



Single Shot

**Safety instructions and
operating manual**



Flame projector Single Shot

Safety instructions



Caution! The directions in this manual must be followed strictly. It is imperative that the safety instructions and the manual are completely read and understood before start-up! The device may only be operated under the constant supervision of trained personnel. Maintenance of the device may only be carried out by the manufacturer. In occurrence of malfunctions or dangerous situations the device must immediately be shut down! Do not operate the device in strong winds or precipitation (e.g. rain or snowfall).



WARNING! Non-observance of the following safety instructions may lead to severe damage to persons and/or property, by fire, explosion or electric shock!

1. Transport and storage



Check the incoming goods for damage and completeness. Notify the shipper immediately of any transport damage.



The pressure tank must be emptied before transport. The hoses and the device may be stored while containing 5-Master-Fluid, but the transport of fluid-filled hoses is prohibited, according to the regulations of the ADA, the IAATA and the IMDG.



When transporting the device, make sure that all components are carefully packed and secured against jolting and impact load.



The parts must be unpacked with great care and caution to prevent damage to sensitive components, such as controls.



The components of the device must not be stored unsheltered or outdoors. Protect against moisture and precipitation. The permissible ambient temperatures are +5° C to +50° C (40°F – 130 °F)

2. Installation



The device is suitable for indoor use. When installing it on outdoor stages, make sure that the device is protected against wind or heavy airflow, rain or heavy moisture.

The flame projector and the tank must be set up with good stability. The hoses must be routed so that they are protected from abrasive wear and cannot be damaged. The flame projector, the tank and the hoses must be fully secured against dislocation.

**The tank must only be filled, used and emptied in an upright position!
After filling and until emptying, the pressure tank must not be moved!**

The assembly of the device must be carried out de-energized. No impact or vibration stress may occur. The system must be secured against unauthorized access. Any contact with the hot parts of the burner must be avoided.



Sufficient safety distance to the area involved in performance and to flammable materials must be considered when assembling the device. Performers and participants must be clear of the safety distances beforehand, and the operation must be rehearsed. In dangerous situations the device must immediately be disconnected from the mains!

The basic safety distance to the Single Shot is 2 meters (7 ft).

In the direction of the flame projection, the safety distance to the projector is 7 meters (23 ft).

Parallel to the flame, the safety distance is 2 meters (7 ft).

In general, there must be no persons or flammable objects below the flame projector or the flames.

In draft or wind the emitted flames may drift. That means the safety distance must possibly be extended to a range where danger to persons and property is excluded.



Maintenance of the device may only be performed by the qualified personnel of the manufacturer. The casings of the burner or the control panel must not be opened. Risk of electric shock!

By opening the casings of the burner or the control panel any guarantee and/or warranty expires and we assume no liability for consequential accidents and damage to persons and/or property.



The disassembly of the burners must not be carried out until they have sufficiently cooled down.



For the assembly and operation of the device, only original parts from the manufacturer may be used. The usage of other parts can lead to severe damage to persons or property.



CAUTION: THE SINGLE SHOT SYSTEM MUST NEVER BE USED WITH ANY OTHER FUEL THAN THE 5-MASTER-FLUID. DO NOT FILL THE TANK WITH ANY OTHER LIQUIDS.

Using other fuels leads to accidents and can result in serious personal and material damage. If the tank was accidentally filled with another fuel, or if the system was even run with any other fuel than the 5-Master-Fluid, it must immediately be shut down and sent to the manufacturer for damage inspection before it can be used again!

3. Starting up



The initial operation may only be carried out after complete assembly of all necessary components and safeguards by trained personnel, in consideration of all topics addressed in these safety instructions and the operating manual. We disclaim liability for faulty start-up carried out by an untrained third party, and the warranty expires.

4. Operation



The flame projector is used at events. Before starting up, the usage of the device must be clarified with a representative of the preventive fire protection.



The operation of the unit is only allowed for the designated purpose, within its boundaries of design, by trained personnel. We assume no liability for inappropriate use, which can lead to severe damage to persons and/or property. Furthermore, the manufacturer's warranty expires.



Safeguards must not be removed or disabled! Do not open the components of the unit (e.g. casing covers or front panels). Risk of burns and electric shock!



