READ AND SAVE THESE INSTRUCTIONS

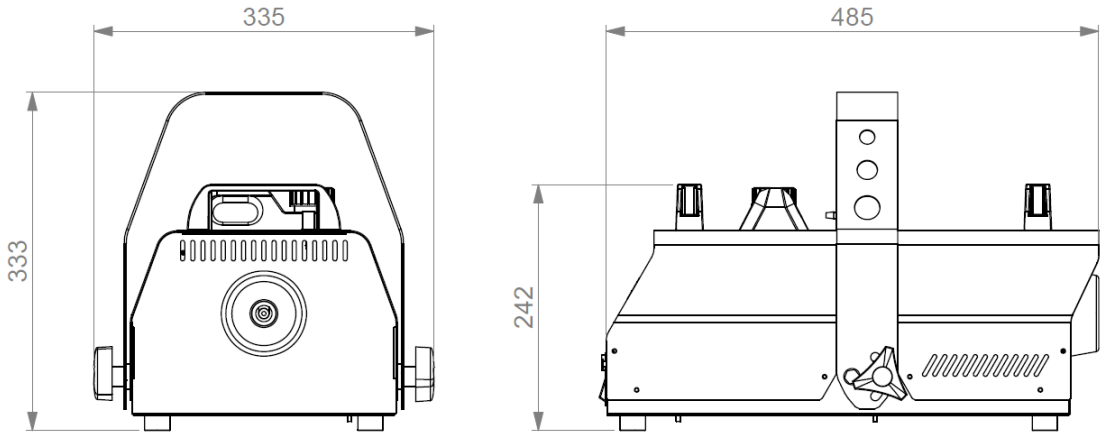
JEM™ ZR SERIES

user manual

Dimensions/Legal

All dimensions are in millimeters

ZR25



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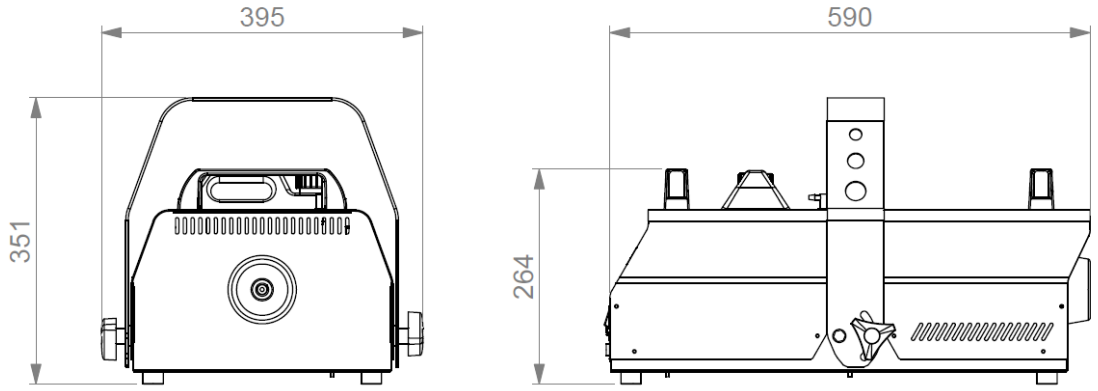
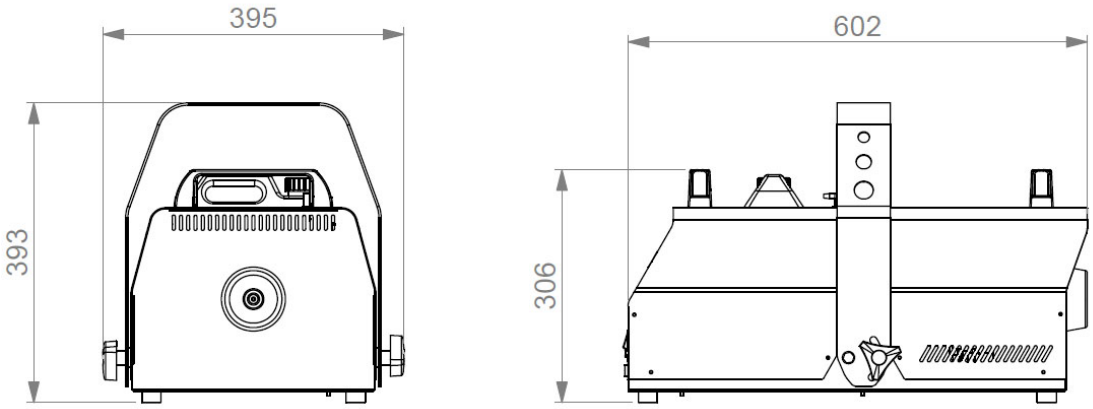


ZR45



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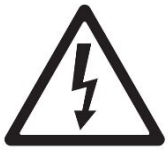
Safety information

Read the safety precautions in this manual before installing, operating or servicing this product.

The following symbols are used to identify important safety information:

Caution! Safety hazard. Risk of severe injury or death.

Caution! Burn hazard. Hot surface. Do not touch.



Danger! Hazardous voltage. Contact will cause electric shock.

Caution! Fire hazard.

Warning! This product is not for household use. It presents risks of injury due to electric shock, burns, falls and respiratory problems!

Read this manual before operating the machine, follow the safety precautions listed below, and observe all warnings in this manual and printed on the machine. Use the machine only as described in this manual and in accordance with local laws and regulations.

If you have questions about how to operate the machine safely, or if you have followed the instructions in this manual and the machine is malfunctioning, please contact JEM Service and Support.

Preventing electric shocks

- Always ground (earth) the machine electrically.
- Use only a source of AC power that complies with local building and electrical codes, and that has both overload and ground-fault protection.
- Before connecting the machine to power, check that the voltage indicated on the machine's serial label matches your local AC power voltage. If your AC power voltage does not match, do not use the machine. Contact JEM Service and Support for assistance.
- Before using the machine, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- If the machine or any cables connected to it are in any way damaged, defective, wet, or show signs of overheating, stop using the machine and contact JEM Service and Support for assistance. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
- Disconnect the machine from AC power before servicing and when not in use.
- This machine is not waterproof and should not be exposed to wet outdoor conditions. Do not immerse in water or any other liquid. Do not expose to high-pressure water jets.

- Do not spill fluid over or inside the machine. If fluid is spilled, disconnect AC power and clean with a damp cloth. If fluid is spilled onto electronic parts, take the machine out of service and contact JEM Service and Support for advice.
- Do not remove the covers or attempt to repair a faulty machine. Refer any service not described in this manual to JEM Service and Support.
- Do not operate the machine if any parts are damaged, defective or missing.
- Moisture and electricity do not mix. Do not aim fog output at electrical connections or devices.

Preventing burns and fire

- The fog produced by the machine is hot enough to cause burns when it leaves the nozzle, and very hot droplets of fluid escape occasionally. Keep people and objects at least 600 mm (24 in.) away from the fog output nozzle.
- Do not touch the fog output nozzle during or after use – it becomes extremely hot and remains hot for several hours after the machine has been shut down.
- Fog output contains glycol, a flammable alcohol that burns with an almost invisible blue flame. Do not point fog output at sources of ignition such as open flames or pyrotechnic effects.
- Do not attempt to bypass thermostatic switches, fluid sensors or fuses.
- Replace fuses only with ones of the type and rating specified in this manual for the machine.
- Provide a minimum free space of 100 mm (4 in.) around the machine.
- Provide a minimum free space of 500 mm (20 in.) around fans and air vents and ensure free and unobstructed airflow to and around the machine.
- Keep the machine at least 600 mm (24 in.) away from combustible and heat-sensitive materials.
- Do not operate the machine if the ambient temperature (Ta) is below 5° C (41° F) or above 40° C (104° F).
- Do not operate the machine if the relative air humidity exceeds 80%.

