

ENGLISH

MAG:CFX®

USER AND INSTALLATION MANUAL

EXTERNAL FILLING PUMP



DISCLAIMER

⚠ WARNING

Read this manual carefully before installing and/or using this product. Failure to read the manual and to follow the printed instructions may lead to personal injury and/or damage to the product.

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We further refer to the General Conditions. These are available on request, free of charge.

Although considerable care has been taken to ensure a correct and comprehensive description of all relevant components, the manual may nonetheless contain errors and inaccuracies.

Should you detect any errors or inaccuracies in the manual, we would be grateful if you would inform us. This helps us to further improve our documentation.

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INTRODUCTION

Congratulations! You have bought a great new product from MAGIC FX.

This manual contains all information required for the intended use of the equipment. Deviation from the described intended use can result in a hazardous situation and/or property damage.

This manual includes notes and warnings on safe operation of the equipment. These notes and warnings are accompanied by the following icons. Read them attentively!

 DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.
 WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

TARGET GROUP

This manual is targeted at authorised personnel in the event industry that install and operate the EXTERNAL FILLING PUMP and the required LIQUID FLAME SYSTEM.

Authorised personnel are those who:

- Are appointed by their supervisor to install and/or operate the EXTERNAL FILLING PUMP and the related LIQUID FLAME SYSTEM at the event.
- Are trained in recognizing and avoiding hazards related to SFX applications at events.
- Are familiar with and abide by the applicable local, national and international laws and regulations.

OTHER DOCUMENTATION

Document	Document number
LIQUID FLAME SYSTEM User and Installation Manual	PART01881

Other related documentation

LANGUAGE

This document contains the original instructions in English. In case you require other languages please contact MAGIC FX.

ABBREVIATIONS

Abbreviation	Description
SFX	Special effects
DMX	Digital Multiplex
RDM	Remote Device Management
LIQUID FLAME SYSTEM	MAGICFX® LIQUID FLAME SYSTEM
PUMP STATION	MAGICFX® LIQUID FLAME PUMP STATION

Abbreviations

REVISION TABLE

Doc nr	Revision	Date	Description	Author	Approved
PART02558	01-00	07-04-2025	Initial release	MB	GM

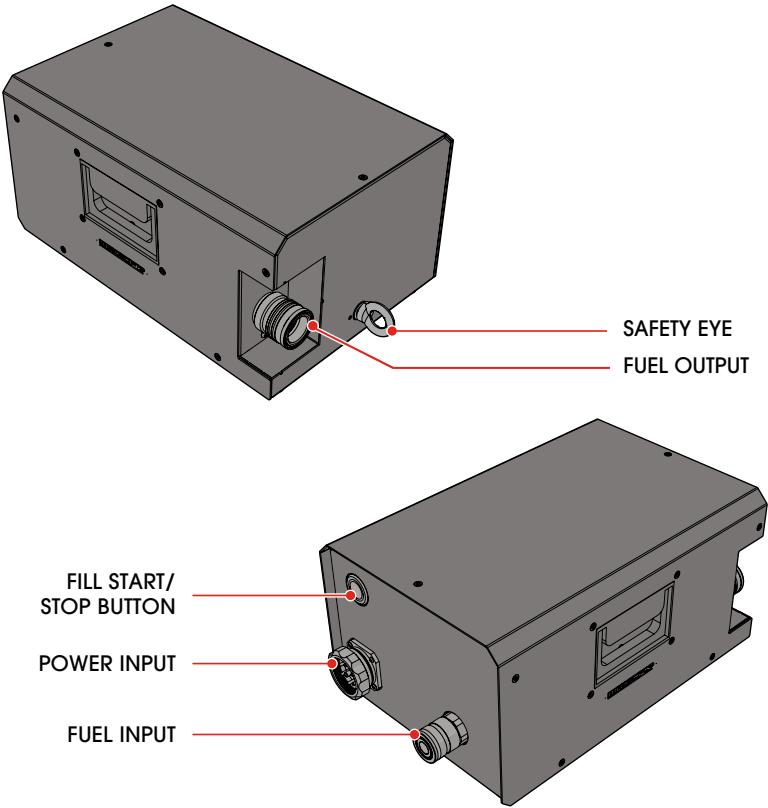
1. DESCRIPTION

The EXTERNAL FILLING PUMP is an accessory to the LIQUID FLAME SYSTEM. The EXTERNAL FILLING PUMP makes it possible to (automatically) refill the PUMP STATION from an external fuel tank.

