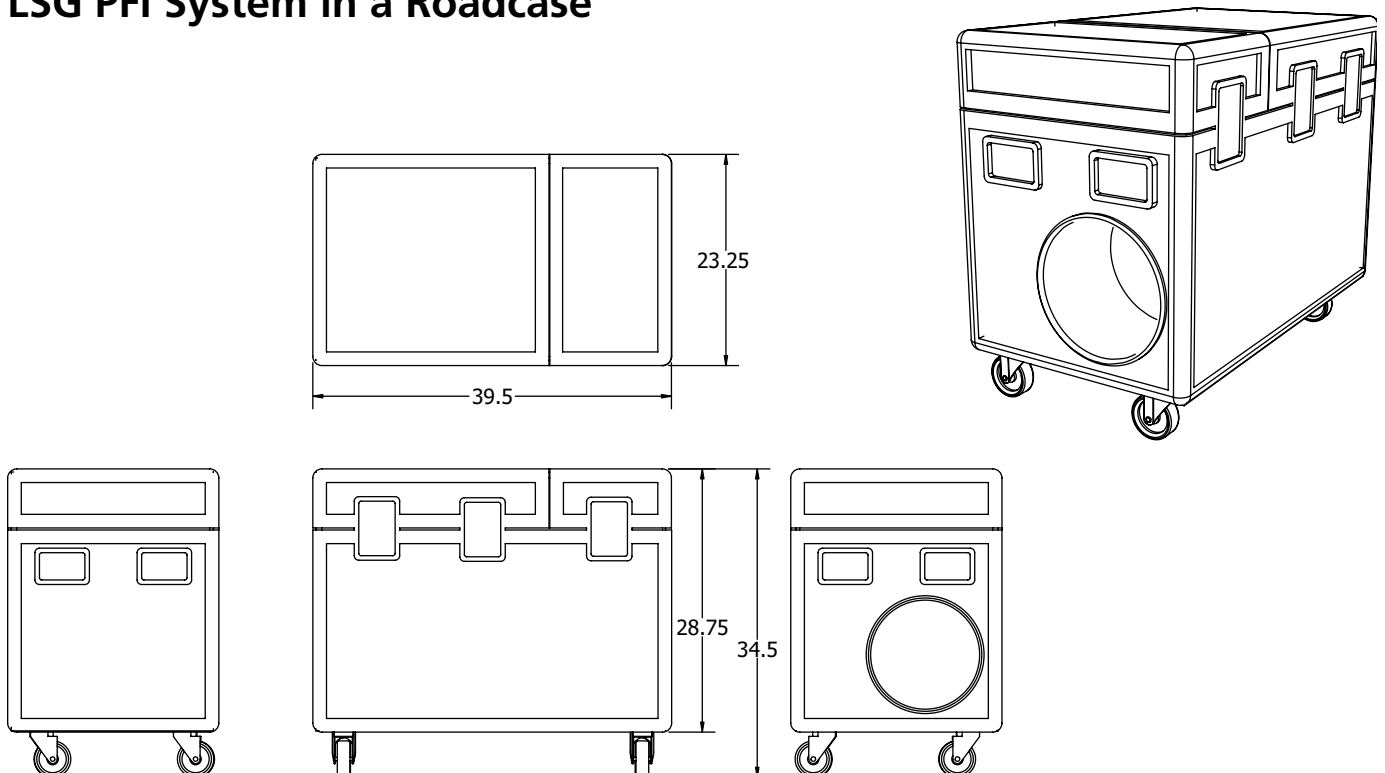


# LSG w/ PFI Technical Drawings

## LSG PFI System on a Cart

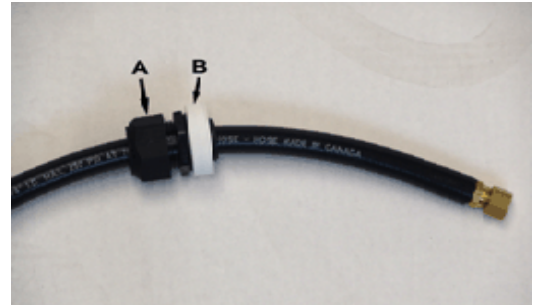


## LSG PFI System in a Roadcase



# Operating Procedure

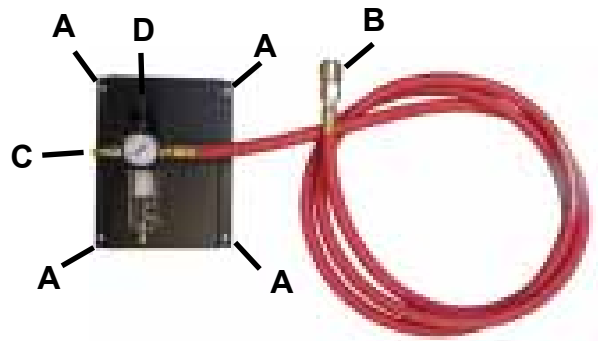
1. The fog machine must be connected to a grounded supply of at least 15 amps free of any interference.
2. Open a 20 Litre (5 Gallon) container of Ultratec Special Effects fog fluid and insert the fluid pickup tube into the spout of the fluid container.
3. Connect the Remote Handset into the rear panel connector located on the rear panel. (When using DMX the Remote is not required).
4. Activate the Power switch located on the rear panel. The Power switch and Handset indicator will illuminate to indicate the presence of power. If the Handset indicator does not illuminate, ensure the connector is properly inserted.
5. The Handset indicator will begin to flash slowly, but will speed up when the fog machine is ready to operate. After approximately 9 minutes, the fog machine will be fully heated and is ready for full output; the indicator will be on solid.
6. It may be necessary to prime fluid into the system to expel any air. The Variflow control on the remote handset should be set to the full position. A dry hose can take between 45-60 seconds to prime. This only needs to be done if the unit was left to run dry.
7. To adjust the depth of the hose, simply loosen Nut 'A' and slide up or down the hose and retighten. Be careful not to pinch off the flow of fluid.



**NOTE:** In order to prime the fog machine, the Handset Indicator must be a solid red.

## Operating Procedure w/ Air Option

- A) Mount the Regulator Bracket to a wall or other secure location.
- B) Attach the female coupler to the male coupler of the Power Fog Industrial w/ Air Option or Power Fog Industrial 9D w/ Air Option.