Preventing injuries

- Fasten the machine securely to a fixed surface or structure when in use. The machine is not portable when installed.
- Ensure that any supporting structure and/or hardware used can hold at least 10 times the weight of all the devices they support.
- If suspending from a rigging structure, fasten the machine to a rigging clamp. Do not use safety cables as the primary means of support.
- If the machine is installed in a location where it may cause injury or damage if it falls, install as directed in this manual a secondary attachment such as a safety cable that will hold the machine if a primary attachment fails. The secondary attachment must be approved by an official body such as TÜV as a safety attachment for the weight that it secures, must comply with EN 60598-2-17 Section 17.6.6 and must be capable of bearing a static suspended load that is ten times the weight of the machine and all installed accessories.

- Check that all external covers and rigging hardware are securely fastened.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the machine.
- Do not operate the machine with missing or damaged covers or shields.
- In the event of an operating problem, stop using the machine immediately and disconnect it from power. Do not attempt to use a machine that is obviously damaged.
- Do not modify the machine in any way not described in this manual or install other than genuine JEM parts.
- Refer any service operation not described in this manual to a qualified technician.
- Fog output can cause condensation. Do not point the output at smooth floors. Floors and surfaces may become slippery. Check these frequently and wipe dry as necessary to avoid any danger of slipping.
- Ensure at least 2 m (6.6 ft.) visibility in areas where fog is being produced.
- Fog fluid contains food-grade glycols in solution that may present health risks.

  IF SWALLOWED: Do not induce vomiting. Drink 1-2 glasses of water and seek medical attention.

  AVOID CONTACT WITH SKIN AND EYES: In case of accidental contact: **EYES:** Hold eyes open and flush with water for ten minutes, seek medical attention if irritation persists. **SKIN:** Remove contaminated clothing and rinse skin for 20 minutes, seek medical attention if irritation persists.

  Consult the fluids' SDS for more detailed safety information.

  This machine is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety. Children should be supervised to ensure that they do not play with the machine.

Preventing breathing problems

- A machine can operate safely only with the fog fluid it is designed for. Use the machine only with fluids specified under “Approved Fog Fluid types” on page 22 or you may cause the release of toxic gases, presenting a severe health hazard. You will also probably damage the machine.
- Do not create dense fog in confined or poorly ventilated areas.
- Do not expose people with health problems (including allergic and/or respiratory conditions such as asthma) to fog output.
- Do not point fog output directly at a person’s face or at face height.

For the latest user documentation and other information for this and all JEM products, please visit the JEM website at www.jemprofessional.com
If you have any questions about how to install, operate or service the fixture safely, please contact your JEM distributor, dealer or contact JEM Service and Support.

Product overview

Product description

The JEM ZR25, ZR35 and ZR45 provide a uniquely flexible and convenient solution to a wide range of fog requirements whether permanently installed or taken on the road. Featuring a high efficiency heating block and accepting multiple weights of fluid, the JEM ZR series products can create anything from an ephemeral steam chase to a dense, long-lasting “whiteout”.

The Integrated Digital Remote Control can be operated on the machine or removed and used at a distance; or the machines may be operated by DMX with full RDM capability for remote setup and status monitoring.

ZR25
ZR35
ZR45

This manual contains instructions for all machines in the range, but some features are different. These symbols show information which is specific to a particular machine.