In dangerous situations, the device must immediately be shut down and disconnected from the mains. **Make sure the system can be disconnected from the mains at any time.**



Make sure that all components, hoses and connections are intact before using the system. Defective or damaged parts must not be used.



Eliminate all sources of ignition, like open flame and spark-producing equipment, when setting up, filling, operating or disassembling the system, and never smoke during these tasks.



The system may only be operated by trained personnel. Sufficient safety distances during operation of the system, protection against accidental contact with hot burner parts and safe assembly must be ensured. Extended safety distances in draft or even breezes must be considered. The system must not be operated in strong winds or precipitation.



The device must only be fueled with 5-Master-Fluid. No liability is assumed for consequential damage caused by use of other fuels. Moreover, any warranty from the manufacturer expires.

5. Shutting down



During longer idle periods the unit must be depressurized (see operating manual) and de-energized.



At least once a year the device must undergo a safety inspection, maintenance and adjustment by the manufacturer. Either an appointment must be made with the manufacturer to have the unit inspected, or it must be sent in.

Flame projector Single Shot

Operating manual

1. Note: Please read and follow the safety instructions closely!

2. Preface

The Single Shot is a fluid-operated flame projector, capable of producing effect flames with a length of up to 5 meters (approx.. 16 ft). Latest electronic safety features and controllers allow operating the unit with the highest possible safety. The device is generally designed for in-door use; the use on outdoor stages is only possible if the unit is protected against precipitation, humidity, strong drafts and winds (see safety instructions). The Single Shot can project effect flames in all directions. It is activated by DMX-signal.

3. Components of the system

The system consists of:

- Flame projector
- External tank
- Fluid hose, black-orange, 5 m (16,4 ft)
- Pressure hose, black, 5 m (16,4 ft)
- Drain hose, black
- Power cable, 5m (16,4 ft)
- Nitrogen pressure controller, 0 - 10 bar (0 – 145 PSI)
- High-pressure hose, blue
- Metal funnel

4. System functionality

Nitrogen from a compressed gas cylinder without ascension pipe creates an overpressure in the tank, above the liquid level of the burner fluid. This pressure is used to conduct the fluid to the burners, where it is sprayed with a valve and ignited with a high-voltage arc.

5. Operation with pressured air

The unit may only be operated with nitrogen or pressured air. Compressed air must be as free of oil as possible (do not use an oiler) and free of particles. To keep this manual clear, the installation, the operation and the disassembly of the unit is described with nitrogen as pressure gas. The pressures to be set are the same for nitrogen as for pressured air.

6. Installation

- **General guidelines:**

The burner must be fixed and secured against dislocation. For this purpose, it features two female threads on the operator side. Regular and approved fastening equipment such as truss clamps can be used to secure the burners.

The tank must only be filled, used and emptied in an upright position! The tank must be fully secured against dislocation. After filling and until emptying, the pressure tank must not be moved. All safety instructions must be strictly followed.

- **Hose connection between tank and burners:**

CAUTION! The hoses between the tank and the burners must only be connected and disconnected while the tank is NOT pressurized with nitrogen or compressed air.

The burners must be connected to the tank with the black-orange fluid hoses and the black pressure hoses. The tank has two output connectors, one for the fluid hose and one for the pressure hose.

Each burner has one input jack and one output jack for both hoses. Connect the first burner and the tank with the fluid hose and the pressure hose to the corresponding jacks.

For the second burner, connect the fluid hose and the pressure hose with the corresponding output jacks of the first burner and the input jacks of the second burner. Up to 6 burners can be connected and operated per tank in this way.

- **Wiring the unit:**

First, the DMX-controller and all burners must be connected to each other with 5-pin XLR-cables via the DMX-input and output terminals. Then the tank and all burners must be connected to the mains supply (230V A/C 16A) with the blue PowerCon mains input connectors.

It is ideal to connect the tank to a power outlet and loop the power supply through the burners. For this purpose, the tank and the burners are equipped with grey PowerCon

mains output sockets. This allows for shutting down the entire system in an emergency by disconnecting the tank from the mains.

The green LED next to the DMX-display indicates if the burner is properly connected to the mains and the DMX-controller. CAUTION: Do not connect more than 10 burners and 2 tanks to an electrical circuit with a 16A fuse.