- C) Attach the air hose to the male coupler of the mounted regulator.
- D) Adjust for the desired air pressure (typically 25-50 psi).



# Operation Procedure

## LSG MK II High Pressure w/ 20 & 50lbs Cylinders

The Operation Procedures outlined in this section, refer to Figure A and Figure B on Page 9 and 10.

1. Place the fog machine's output nozzle firmly against the center of the foam ring, sealing it to the input port of the LSG MK II.

**Tech Tip:** Proper alignment can be observed by shining a flashlight into the 10" exit port of the LSG MK II and noting the fogger's output nozzle is centered on the LSG MK II input port.

2. Connect the blue Twist Lock connector from the LSG MK II into the controlling power source (i.e. control port on the rear panel of the Power Fog Family of Ultratec Special Effects Foggers). This port can be controlled via DMX, the Timer/ Duration Remote or the Show Control Remote.

**Note:** Starting the flow of CO<sub>2</sub> before the fog allows the liquid CO<sub>2</sub> to purge the gas CO<sub>2</sub> from the lines. The Liquid CO<sub>2</sub> is required for correct operation. The rule of thumb formula for calculating the purge time is 1 second for every 3 feet of hose. As the unused liquid sits in the hose, it absorbs heat and converts to its gaseous state.

3. Use Molecular Fog Fluid and adjust the flow rate to the desired fog output level. Excessive fog flow will not cool sufficiently allowing the fog to rise off of the floor.

**Warning:** Always secure all cylinders to prevent tipping hazards.

4. An LSG MK II High Pressure requires high pressure CO<sub>2</sub> cylinders. These are normally available in 20 & 50lb sizes. It is recommended that cylinders equipped with liquid siphon tubes be used. If using 20lb cylinders without the siphon tube, invert the bottles and place them in bottle racks.