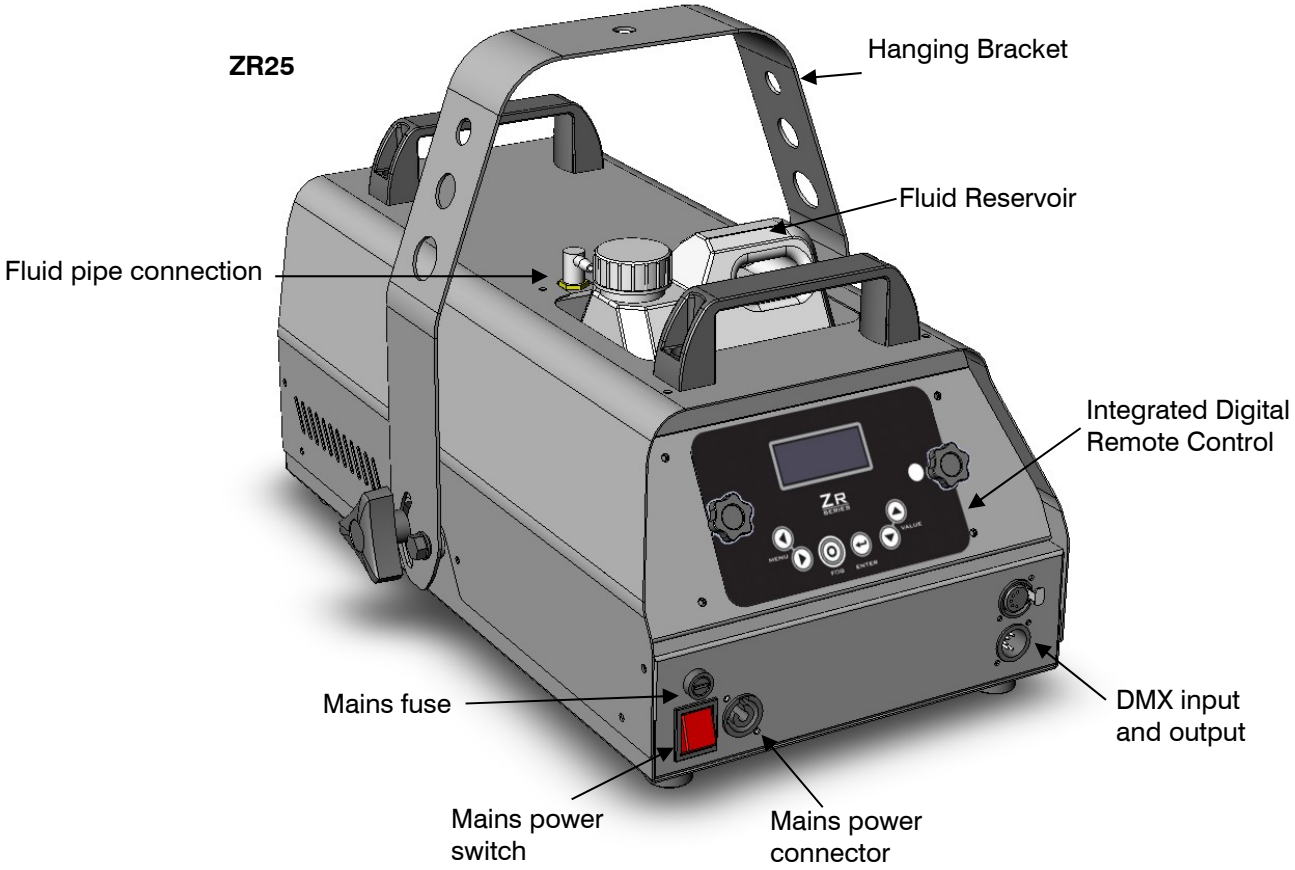
Features at a glance

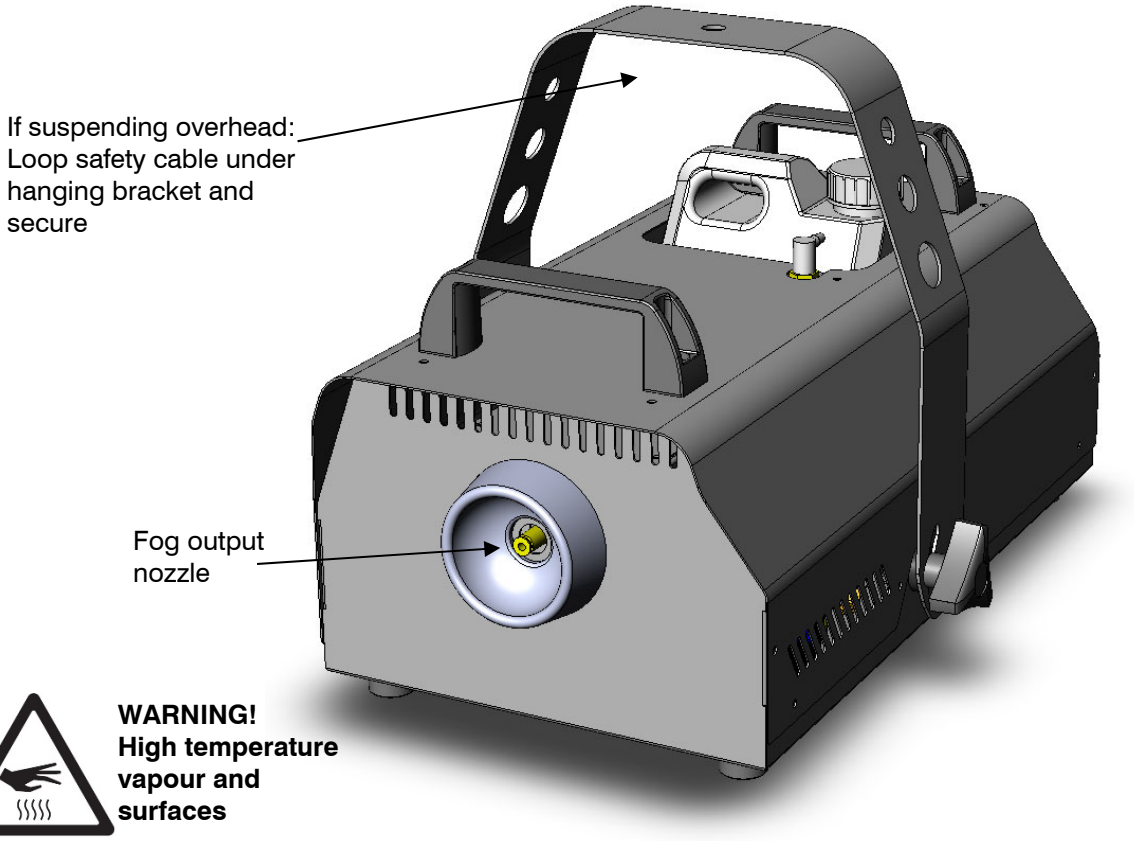
- Robust roadworthy design
- Integrated Digital Remote Control
- DMX with RDM
- Hanging bracket included
- Continuous effect output
- Diverse fluid options for different applications
- Soft start technology
- Fluid sensing system
- Easy external fluid hook-up
- Optional ducting kits

Use only approved JEM fog fluids as shown on page 22. Use of other fluid will void warranty.