The LIQUID FLAME SYSTEM is an SFX system for controlled emission of flames. The system consists of an electric pump unit with an internal 100L tank that feeds pressurized liquid fuel to one or more compatible flame heads. The liquid fuel is ejected from the flame head nozzle across spark ignition probes to produce the flame. MAGIC FX offers several compatible flame heads, each with its own unique flame characteristics.

For more information about the LIQUID FLAME SYSTEM and to learn how to configure a complete LIQUID FLAME SYSTEM, refer to the LIQUID FLAME SYSTEM Configuration Manual (PART01881).

1.1. MAIN PARTS



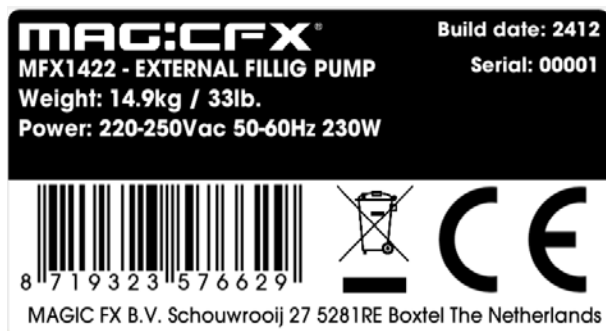
Main parts

1.2. TECHNICAL DATA

Product	Product Name	EXTERNAL FILLING PUMP	
	Product Code	MFX1422	
	Product Type	FLAME FX	
Main Dimensions	Length	393 mm	15.5 in
	Width	249 mm	9.8 in
	Height	193 mm	7.6 in
Weight	Empty Weight	14.9 kg	33 lbs
Package	Length	505 mm	19.9 in
	Width	360 mm	14.2 in
	Height	350 mm	13.8 in
	Packaged Weight	19 kg	41.9 lbs
Environment	Minimum Temperature	- 10 °C	14 °F
	Maximum Temperature	50 °C	122 °F
	Humidity (Relative)	20 to 90 % (non-condensing)	
Electrical	Voltage Input	220 - 250 VAC	
	Voltage Frequency	50 - 60 Hz	
	Power Consumption	230 W	
	Power and data connector	Socapex 7 pin connector	
Configuring	Configure Options	On the PUMP STATION	
Usage	Consumable(s)	Isopropanol	
		ISOPAR G, H & L	

Technical data

1.3. PRODUCT IDENTIFICATION



Type plate

1.4. FUEL

The LIQUID FLAME SYSTEM uses two types of fuel to create the effect. The fuel is loaded via the fuel fill cap at the fluid fill point, or with the external filling pump.

⚠ CAUTION

Fuels are highly flammable and must be handled with caution and in accordance with local health and safety regulations. Always follow the safety instructions from the fuel packaging when handling and working with the fuel.

NOTICE

Only use these types of fuel: Isopropanol, ISOPAR G, H & L. The use of other fuels or water may degrade the performance of the machine or cause internal damage.

1.5. ACCESSORIES

Code	Product	Included
MFX0347	External filling pump cable - 10 m	
MFX0348	External filling pump cable - 20 m	
MFX147x	Fuel hose 3/8" (1/2" OR 1/4" coupling) - 5/10/20/30/50 m	

Accessories

Please contact MAGIC FX for additional possibilities.

For information about the accessories of the LIQUID FLAME SYSTEM (MFX1420), refer to the LIQUID FLAME SYSTEM User and Installation Manual (PART01881).

1.6. CONTROL

The EXTERNAL FILLING PUMP can be controlled from the pump itself or from the PUMP STATION. Refer to the LIQUID FLAME SYSTEM User and Installation manual (PART01881).

2. SAFETY

The EXTERNAL FILLING PUMP has been designed and constructed in such a manner that it can be used safely. This applies to the use, the circumstances and the regulations as described in this documentation. Reading this documentation and following the instructions are therefore necessary for everyone who is authorised to work with the EXTERNAL FILLING PUMP.

The EXTERNAL FILLING PUMP must be used in surroundings that:

- Have a reasonably stable temperature of between -10 and 50 °C.
- Have a relative humidity degree between 20 % and 90 % (non condensing).
- Are free of dust, corrosive gases and high concentrations of organic vapours.