**Warning:** We do not recommend inverting the 50 lbs cylinders. Use 50 lb cylinders equipped with liquid siphon tubes.

5. The CO<sub>2</sub> supply hose is connected to the CO<sub>2</sub> cylinder. Increased performance is available by connecting two or more cylinders in parallel. Exercise safe handling and connection of the tank as indicated by the gas supplier. A sealing washer is necessary to prevent leaks between the hose and valve and is available from your gas supplier.

6. Tighten the CO<sub>2</sub> hose-fitting snug with the appropriate wrench.

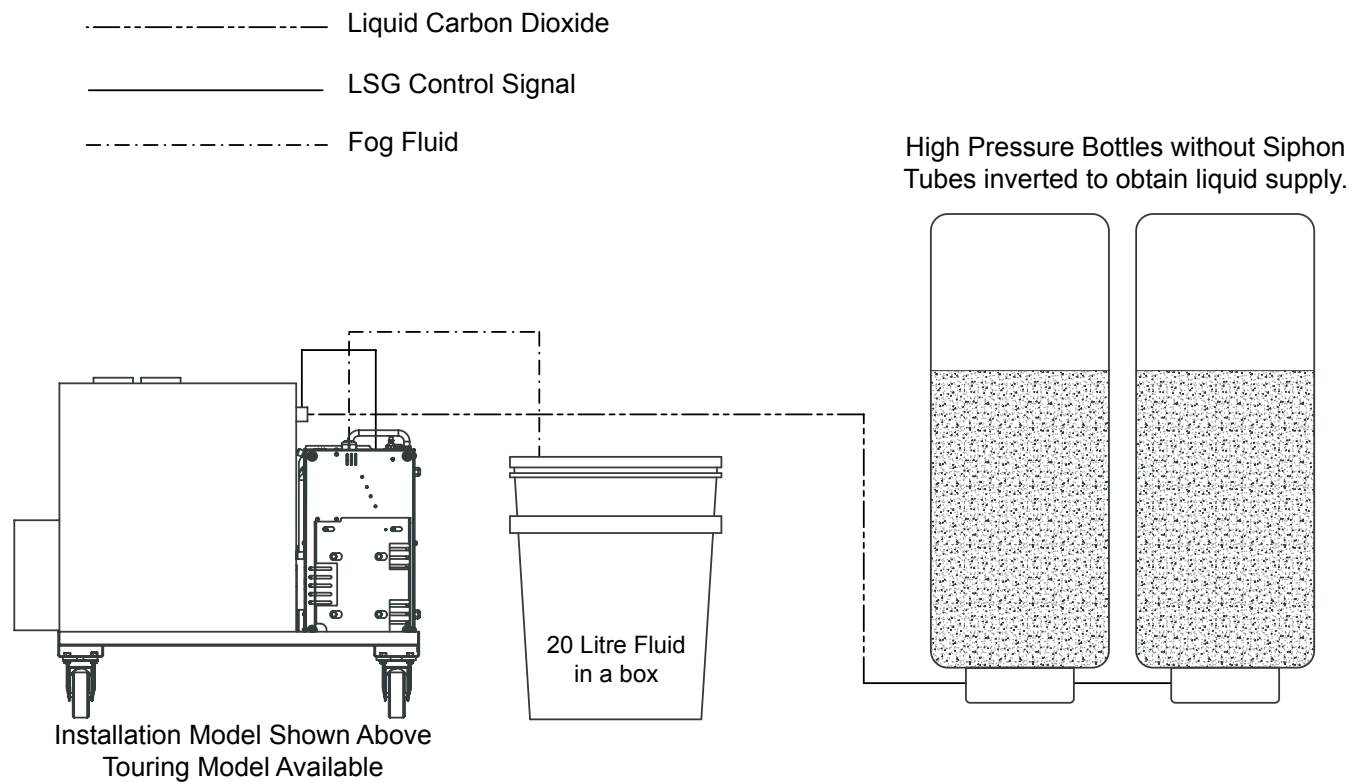
**Warning:** Wear eye protection and gloves to protect against cold and pressure hazards

7. Open valve(s) slowly counter-clockwise until flow can be heard. Verify the lines have no leaks before opening the valve(s) fully.
8. When the fog machine is up to operating temperature, activate the control to start the CO<sub>2</sub> for the desired purge and pre-chill time. Purging of the CO<sub>2</sub> gas can be noted by the change in the sound of flow. It is often desirable to pre-chill the chamber and long runs of ductwork like a Fog Curtain. Now add fog to create the thick, white rolling blanket that hugs the floor. On the Power Fog Family of Ultratec Special Effects Foggers, the CO<sub>2</sub> is triggered by DMX (DMX channel + 1) or by one of the remotes. To control using the remote, the DMX address is selected as 555. This allows the Duration knob (turned up over 1/2 way) of the Timer/ Duration Remote or the second channel of the Show Control Remote to trigger the LSG MK II.