Product details

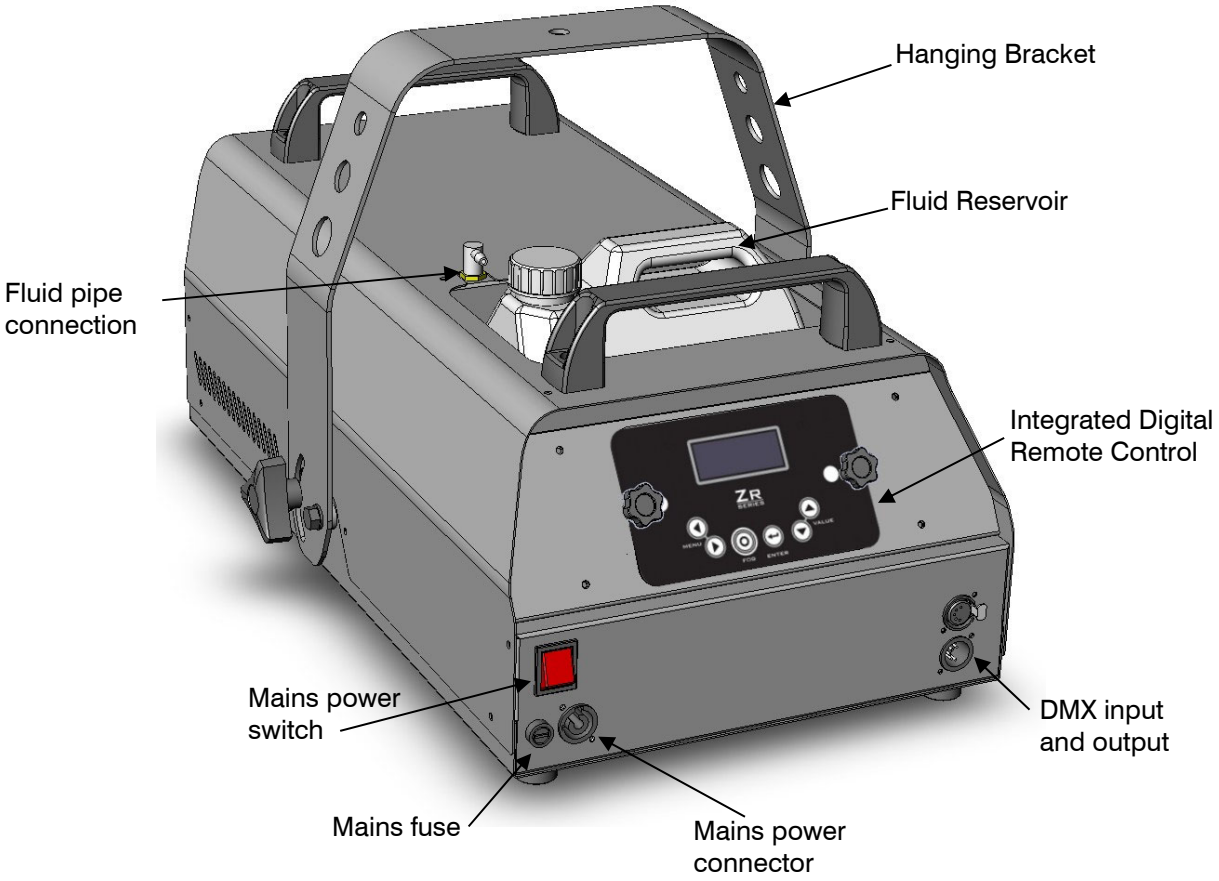
ZR25

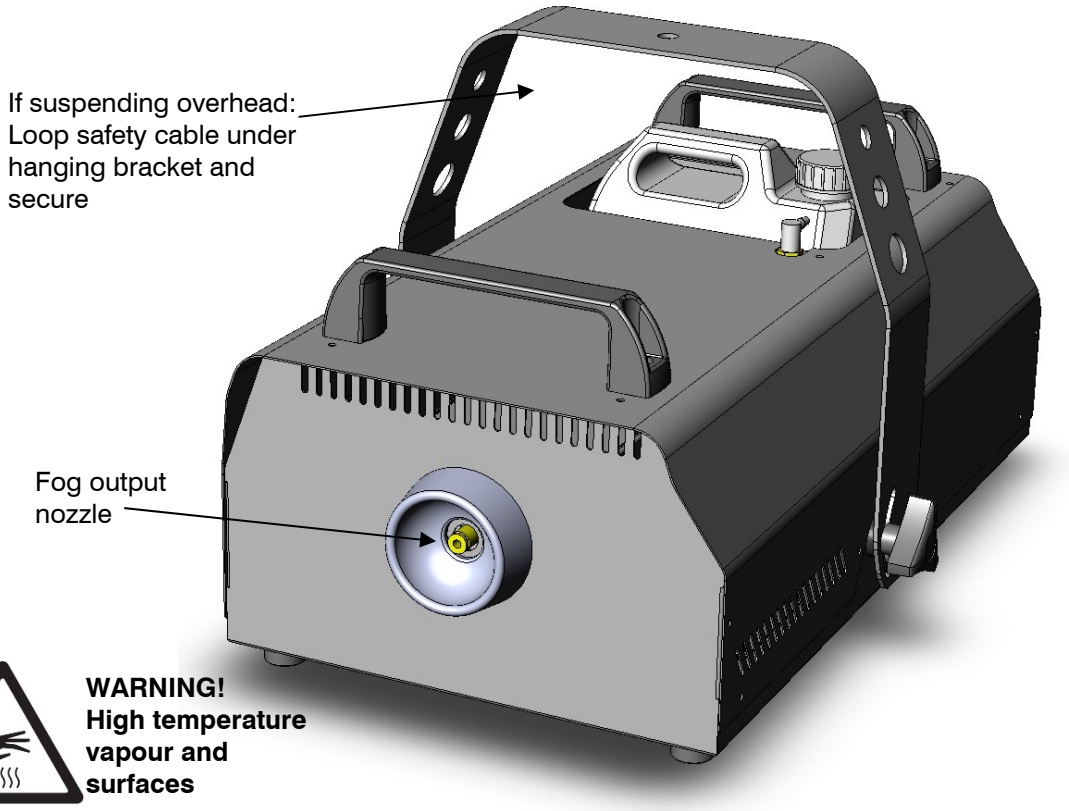




WARNING!
High temperature vapour and surfaces

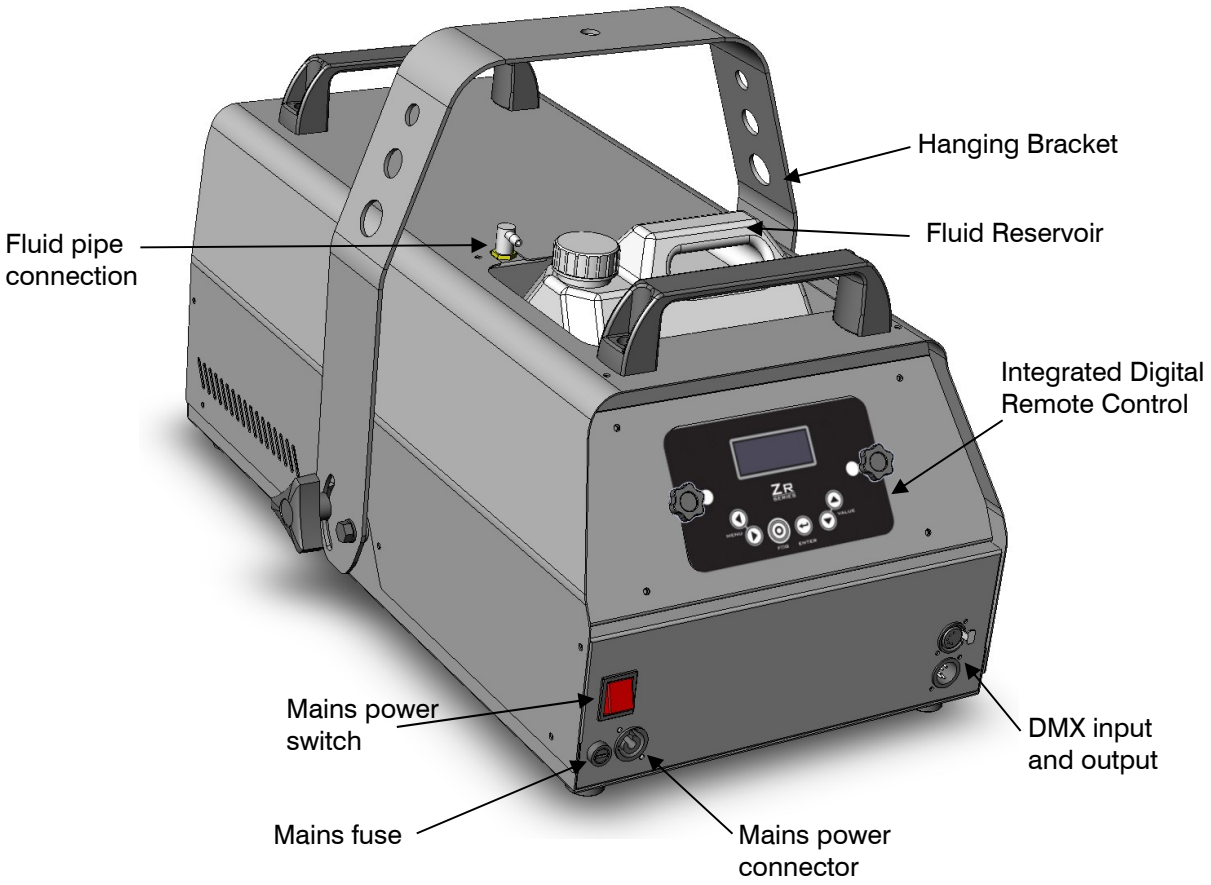
ZR35

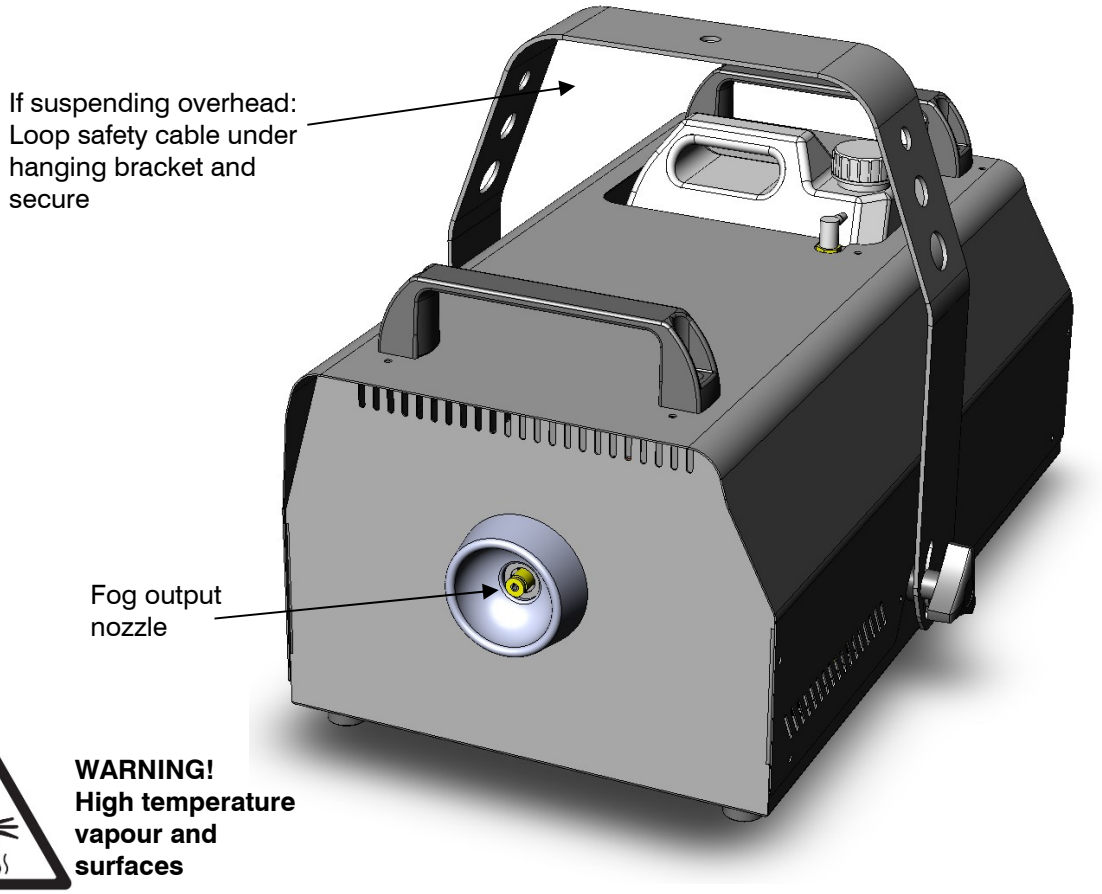




WARNING!
High temperature vapour and surfaces

ZR45





WARNING!
High temperature vapour and surfaces

Quick Start

You are no doubt eager to switch on the machine and try it out by making a lot of fog. This section tells you how to do that. However, please also make the time to read the safety and servicing instructions in the remainder of this manual.

Setting up

Locate the machine in a suitably large area with nothing in front of the fog output.

Fill the fluid reservoir with an approved JEM fog fluid as shown on page 22.

Connect a suitably rated power supply to the machine.
The power requirements are:

ZR25	*1200W 240V EU / 1050W 120V US*
ZR35	*1550W 240V EU / 1450W 120V US*
ZR45	*2100W 240V EU / 1800W 120V US*

Now set the mains switch on the rear of the unit, to the 'ON' (**I**) position. The display will show **HEAT**. If the display shows **OFF**, press the **FOG** button on the control panel or set the **RUN MODE** to **CONTINUOUS**. After about 6-8 minutes the display should show **FOG LEVEL** (along with the set output level) and the machine will begin producing fog. If the display shows **READY** press the **FOG** button on the control panel.

Making fog

If you want to adjust the fog density manually, press the Menu < > buttons until the display shows **FOG LEVEL** and use the Value up/down buttons to select a value above 0% then press the Enter button to store this value.

If no fog is produced it may be necessary to prime the machine. Press the Menu <> buttons until the display shows PRIME (located in the SETTINGS submenu), then press the Value Up button so the display shows YES, then press the Enter button.

Installation and setting up

DANGER! DO NOT operate the machine until you have read and observed all the precautions listed under “Safety information” on page 5.

Location

The JEM ZR series machines are designed to be located on the floor or may be suspended using the hanging bracket. The machine can operate in any orientation from 45° upwards to 45° downwards. Steeper tilting may cause fluid leakage.

If the machine is to be suspended, ensure the mounting surface can support the weight of the machine. Do not suspend the machine over areas where people will be underneath. Use only the hanging bracket to suspend the machine.

Ensure that there is at least 100 mm (4 in.) clearance all-round the machine and at least 600 mm (24 in.) in front of the fog output.

The machine is delivered with white nylon shipping bolts fitted to the hanging bracket in place of the normal hand-wheel bolts. Before first use, remove the shipping bolts and replace them with the hand-wheel bolts (outside of bracket) and spacers (inside of bracket) which are supplied separately in the packaging.

AC power