2.1. GENERAL SAFETY RULES

- Only authorised persons may work with the EXTERNAL FILLING PUMP.
- Do not use the EXTERNAL FILLING PUMP if alterations have been made other than by or on behalf of MAGIC FX.
- Make sure that children, unauthorised people and animals do not obtain access to the EXTERNAL FILLING PUMP.
- Make sure there are no free-standing objects or objects that can be damaged by the machine within the output distance.
- Do not connect more units to a single electrical circuit than the installed fuse is able to handle. (Calculate the summed load with the electrical data from Chapter 1).
- Do not remove or bypass any safeguards and safety symbols.
- All required safety devices must be in good condition and function properly.
- Ensure sufficient lighting of the surroundings.
- Keep the workplace clean.

2.2. INDOOR & OUTDOOR USE

The LIQUID FLAME SYSTEM is designed for outdoor use and use in large well-ventilated indoor spaces. Keep the prescribed output zone clear for safe release of the flames and their heat. For specific safety requirements, refer to the corresponding user and installation manual(s) of the used flame head(s).

⚠ DANGER

Do not use the LIQUID FLAME SYSTEM in poor ventilated confined spaces. Exposure to accumulated heat and combustion fumes may cause inhalation of hazardous particles and gases, and cause eye and skin irritation.

2.3. RIGGING

NOTICE



Make sure that fuel hoses and cable runs are well supported, and are clear from obstructions and sharp edges. Always support hanging hoses with strain reliefs. Avoid hard bends and kinks. Failure to do so could result in damaged hoses and cables.

NOTICE

Make sure that fuel connections do not carry the weight of the connected fuel hoses. Failure to do so could result in leaking or damaged fuel connections.











Please follow the European and national guidelines for safe rigging and trussing.

2.4. SAFETY SYMBOLS

Symbol	Meaning	Position
	Read the manual carefully before use!	Front of the machine.
	Warning: High Pressure. High Pressure liquid inside the internal machine pipework.	Front of the machine.

Safety symbols

2.5. SAFETY WARNINGS

 WARNING	Using a damaged or an improper installed system component can lead to death, serious injury or property damage. Always inspect the complete system thoroughly before operation.
 WARNING	Eye contact with fuel under pressure and burning fuel from the machine can lead to serious eye injury. Always wear safety goggles when operating or installing the device.
	
 WARNING	Always wear safety goggles and suitable gloves when you connect or disconnect hoses.
 WARNING	Always connect the fuel hose to the unpressurized fuel input. Never connect the fuel hose to the pressurized fuel output, as this may cause leaks or high-pressure fuel discharge, increasing the risk of ignition or explosion.
 WARNING	Fuels are highly flammable and must be handled with caution and in accordance with local health and safety regulations. Always follow the safety instructions from the fuel packaging when handling and working with the fuel.
 WARNING	Never allow smoking, flames, or other sources of ignition near the PUMP STATION and other fuel storage (even when the system is turned off or in transit).
 WARNING	Missing or obscured safety symbols on the machine can lead to death or serious injury. Make sure all safety symbols are correctly in place, see section 2.4.
 WARNING	Stop operating the system if any fire occurs outside of normal operation and/or if anything other than the emitted fuel for the SFX catches fire. Extinguish any remaining fire immediately with sand, carbon dioxide, dry powder or any other suitable extinguishing media. Do not use a water jet. Refer to the safety data sheet from the used fuel for detailed safety instructions.
 CAUTION	Make sure that supporting surface for the IBC tank is level, solid, and that it can support the weight of a full tank (>800 kg). If the IBC tank is not installed in level position, fuel may leak from the air vent.

3. INSTALLATION AND USE

⚠ WARNING

Always wear safety goggles and suitable gloves when you connect or disconnect hoses.

⚠ WARNING

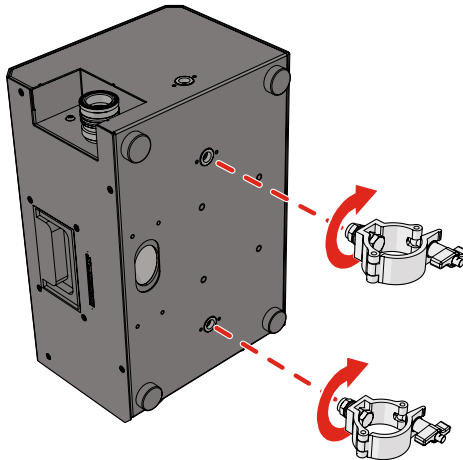
Always connect the fuel hose to the unpressurized fuel input. Never connect the fuel hose to the pressurized fuel output, as this may cause leaks or high-pressure fuel discharge, increasing the risk of ignition or explosion.