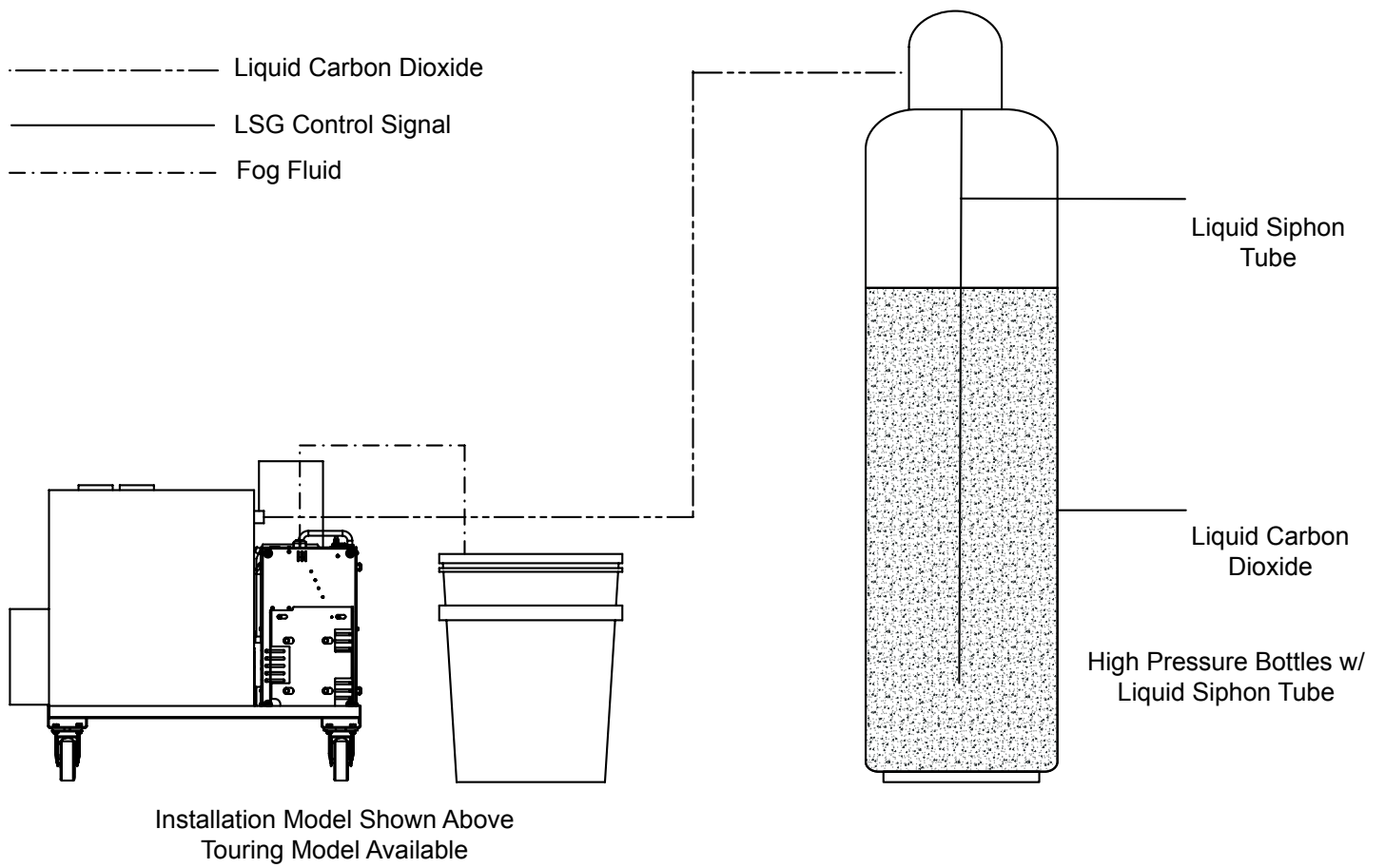


9. Verify cool temperature output by using your hand and passing it through the fog-CO2 output noting the temperature.
10. After use, turn off the valves and trigger the LSG MK II to depressurize the system before attempting to disconnect hoses. Note that the valves and lines may be extremely cold during operation. Prevent handling and flexing of lines when chilled.