Before using the machine, ensure that a grounding-type (earthed) power plug that fits the local power receptacle is installed on the power cable provided.

DANGER! Make sure the power plug is correctly rated:

- For EU ZR25, ZR35, ZR45 models use a plug rated at 10 A minimum.
- For US ZR25 use a plug rated at 10 A minimum.
- For US ZR35 use a plug rated at 15 A minimum.
- For US ZR45 use a plug rated at 20 A minimum.

When installing the plug, follow the plug manufacturer’s instructions and connect pins as follows:
Yellow and green wire to ground (earth), blue wire to neutral and brown wire to live.

The table below shows some common pin identification schemes.

wire	**function**	**marking**	**screw colour**
brown	live	“L”	yellow or brass
blue	neutral	“N”	silver
green/yellow	earth	⏚	green

Before connecting the machine to power, verify that the AC supply is adequately dimensioned for the current draw of the machine.

ZR25	*1200W 240V EU / 1000W 120V US*
ZR35	*1550W 240V EU / 1450W 120V US*
ZR45	*2100W 240V EU / 1800W 120V US*

Check that the local AC voltage is appropriate, as indicated on the machine's serial number label. If your AC voltage is outside the appropriate range, do not use the machine. Contact JEM Service and Support for assistance.

Setting up

Fill the fluid reservoir with an approved JEM fog fluid as shown on page 22. If DMX control is being used, connect the machine to the DMX line (see page 19).

If you are using several machines from one control panel in host-client link mode, link the machines in a daisy chain using the DMX in and out sockets. It does not matter which socket is used as input or output.

Final checks

Before applying power to the machine, verify the following:

- the machine is safely located or installed and meets the location requirements stated on page 13
- the operator is familiar with, and able to comply with, the requirements for safe operation listed on page 5.
- the fluid is one of the approved JEM fluids listed under "Approved Fog Fluid types" on page 22.
- the machine is electrically grounded (earthed)
- the AC power distribution circuits and lines are adequately rated for the current load

Turning on the power

Set the mains switch on the rear of the unit, to the 'ON' **(I)** position. The display will show HEAT. If the display shows OFF, press the FOG button on the control panel or set the RUN MODE to CONTINUOUS. After about 6-8 minutes if no DMX is connected the display should show FOG LEVEL (along with the set output level) and the machine will begin producing fog. If DMX is connected the display will show DMX when the machine is ready.

The machine will remember its state from when it was turned off last time, so it will only power up in OFF mode if you have previously disabled the heaters.

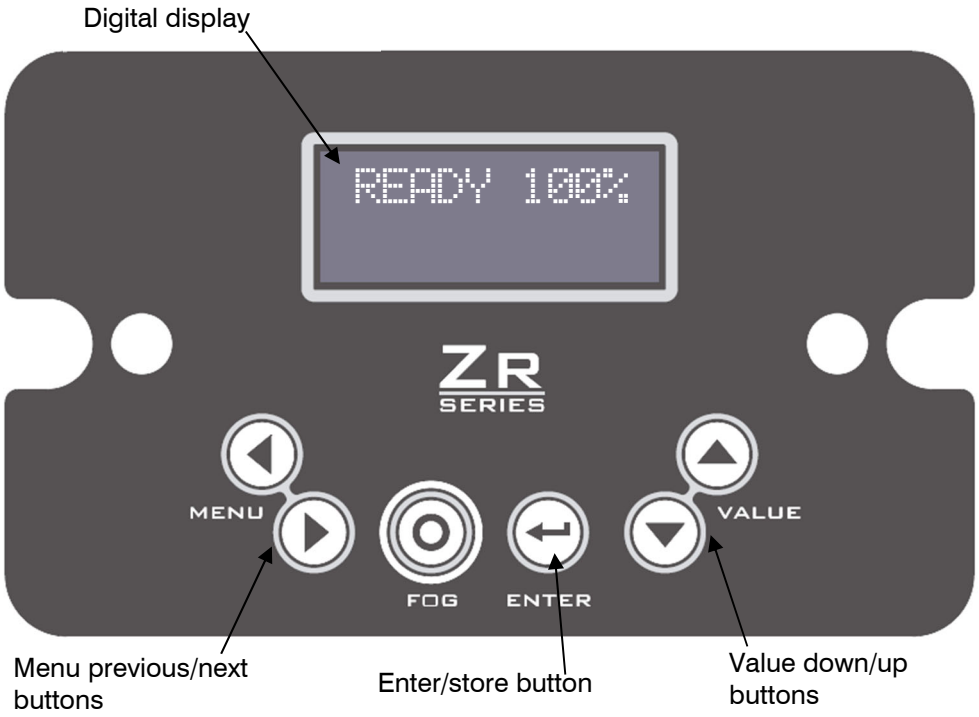
To obtain maximum output, wait another few minutes after the READY indication is shown, as the machine continues to heat to full operating temperature and fog output is reduced while the unit is heating up.