- **Setting the DMX channel on the burner:**

The two black buttons on the left side of the DMX display are used to select a DMX channel. The black button to the right of the display confirms the selected channel. The channel shown in the display is the “activation channel”, the following channel is the “trigger channel” for the effect flame.

- **Filling the tank:**

Open flame, spark producing equipment and smoking are strictly prohibited within a radius of at least 10 meters (33 ft) when filling the tank!

Keep suitable fire extinguishing agents ready, preferably a CO2 fire extinguisher.

The 5-Master-Fluid has a very low boiling point and thus vaporizes quickly. The resulting vapors are highly flammable and heavier than air. Read and follow the information on the material safety data sheet at all costs. Always close the 5-Master fluid bottles immediately after use.

To fill the tank, it must be disconnected from the mains (see “Shutting down”), depressurized (see “Depressurizing”) and the 5-Master fluid drained from the system (see “Draining the 5-Master-Fluid”).

Carefully open the brass-colored screw cap on the upper side of the casing. Residual pressure in the tank will escape through pressure relief bores. In that case, do not open the screw cap any further, but wait until you cannot hear the hissing noise caused by the over-pressure any more. The cap must not be removed until the tank is completely depressurized. Use the metal funnel to fill the tank through its opening.

Use only the supplied funnel to fill the tank!

Do not fill more than six 1-liter bottles or two 3-liter bottles of 5-Master fluid into the empty tank (the tank's capacity is 6 liters or 1,6 gal). Pour the 5-Master fluid slowly and carefully into the tank. To avoid overfilling the tank, it must be completely drained every time before refilling (see “Draining the 5-Master fluid”).

After filling, make sure that the ring seal under the checkered hold of the brass-colored screw cap is placed properly, and close the tank with the cap. Seize the screw cap only by hand, do not use pliers or other tools!

- **Connecting the nitrogen bottle to the tank:**

Make sure that the nitrogen bottle is standing upright and that it is secured against falling over. Do not use nitrogen pressure cylinders with ascension pipes. Only the gas phase must be drawn from the pressure cylinder!

Screw the pressure controller firmly to the outlet of the nitrogen bottle, and the blue pressure hose to the outlet of the pressure controller. Now connect the coupling socket of the blue hose with the coupling plug on the operator side of the tank. Then turn the wing screw below the manometer counterclockwise all the way to the stop. Now you can open the nitrogen bottle. Use the wing screw below the manometer to set the pressure to 6.0 bar (approx. 90 PSI).

- **Setting the pressure on the tank:**

The pressure with which the 5-Master fluid is injected into the burners by the nitrogen regulates the height of the effect flame. Low pressure creates a low flame, high pressure creates a high flame. The pressure can be set with the black control dial on the operator side of the tank.

The manometer above the dial displays the tank pressure. Make sure that the tank is tightly shut and no nitrogen escapes from the inlet cap. Do not operate the unit with a leaky tank! Set the pressure to a value between 1.5 and 5.0 bar (30 PSI – 75 PSI).

- **Filling the hoses:**

Before the system can be started, the fluid hoses must be filled with 5-Master-Fluid. Without doing so, the burner nozzle would not produce a flame, but only an air-gas mixture on the first few trigger signals.

To fill the hoses, connect the drain hose to the fuel output jack of the last burner, set the pressure on the tank to 1 bar (15 PSI), connect the tank to the mains and disconnect the burners from the mains. Now put the output of the drain hose's ball valve into an empty 5-Master-Fluid bottle. Then open the ball valve slowly and very carefully.

This will press the 5-Master-Fluid into the hoses; the air-gas mixture will escape through the ball valve. When the 5-Master-Fluid flows from the ball valve into the bottle, close the valve. The system is now ready for use. You need 0,08 liter (80 ml or 0,02 gal) of 5-Master fluid to fill 1 m of the fluid hose.

- **Triggering the unit:**

Make sure there are no persons or flammable materials within the safety distances!

The basic safety distance to the Single Shot is 2 meters (7 ft).

In the direction of the flame, the safety distance to the projector is 7 meters (23 ft).

Parallel to the flame, the safety distance is 2 meters (7 ft).