## Figure A



# Figure B



# Operation Procedure

## LSG MK II Low Pressure w/ 350lbs Dewar Tank

The Operation Procedures outlined in this section, refer to Figure C on Page 12.

1. Place the fog machine's output nozzle firmly against the center of the foam ring sealing it to the input port of the LSG MK II.

**Tech Tip:** Proper alignment can be observed by shining a flashlight into the 10" exit port of the LSG MK II and noting the fogger's output nozzle is centered on the LSG MK II input port.

2. Connect the blue Twist lock connector from the LSG MK II into the controlling power source (i.e. control port on the rear panel of the Power Fog Family of Ultratec Special Effects Foggers). This port can be controlled via DMX, the Timer/ Duration Remote or the Show Control Remote.

**Note:** Starting the flow of CO<sub>2</sub> before the fog allows the liquid CO<sub>2</sub> to purge the gas CO<sub>2</sub> from the lines. The Liquid CO<sub>2</sub> is required for correct operation. The rule of thumb formula for calculating the purge time is 1 second for every three feet of hose. As the liquid sits in the hose unused it absorbs heat and converts to its gas state.

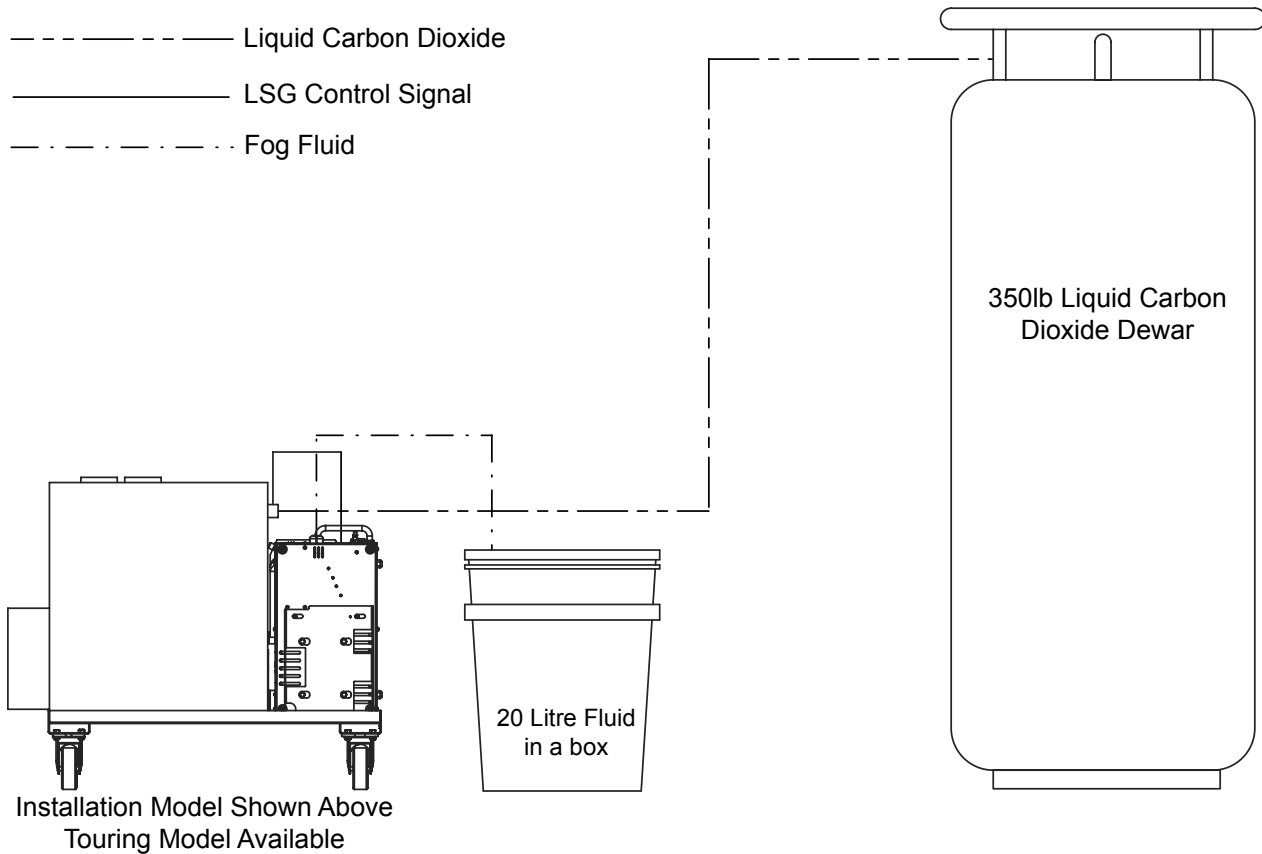
3. Use Molecular Fog Fluid and adjust the flow rate to desired fog output level. Excessive fog flow will not cool sufficiently allowing the fog to rise off of the floor.
4. An LSG MK II Low requires low pressure Liquid CO<sub>2</sub> tanks. These are normally available in a 350lb size. These are large vacuum tanks which keep the Liquid CO<sub>2</sub> cold. Some CO<sub>2</sub> is consumed during storage to maintain the liquid at -56C. These tanks provide the best performance and price characteristics of the LSG systems. Check with your local gas supplier for availability as not every location may carry these tanks.