Control settings

Overview

The **Integrated Digital Remote Control** on the rear of the machine allows you to configure it using option menus.

The Integrated Digital Remote Control may be removed from the machine and used at a distance by removing the two hand-wheel bolts either side of the display. The display cable may be extended up to 25 m (82 ft.) using standard 3-pin XLR cable.



Setting Run modes

The RUN MODE menu sets the operational mode of the machine, and can also be used to shut down the heater. Settings are OFF (shutdown, heaters off), STANDBY (heaters remain on), TIMER or CONTINUOUS mode.

Use the Menu Previous / Next buttons to select the RUN MODE option.
Use the Up/Down buttons to select OFF, STANDBY, TIMER, or CONTINUOUS.
Press the ENTER button to store the setting. The display shows SET.

Selecting OFF will disable the heaters on the unit.

Setting Fog output density

Use the Menu Previous / Next buttons to select the FOG LEVEL option.
Use the Up/Down buttons to select the density from 0% - 100%.
Press the ENTER button to store the fog setting. The display shows SET.

If you want to temporarily change the fog density, do not press ENTER. The fog setting will go back to its stored value next time the machine is powered up. This applies to all options.

Setting the Timer

The timer function can be utilized to set the machine's output to automatically cycle between an 'On' time interval and an 'Off' time interval. This mode is useful for maintaining a low level of fog in smaller spaces.

First set the RUN TIME and OFF TIME values from the menu using the Menu Previous / Next buttons. The timer values are displayed in the range of 0-99 seconds. Select an interval for the 'On' time; Press ENTER to store the value, SET is displayed. Follow the same procedure for the 'Off' timer.

Next select the Fog output value from the FOG LEVEL menu and press Enter, SET is displayed.

Finally select the TIMER option from the RUN MODE menu, press ENTER, SET is displayed. The timer will cycle continuously until the run menu option is changed.

Using the Settings menu

Options such as the DMX start address, display brightness, Host/Client linking, priming, factory reset and temperature control (ZR45 only) are found in the SETTINGS menu.

Use the Previous / Next buttons to select the SETTINGS option.
Press the Enter button to go to the SETTINGS menu.
To return to the main menu, use the Previous / Next buttons to select EXIT and press ENTER.

Setting the DMX start address

Use the Previous / Next buttons to select the DMX option from the SETTINGS menu.
Use the Up/Down buttons to set the DMX start address from 001 to 511. If you hold down the button the address will count up or down more quickly.
Press the ENTER button to store the address setting.
The machine will automatically respond to a DMX controller whenever it is connected.

When using in a DMX system ensure the LINK MODE menu is set to RECEIVE (the default setting) to avoid causing DMX errors to other devices on the system.

Alternatively, the DMX start address can be set via RDM.

Display back light setting

You can set the brightness of the display backlight using the BACK LIGHT option.

Use the Previous / Next buttons to select the BACK LIGHT option from the SETTINGS menu.
Use the Up/Down buttons to change the option to LOW, NORM or HIGH.
Press the ENTER button to store the setting.

Setting the host-client link mode

It is possible to control several machines from one digital remote control. The machine with the remote plugged into it is set as the Host. The other machines are set as Clients. The machines are interconnected with DMX cabling.

Use the Previous / Next buttons to select the LINK MODE option from the SETTINGS menu.
Use the Up/Down buttons to select RECEIVE (client unit) or SEND (host unit).
Press the ENTER button to store the link setting.

The machine should be set to SEND only if it is running as a host. If running as a client, stand-alone or DMX controlled it should be set to RECEIVE. If a machine set to SEND is connected to an active DMX system, the DMX will be corrupted causing flickering of lights and other strange symptoms.

Priming the machine after fluid out

If the machine runs out of fluid it will automatically shut down and show FLUID OUT on the display to prevent damage to the pump(s). To suck the new fluid back into the machine and reset the FLUID OUT error, replace/refill the fluid reservoir and use the prime function.

Use the Previous / Next buttons to select the PRIME option from the SETTINGS menu.
Use the Up/Down buttons to change the option to YES.
Press the ENTER button to start the priming function.

The pump(s) will operate at full power for a short time to purge air from the pipes inside the unit.
To exit this menu if you decide not to activate the Prime function, select NO and press ENTER.
To terminate a running prime operation, enter YES and press enter.
Prime can also be initiated and terminated from DMX channel 2 (in two channel mode)

Resetting options to factory settings

The factory settings configure a standard mode of operation for the machine.

Use the Previous / Next buttons to select the RESET option from the SETTINGS menu.
Use the Up/Down buttons to change the option to YES.
Press the ENTER button to reset all options.

To exit this menu if you decide not to reset the options, select NO and press ENTER.

The factory settings are:

option	setting
FOG LEVEL	50%
TIMER ON	10 seconds
TIMER OFF	20 seconds
RUN MODE	STANDBY
DMX	001
BACK LIGHT	NORM
LINK MODE	RECEIVE1C
PRIME	NO
TEMPERATURE*	NORM

*ZR45 Only

DMX control

Overview

DMX is a digital control protocol widely used in entertainment and architectural lighting. Any DMX controller meeting the DMX-512A standard, may be used to control the machine. A controller that is RDM compliant will be able to program and monitor some settings of the machine remotely.

When a DMX signal is present, the machine's stand-alone functions do not work. To control the machine locally the DMX controller must be powered off or disconnected.

If the DMX signal is removed (controller turned off or unplugged), the machine will revert to its previously stored RUN MODE settings.

If the machine was set to OFF, it will revert to this state.
If the machine was set to STANDBY, it will revert to this state.
If the machine was set to TIMER, it will revert to this state.
If the machine was set to CONTINUOUS, it will revert to this state.

Connection

The JEM ZR series machine provides 5-pin XLR connectors on the rear of the machine for DMX connection.

For best results, use cable designed for high speed digital data transmission.

DMX functions

The JEM ZR series DMX start address must match the DMX start address assigned to it on your controller. To set the address, see "Setting the DMX start address" on page 16. The machine has two DMX personalities, requiring one or two DMX channels. The mode is set using the two RECEIVE options in the LINK menu, or via RDM. (Prior to firmware 1v4, only 1 channel was used.)

When the machine is at running temperature and is under DMX control it displays DMX (+ the current DMX base address).

The DMX control values are shown in the table below.