Make sure there are no persons or flammable objects below the flame projector and the flames.

Make sure that the system can be disconnected from the mains at any time. Without the possibility to disconnect the system from the mains, it must not be operated!

The system must not be triggered if the operator cannot directly overview the burners and the entire safety zone! The unit may only be operated by qualified personnel.

Activate the selected DMX channel shown in the display. The Single Shot is ready as long as this channel is activated, and the flame can be triggered by activating the following channel.

- **Shutting down:**

First, disconnect the tank and the burners from the mains, then disconnect the DMX cable and close the nitrogen bottle.

- **Depressurizing the tank:**

Open flame, spark-producing equipment and smoking are strictly prohibited within a radius of 10 m (33 ft) when depressurizing the unit! The system must be shut down before depressurizing it (see “Shutting down”).

The tank must be depressurized before it can be opened. To do so, turn the black control dial on the operator side of the device counterclockwise until the manometer installed above it displays 0.0 bar/PSI. Now you can either re-fill the tank (see “Filling the tank”) or drain the 5-Master fluid (see “Draining the 5-Master fluid”).

- **Draining the 5-Master fluid:**

For transport, during longer idle periods or before filling, the tank must be completely drained of the 5-Master fluid. Before doing so, the unit must be shut down (see “Shutting down”) and depressurized (see “Depressurizing”). Make sure that the nitrogen bottle is closed. Follow all safety instructions described in “Filling the tank”.

First, connect the black drain hose with the fuel outlet socket on the operator side of the device. Make sure that the ball valve on the black drain hose is closed (the lever must stand crosswise to the direction of flow). Then, open the nitrogen bottle and set the pressure on the device with the black control dial on the operator side of the tank to 0.5 bar (7 PSI). The pressure hose must be connected to the tank and the pressure controller of the nitrogen bottle.

Now plug the power cord into a power outlet with a 16 A (10 A – 25 A in North America) fuse, and the blue Neutrik connector into the blue input jack on the rear side of the device. The 5-Master fluid from the tank can now be filled into an empty 5-Master fluid bottle by opening the ball valve on the drain hose.

Close the ball valve before the fluid flows over from the bottle! The tank is completely drained of 5-Master-Fluid when there is only nitrogen coming from the ball valve. Now close the ball valve, depressurize the system (see “Depressurizing”), disconnect the black hose from the unit and shut the unit down (see “Shutting down”).

- **Disassembly:**
Close the nitrogen bottle, disconnect the high pressure hose from the burner, and disconnect the pressure controller from the nitrogen bottle.

7. In case of emergency

If serious malfunctions occur that pose a threat to persons and property, the device must immediately be shut down and disconnected from the mains.

8. Care and maintenance

Dirt on the unit should be removed with a soft and moist cloth. Do not use aggressive cleaning agents. Never try to clean the electrodes inside the burner head by inserting any objects – risk of electric shock!

Maintenance of the device can only be carried out by the manufacturer. Maintenance must be carried out **annually**, please make an appointment with the manufacturer or send the unit in.

9. Technical data

Dimensions (l x w x h) burner:	14" x 6" x 12"
Dimensions (l x w x h) tank	17" x 10" x 19" cm
Weight burner:	approx. 13lbs
Weight tank:	approx. 44lbs
Weight fluid hose:	approx. 4lbs
Weight pressure hose:	approx. 2lbs
Power supply:	230V AC / 16 A / 50 – 60 Hz
Power supply North America:	120 V / 10 A – 25 A / 50 – 60 Hz
Capacity:	260 W
Control:	DMX 512
Number of DMX-channels:	2 channels, 1. Activation channel , 2. Ignition channel
Tankvolume:	6 l
Pressure gas:	nitrogen –Gas or pressured air
Operation pressure:	6 bar

Contact Details

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Warranty

The Pyromaster is sold with a one year's warranty, which includes parts and labour from the date of purchase. This warranty covers manufacturing defects, providing that the unit has been regularly serviced by an authorized agent and has only used genuine canisters.

Le Maitre Ltd considers all of its products to be safe for use in the application it was intended. Le Maitre Ltd takes no responsibility for misuse or incorrect use. Always refer to the equipment owner's manual for proper use, and be aware of local legislation governing the products use.