**Warning:** Wear eye protection and gloves to protect against cold and pressure hazards.

5. You must connect the supply hose to the liquid output of the liquid CO<sub>2</sub> tank. This is usually clearly indicated on the Liquid CO<sub>2</sub> Tank outputs. A sealing washer is necessary to prevent leaks and is available from your gas supplier.
6. Tighten the CO<sub>2</sub> supply-fitting snug with the appropriate wrench.
7. The tank pressure is indicated on the pressure gauge and must read between 275 - 340 psi to operate the LSG MK II. This is achieved by opening the Pressure Builder Valve (by turning it counter clockwise) at least 1-3 hours in advance.
8. Open the valve slowly counter-clockwise until flow can be heard. Verify the lines have no leaks before opening the valve fully.
9. When the fog machine is up to operating temperature, activate the control to start the CO<sub>2</sub> for the desired purge and pre-chill time. Purging of the CO<sub>2</sub> gas can be noted by the change in the flow sound. It is often desirable to pre-chill the chamber and long runs of ductwork (i.e. Fog Curtain). Now add fog to create the thick, white rolling blanket that hugs the floor. On the Power Fog Family of Ultratec Special Effects Foggers, the CO<sub>2</sub> is triggered by DMX (DMX channel + 1) or by one of the remotes. To control using the remote, the DMX address is selected as 555. This allows the Duration knob (turned up over 1/2 way) of the Timer/ Duration Remote or the second channel of the Show Control Remote to trigger the LSG MK II.

10. Verify cool temperature output by using your hand and passing it through the fog-CO2 output noting the temperature.
11. After use, turn off the valves and trigger the LSG MK II to depressurize the system before attempting to disconnect the hoses. Note that the valves and lines may be extremely cold during operation. Prevent handling and flexing of lines when chilled.

## Figure C

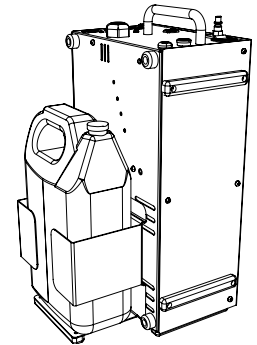


# Options

**Remotes** - The Show Control Remote and Timer/ Duration Remote are compatible with the Power Fog Industrial, Power Fog Industrial w/ Air Option, Power Fog Industrial 9D and Power Fog Industrial 9D w/ Air Option. Each remote is sold separately.