⚠ CAUTION

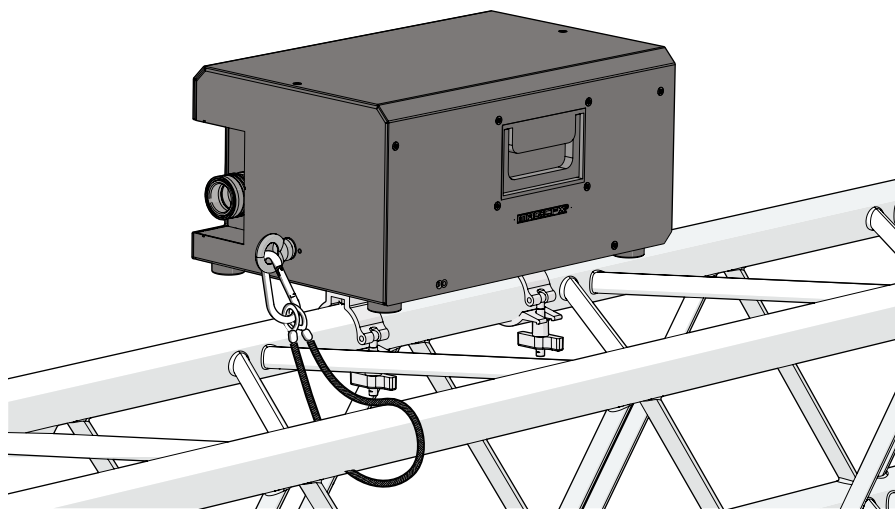
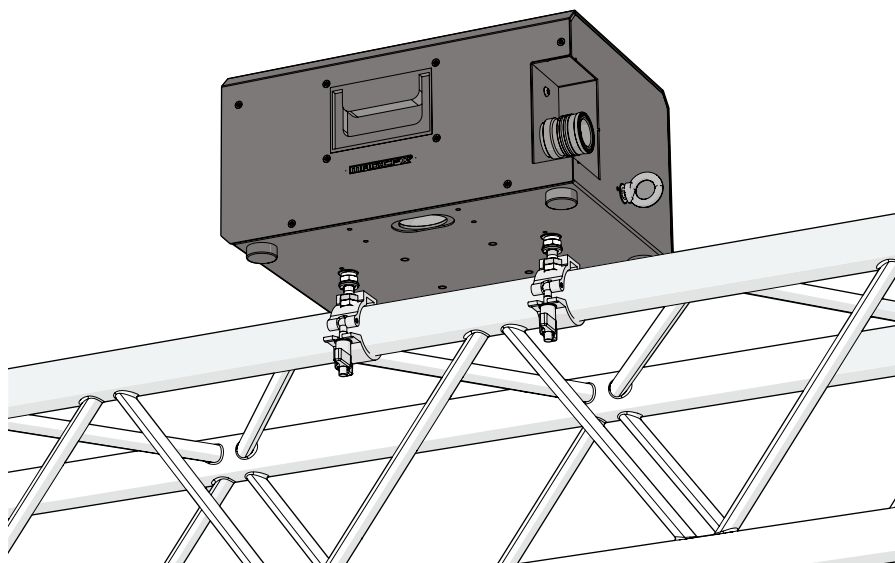
Make sure that hoses and cable runs are clear from obstructions and sharp edges.

3.1. CLAMP TO A TRUSS

1. Screw a clamp into the threaded hole on the bottom of the EXTERNAL FILLING PUMP. Use a Doughty Half Coupler M10 for truss mounting (MFX3106).



2. Mount the clamp firmly on a truss, beam, or to the IBC external fuel tank.
-



3.2. CONNECTING TO THE PUMP STATION

1. Install the PUMP STATION in compliance with the instructions from the LIQUID FLAME SYSTEM User and Installation Manual (PART01881).
2. Clean all liquid fuel connections with a soft rag and a small quantity of isopropyl alcohol.
3. Install the EXTERNAL FILLING PUMP close to the external fuel tank.
4. Connect the suction hose to the external filling pump.
5. Make sure that the other end of suction hose is fully submerged in the external tank and can reach the bottom.
6. Connect the external filling pump cable to the EXTERNAL FILLING PUMP connector on the PUMP STATION. Connect the other end to the EXTERNAL FILLING PUMP.
7. Connect a fuel hose to the Fuel Fill connection of the PUMP STATION. Connect the other end to the fuel connection of the EXTERNAL FILLING PUMP.
8. The EXTERNAL FILLING PUMP can be controlled in three different ways:
 - A Press and hold the button on the external filling pump to transfer fuel, when the button is released the pump stops.
 - B Press and hold the external pump button on the pump station to transfer fuel, when the button is released the pump stops.
 - C Press the External Pump button on the pump station once briefly to set the External Pump to automatically (re) fill the tank. To stop the automatic refilling short press the button once again.