1 Channel Mode (RECEIVE 1C)

Channel	DMX value range	Function	Macro description	Default value
1 Fog output level	0-12	Idle range	None	0
	13- 240	Output 0-100%		
	241 -255	Output 100%		

2 Channel Mode (RECEIVE 2C)

Channel	DMX value range	Function	Macro description	Default value
1 Fog output level	0-12	Idle range	None	0
	13- 240	Output 0-100%		
	241 -255	Output 100%		
2 Control functions	0-50	No function		
	51-100	Prime	Primes the machine	
	101-150	No function		
	151-200	OFF-Shutdown	Switches off heating system, machine in OFF mode	
	201-255	Standby - Heaters on	Switches on the heating system, machine in Standby	

To activate a control function, the DMX value must be held in the correct range for 5 seconds.

Setting options by RDM

You can remotely configure the fixture over DMX using RDM.

A full list of the RDM functions that the machine supports, is given at the end of this section. These functions are generally referred to, using the more specific term ‘PIDs’ or ‘Parameter IDs’.

Scanning for RDM devices on the data link

Before you can communicate with fixtures using RDM, you must send a scan command (also called a device discovery command) to all the devices on the data link so that the RDM controller can identify them. It does this by retrieving each device’s factory-set unique identifier (UID). This process can take some time depending on the number of devices on the link.

To identify the fixtures on the link:

1. Check that the fixtures are correctly connected to the RDM controller on the data link and that power is applied to all fixtures.
2. Give the controller time to identify the devices on the link and prepare for communication with the devices.

Getting status and setting options by RDM

The status and options listed in the table below can be read and set by RDM. You can set an option on one fixture by sending a unicast RDM command to that one fixture only, or you can set the same option on all the fixtures on the data link by sending a broadcast RDM command to all the devices on the link. For status reading, you can only use unicast RDM to read information from an individual fixture.

RDM functions

As a minimum, the fixture supports the following RDM functions:

Device discovery

DISC_UNIQUE_BRANCH
DISC_MUTE
DISC_UN_MUTE

Device management

	GET	SET
DEVICE_INFO	✓	
IDENTIFY_DEVICE	✓	✓
DMX_START_ADDRESS	✓	✓
SOFTWARE_VERSION_LABEL	✓	
SUPPORTED_PARAMETERS	✓	
PARAMETER_DESCRIPTION	✓	
COMMS_STATUS	✓	
QUEUED_MESSAGE	✓	
STATUS_MESSAGES	✓	
DEVICE_MODEL_DESCRIPTION	✓	
MANUFACTURER_LABEL	✓	
DEVICE_LABEL	✓	✓
FACTORY_DEFAULTS		✓
DMX_PERSONALITY	✓	✓
DMX_PERSONALITY_DESCRIPTION	✓	
DEVICE_HOURS	✓	
BOOT_SOFTWARE_VERSION_ID	✓	
BOOT_SOFTWARE_VERSION_LABEL	✓	
SLOT_DESCRIPTION	✓	✓
RESET_DEVICE		✓

The standard status update mechanism is the QUEUED MESSAGE function.
This allows the user to recover status messages such as FLUID_OUT.
The following status messages are available:-

STS_OVERTEMP	Error code
STS_CAL_FAIL	Error code
STS_LOW_FLUID	Advisory
STS_NOT_READY	Advisory
STS_READY	Advisory

Approved Fog Fluid types

The JEM ZR series machines must only be used with the JEM fog fluids listed below. JEM supplies high quality fog fluids that are based on ultra-pure deionized water. No other fluid is suitable for use.

RUSH & THRILL Fog Fluid

RUSH & THRILL Fog Fluid is a specially formulated water-based fog formula and is recommended for use with applicable JEM fog effect generators. It is perfect for medium-density airborne fog effects with medium hang time and leaves little to no residue behind. RUSH & THRILL Fog Fluid is designed as an economy fluid that is suitable for use in nightclubs, bars, stage and outdoor events.

ZR45

JEM Pro-Fog Fluid, Extra Quick Dissipating*

JEM Pro-Fog Fluid, Extra Quick Dissipating is a specially formulated water-based fog fluid for use in applicable JEM fog machines. JEM Pro-Fog Fluid, Extra Quick Dissipating fluid is specifically designed to simulate steam or CO_2 effects such as 'cyro' cannons and jets. JEM Pro-Fog Fluid, Extra Quick Dissipating creates a semi-translucent white burst of fog, but dissipates ultra-fast to mimic the characteristics of CO_2.

JEM Pro-Fog Fluid, Extra Quick Dissipating is ONLY suitable for use with the JEM ZR45 with the temperature setting adjusted to Low.

JEM Pro-Fog Fluid, Quick Dissipating

JEM Pro-Fog Fluid, Quick Dissipating is a water-based, fast dissipating fog fluid specially designed for use in JEM fog machines. In a studio or theatre environment, a lighter, faster dispersing fog is often preferred. JEM Pro-Fog Fluid, Quick Dissipating offers a less dense effect compared to the benchmark JEM Pro-Fog Fluid and is therefore less likely to interfere with video and film camera focus.

JEM Pro-Fog Fluid

JEM Pro-Fog Fluid is the industry standard water-based fog fluid specially designed for use in all JEM fog machines. This benchmark fluid is the automatic choice of most users and is the most specified fog fluid on the market. JEM Pro-Fog Fluid produces a dense white airborne effect with a medium length dispersal time. Its medium to high index of refraction makes this formula ideal for all effects. JEM Pro-Fog Fluid is ideal for use in clubs, theatres and touring applications where consistent results are required for each and every performance.

JEM Pro-Fog Fluid, High Density

JEM Pro-Fog Fluid, High Density produces a very long lasting water based fog effect. Its longevity means that foggers must be programmed for short, less frequent bursts to avoid saturation of the atmosphere. By following this instruction, fluid consumption can be reduced dramatically. JEM Pro-Fog Fluid, High Density is best described with the characteristics of high density, white airborne fog, with long hang time; it has a slow evaporation rate and high index of refraction. In environments unaffected by air conditioning and extraction, JEM Pro-Fog Fluid, High Density can be expected to dissipate 30% slower than JEM Pro-Fog Fluid. This makes is well suited for scenic obscuring, strobes, and 'white-out' conditions-which is why it is often specified for military and fire/EMS training simulations in addition to the conventional performance arts based applications.

DANGER! The JEM ZR series machines can run safely only on the specific fog fluids they are designed for. Use ONLY the JEM fog fluids designated in this manual. NEVER use any other type of fluid, or toxic gas may be produced. You will probably also cause damage to the machine that will invalidate the product warranty. Do not dilute fog fluid with water or any other liquid. Discard fog fluid if it becomes contaminated. Abide by local regulations when disposing of waste fluid.

Approved Discontinued Fluids:

Pro Steam Simulation (JEM ZR45 only)
Pro Smoke Studio (DX)
Pro Smoke Super (ZR)
Pro Smoke Super, Freshly Fragranced (ZR)
Pro Smoke HD (SP)
i-Fog Fluid
RUSH Fog Fluid
RUSH ELX Smoke Fluid
Regular DJ Fluid (DJ)

ZR45 Temperature Menu

The different fluid types listed require correct selection of the relevant temperature setting in the TEMPERATURE sub-menu of the SETTINGS menu. Select the required temperature and press Enter to store.

The selected temperature setting will remain after power off and is indicated on the display whilst in standby (TEMP=NORM) and also shows during manual operation/DMX control (T=N).