**Jug Holder** - The Power Fog Industrial 9D and Power Fog Industrial 9D w/ Air Option has been designed to be versatile in any setting. For ease of operation, a jug holder may be used to secure the fluid to the machine. The Jug Holder is sold separately.

**4" Hose Adapter** - If your intention is to connect a 4" hose to the machine and direct the fog elsewhere, a 4" Hose Adapter (CXP 1046) is available. This adapter is compatible with the Power Fog Industrial, Power Fog Industrial w/ Air Option, Power Fog Industrial 9D and Power Fog Industrial 9D w/ Air Option.



## Optional Show Control Remote Operations

The Show Control Remote Handset was designed to indicate operation modes. These are as follows:

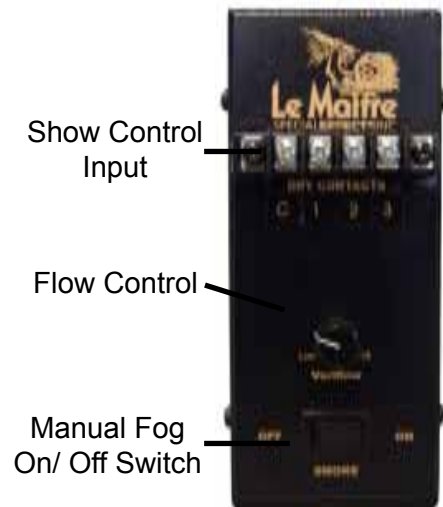
### Show Control Remote LED Indicator

**Slow Flashing Light:** Indicates unit is not ready to operate but still in heating mode, fog is not available at this point.

**Quick Flashing Light:** Indicates unit is ready to operate but still in heating mode, some fog is available at this point.

**Solid Light:** Indicates that the unit is ready to fog at full output.

**No Light:** Indicates problems; a loss of power or remote is not connected. If these fail to correct the problem, contact your local



## Show Control Operation

Show control is achieved by connecting a "Dry" or zero voltage contact to the show control terminals. The Power Fog Industrial requires no power to signal the fog, only one set of contacts that close for the entire fogging cue.

For Show Control Operation, the DMX Address must be set on 555. Closing the Show Control Remote terminals with dry contacts, triggers the following machine functions:

C + 1 = On/ Off w/ Variflow

C + 2 = LSG On

C + 3 = Air Option

Closed "Dry" Contact Show Control



## Optional Timer/ Duration Remote Operations

The Timer/ Duration Remote offers Duration, Interval, Variflow and fog on/ off controls.

### Timer/ Duration Remote LED Indicator

The Timer/ Duration Remote Handset was designed to indicate operation modes. These are as follows:

**Slow Flashing Light:** Indicates unit is not ready to operate but still in heating mode, fog is not available at this point.

**Quick Flashing Light:** Indicates unit is ready to operate but still in heating mode, some fog is available at this point.

**Solid Light:** Indicates that the unit is ready to fog at full output.

**No Light:** Indicates problems; a loss of power or remote is not connected. If these fail to correct the problem, contact your local Ultratec Special Effects dealer.

**Note:** To operate the LSG MK II using the Timer/ Duration Remote, the DMX Address must be set on 555 and the Duration control set over 50%. If the Duration is set at anything less than 50%, the Switched Power Port will be off. The Interval Knob works in the same fashion for machines equipped with the Air Option. The Show Control Remote and Timer/ Duration Remote cable may be extended from the machine and operated effectively away from the Power Fog Industrial. The maximum recommended cable length is 225 Feet.



# DMX Operation

The Power Fog Industrial is equipped with DMX controls as a standard feature.

1. Attach a DMX signal to the DMX IN 5 pin connector on the rear of the unit. A terminator may be required on the DMX OUT connector in some applications.
2. Select a valid DMX address on the thumbwheel selector for the base address of the fogger. If an air option is present 3 consecutive address will be required. Base DMX= fog rate controlled 0-100%, DMX+1=LSG power on above 50%, and DMX+2= air on above 50%.
3. Valid DMX LED is on solid if good DMX signal is present. DMX control overrides hand remotes. Slow or irregular flashing indicates poor DMX data. A steady flashing indicates factory test mode and DMX switches were in the 600-699 range at power-up. Reset switches to required address and cycle the main power switch. Recommended Fluids

## Maintenance

### Exterior

The casing of the PFI is stainless steel with a powder paint coating. To clean simply wash with mild soap and warm water.