NOTICE

When automatic filling is turned on, the LED on the PUMP STATION will flash red. During automatic filling, the tank will be filled to a maximum of 80% to prevent overflow. The external pump will start filling once the the tank level is below 40%.

NOTICE

The suction hose has a different connection then the other hoses in the LIQUID FLAME SYSTEM and can not be extended.

4. TROUBLESHOOTING

Problem	Possible cause	Possible solution
The EXTERNAL FILLING PUMP does not switch on.	The fuse on the PUMP STATION is blown.	Check the fuse next to the DATA/ POWER connector on the PUMP STATION.
The fuel does not flow.	The suction hose is obstructed.	Check the suction hose for obstructions. Remove if necessary.
	The quick connector for the suction hose is not connected properly.	Reconnect the quick connector for the suction hose.
	The quick connector to the PUMP STATION is not connected properly.	Reconnect the quick connector to the PUMP STATION.
	The filter is clogged.	Check if the filter is clogged. Clean the filter if necessary.
The EXTERNAL FILLING PUMP is making noises.	The suction hose is obstructed.	Check the suction hose for obstructions. Remove if necessary.
	The quick connector for the suction hose is not connected properly.	Reconnect the quick connector for the suction hose.
	The quick connector to the PUMP STATION is not connected properly.	Reconnect the quick connector to the PUMP STATION.
	The filter is clogged.	Check if the filter is clogged. Clean the filter if necessary.

Troubleshooting

Always contact MAGIC FX if any malfunctions or errors occur that cannot be solved with the instructions as described in this manual.



5. MAINTENANCE

To achieve the maximum service life of the EXTERNAL FILLING PUMP you must regularly clean the EXTERNAL FILLING PUMP and test if it is functioning correctly.

Before conducting any maintenance ensure the machine is switched off and disconnected from a power source and the machine is not hot from recently being used. Always use personal protective equipment such as safety glasses and gloves when handling fuels.

Maintenance task	Activity
General clean.	Remove dust and deposits from connectors and surfaces. Check all parts of distribution manifolds for leaks and degradation.
Fuel connector inspection and cleaning.	Clean off debris and wipe with isopropanol alcohol.
Internal filter inspection and cleaning.	<ol style="list-style-type: none">1. Unscrew the filter cap on the bottom of the machine.2. Take out the filter basket to inspect and clean.3. Reinsert the filter basket.4. Tighten the filter cap.

Contact MAGIC FX if the LIQUID FLAME SYSTEM is not functioning correctly.

 DANGER	Do not replace parts yourself; always consult MAGIC FX if necessary.
 WARNING	After servicing the filter, check for possible leaks around the filtercap the first time the machine is used.

6. CORRECT DISPOSAL



This symbol on the product and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product to designated collection points where it will be accepted free of charge.

Alternatively, in some countries you may be able to return your products to your local retailer upon purchase of an equivalent new product. Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

7. EC DECLARATION OF CONFORMITY

According to Annex II A Machinery Directive 2006/42/EC

MAGIC FX B.V. declares as manufacturer and composer of the technical construction file that the product with the following specifications:

Name machine	: EXTERNAL FILLING PUMP
Type	: MFX1422
Voltage	: 220-250Vac 50/60Hz
Serial number	: on product
Year of construction	: on product

Is in conformity with the minimal safety regulations as stated in the following directive(s):

- LVD (2014/35/EU) Low Voltage Directive
- EMC (2014/30/EC) ElectroMagnetic Compatibility
- RoHS (2011/65/EU) Restriction of the use of certain Hazardous Substances
- WEEE (2012/19/EU) Waste Electrical & Electronic Equipment

The following harmonized standards were applied:

- NEN-EN-ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction.
- NEN-EN-IEC 60204-1:2006, Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
- NEN-EN-IEC 61000-6-3:2007/A1:2011, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

- ☐ Original declaration of conformity
- ☒ Translation of the original declaration of conformity

Name manufacturer	: MAGIC FX B.V.
Address	: Schouwrooij 27, 5281 RE BOXTEL
Country	: The Netherlands
CEO	: B. Veroude
Date	: 11-07-2024
Signature	



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