### Heat Exchanger

Using high quality Ultratec Special Effects fluid should result in a long heat exchanger life. (See warranty policy later in this manual).

## Recommended Fluid

**Director's Choice Fog Fluid:** The choice of professionals. Director's Choice creates a cloud of fog with a medium hang time while remaining clean, white, dry, and odorless.

**Pro Beam Long Lasting Fog Fluid:** With a hang time 2-3x greater than the Director's Choice Fog Fluid, the Pro Beam solution produces a slightly less white fog while remaining clean, dry, and odorless.

**Quick Dissipating Fog Fluid:** This fast dissipating fluid is great for applications or effects that require quick dissipation of fog. It produces excellent steam effects that resemble nitrogen bursts and it also keeps low-lying fog from rising too quickly when it is used with the LSG or LSX.

**Extra Quick Dissipating Fog Fluid:** Dissipates 2x the rate of Quick Dissipating Fog Fluid while maintaining similar characteristics.

**Molecular Fog Fluid:** A faster dissipation versus the Director's Choice Fog Fluid. This thick, clean, white fog is an optimal solution for a dense low-lying fog effect when chilled with the LSG or LSX machines.

**Party Fog Fluid:** Quality fog fluid on a budget. An excellent solution for Djs, Nightclubs, Haunted Houses etc., looking to enhance light beams and creating various smoke effects.

**Maxi Fog Fluid:** The perfect balance between price and performance. Maxi Fog is the ideal solution for those who require high volume without compromise.

## Maintenance Fluid

**EZ Kleen Preventative Maintenance Fluid:** Using EZ Kleen preventative maintenance fluid on a regular basis ensures longer life for the heat exchanger in Ultratec fog machines by reducing blockage.

**All of our Fog Fluids are water based. Damage will occur if Haze Fluid is used in the Power Fogger Industrial.**

# Warranty

<b>Warranty:</b>	All warranty is for one year parts and labour unless specified or manufacturer defect only. Abuse or Poor Maintenance will not be covered under warranty. Ultratec Special Effects Fluids must always be used. Use of any non Ultratec Special Effects Fluids will void all warranties. Accept no substitutions as there are no exceptions to this rule. Proof of Purchase or Proof of Sale must always accompany any warranty returns. An RA (return authorization) number must be noted on the outside of the box being returned to our facilities. Any packages without a clearly marked RA number will not be accepted by our receiving department. Freight on warranty items are freight prepaid to our facility and we will prepay freight back to your facility after repair by the most economical means available. Should you require the item express-returned, then you are responsible for any difference in freight cost.
<b>Return Policy:</b>	Return of any product must be done within 30 days of purchase. The package must be returned freight prepaid and the RA number clearly marked on the outside of the box. Minimum restocking fee is 25%. Once our facility has received the product a technical assessment will be completed to determine if an additional restocking fee needs to be issued. Only credits are issued to the dealers account. Any product not returned within 30 days is considered purchased.
<b>Warning:</b>	Ultratec Special Effects Inc. considers all of it's product to be safe for use in the application it was intended. Ultratec Special Effects takes no responsibility for misuse or incorrect use. Always refer to the Product Manual for proper use.

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## Contact Information

### Head Office

Ultratec Special Effects Inc.  
1960 Blue Heron Drive  
London, Ontario N6H 5L9

Direct: 519-659-7972  
Toll Free: 866-534-5557  
Fax: 519-659-7713

### Canadian Shipping Address

(For All Canadian Repairs)  
Ultratec Special Effects Inc.  
1960 Blue Heron Drive  
London, Ontario N6H 5L9

Please remember to include the **RA Number on all items being shipped for repairs.**

To get an RA Number, visit [www.ultratecfx.com](http://www.ultratecfx.com) and click on the "Service" tab and then click on "Master Service Tracker" or contact service at 519-951-3357 / 866.534.5557

### USA Shipping Address

(For All USA Repairs)  
Ultratec Special Effects Inc.  
640 Gadson St.  
Groveland, Florida 34736