TEMPERATURE Setting	Fluid Type
HIGH	JEM Pro-Fog Fluid, High Density **Discontinued Fluids:** Pro Smoke High Density (SP) i-Fog Fluid
NORM	JEM Pro-Fog Fluid, Quick Dissipating JEM Pro-Fog Fluid RUSH & THRILL Fog Fluid **Discontinued Fluids:** Pro Smoke Super (ZR) Pro Smoke Studio (DX) RUSH Fog Fluid RUSH ELX Smoke Fluid Regular DJ Fluid (DJ)
LOW	JEM Pro-Fog Fluid, Extra Quick Dissipating **Discontinued Fluids:** Pro Steam Simulation

Basic service

Before servicing the JEM ZR series machines, read and observe all the precautions listed in “Safety information” on page 5. Any service not described in this section must be carried out by a JEM authorized service technician.

Cleaning

Excessive dust, fog fluid, and dirt build-up will degrade performance and cause overheating and damage to the machine that is not covered by the product warranty. To maintain adequate cooling, dust must be cleaned from the outer casing and air vents of the machine periodically.

Isolate the machine from power and allow to cool completely before cleaning. The fog output nozzles remain hot for a period after use.

- Remove dust from the air vents with a soft brush, cotton swab, vacuum, or compressed air.
- Clean fog fluid residues from the fog output of the machine using a damp cloth.
- Clean the outer casing with a damp cloth only.

JEM Pro-Clean and Storage Fluid

JEM Pro-Clean & Storage Fluid is specially designed for optimizing performance while providing longevity of any effect machine. JEM Pro-Clean & Storage fluid is the ultimate cleaning solution for JEM atmospheric effect heat exchangers. This advanced preventative maintenance fluid has been utilized by JEM service technicians for years of both cleaning and storing effect machines. Utilizing JEM Pro-Clean & Storage Fluid on a regular basis reduces clogging and further extends the life of your JEM atmospheric effect machines. By using the highest grade chemicals available while remaining eco-friendly, JEM fluids are both effective and safe.

Instructions for use

Use fluid directly from container, **do not dilute**. Remove cap and safety seal; if inner safety seal has been tampered with, return product to point of purchase. Disconnect effect machine from power source before filling reservoir. When possible, remove reservoir from machine and carefully fill reservoir to desired level, taking care not to overfill or spill. Wipe up any spilled fluid with a damp cloth. Replace cap on container and store upright in a secure location.

Cleaning and Preventative Maintenance Procedure:

Use JEM Pro Clean and Storage Fluid after every 200 hours of operation or monthly depending on usage and duty cycle. In a well-ventilated area temporarily connect JEM Pro Clean and Storage Fluid to the effect machine being serviced or fill the machines provided fluid reservoir. Allow the machine to fully heat. When machine is ready activate the machine to run continuously for 30-45 minutes; use a timer function if available.

Storage Procedure:

Perform the above cleaning and preventative maintenance procedure. After procedure is completed simply run the machine until all fluid has been visibly purged from the fluid inlet tubing to prevent leaks and seepage.

Fuse replacement

The main fuse for the machine is located adjacent to the power inlet on the rear panel. There is also a T3.15 A fuse located on the electronics board inside the unit which protects the supply to the pump.

DANGER! Disconnect the power supply before removing any covers or changing fuses. Live parts inside!

Rear panel fuse:
ZR25
120 V = 10 A/250 V
230 V = 6.3 A/250 V
ZR35
120 V = 15 A/250 V
230 V = 10 A/250 V
ZR45
120 V = 20 A/250 V
230 V = 12.5 A/250 V

Replace fuse only with one of exactly the same size and rating. Contact JEM Service and Support if the fuse blows repeatedly.

To replace the internal fuse, disconnect the power cord from the supply, unscrew the screws holding the top cover of the unit and remove the cover. The electronics board is located in the side compartment.

Troubleshooting

Problem	Probable cause(s)	Suggested remedy
Machine will not produce fog when remote control set to **CONTINUOUS** or fog button pressed	Machine not at operating temperature	Wait until HEAT message no longer shown
	FOG option set to 0	Increase setting
	Machine in timer mode and TIMER ON set to 0	Increase setting
	DMX signal present	Disconnect or turn off DMX controller
Machine can be fired from remote control, but not by DMX controller	DMX address setting incorrect	Change DMX address (page 16)
	Poor connection in DMX line	Check DMX cables and connections
	LINK menu is set to SEND	Set LINK menu to RECEIVE
Fog output is weak	Machine requires priming	Use PRIME option to prime the machine (page 17)
Wet, greasy, non-uniform fog output, fluid drips or spits from nozzle, or very loud noise when firing machine	Incompatible fog fluid	Use approved fluid!
Machine appears dead	Mains fuse blown	Replace fuse (page 25)
	No power at AC cable inlet	Check power cable and circuit breaker
Machine causes DMX errors to occur on other units when connected to a DMX system	LINK menu is set to SEND	Set LINK menu to RECEIVE
Loss of control from remote	Communication issue between remote and machine	Check cable connection between remote and machine

Status messages

message	reason
OFF	The heaters are Off, the unit is shut down.
HEAT	The unit is heating up to operating temperature.
READY	The heater is at operating temperature, but Fog is not turned on (RUN set to STANDBY).
DMX	The heater is at operating temperature and the unit is under DMX control.
FLUID OUT	Run out of fluid. Refill the fluid reservoir and operate the prime function in the SETTINGS menu
CALIBRATION ERROR	The machine has detected an error with its calibration settings and will not operate. Contact JEM Service and Support.
SYSTEM ERROR	The machine has detected an error in the temperature sensor and will not operate. Contact JEM Service and Support.

Technical Specifications

Physical

ZR25

Length ..... 485 mm (19.1 in.)
Width ..... 335 mm (13.2 in.)
Height ..... 242 mm (9.6 in.)
Height with hanging bracket ..... 333mm (13.2 in.)
Weight, dry ..... 11.2 kg (24.7 lb.)
Weight, filled ..... 13.7 kg (30.2 lb.)

ZR35

Length ..... 590 mm (23.3 in.)
Width ..... 395 mm (15.6 in.)
Height ..... 264mm (10.4 in.)
Height with hanging bracket ..... 351 mm (13.9 in.)
Weight, dry ..... 15.1 kg (33.3 lb.)
Weight, filled ..... 20.1 kg (44.3 lb.)

ZR45

Length ..... 602 mm (23.1 in.)
Width ..... 395 mm (15.6 in.)
Height ..... 306 mm (12.1 in.)
Height with hanging bracket ..... 393 mm (15.5 in.)
Weight, dry ..... 17.7 kg (39.1 lb.)
Weight, filled ..... 22.7 kg (50.0 lb.)

Performance

ZR25

Continuous effect output
Ready time 7-minutes
Coverage volume ..... 600 m^3 (21,189 ft^3) per minute
Fluid consumption (max.) ..... 100 ml per minute
Maximum operating time, maximum output, 2.5 l of fluid ..... 1.2 hours

ZR35

Continuous effect output
Ready time 9-minutes
Coverage volume ..... 800 m^3 (28,252 ft^3) per minute
Fluid consumption (max.) ..... 140 ml per minute
Maximum operating time, maximum output, 5 l of fluid ..... 1.57 hours

ZR45

Continuous effect output
Ready time 10-minutes
Coverage volume ..... 1300 m^3 (45,909 ft^3) per minute
Fluid consumption (max.) ..... 210 ml per minute
Maximum operating time, maximum output, 5 l of fluid ..... 1.18 hours

Control and programming

Control options ... Integrated Digital Remote Control, DMX, host/client link mode
Control parameters ..... Continuous or timer-controlled output
Fog ..... Variable output control, 0-100%
DMX channels ..... 1 or 2, depending on personality
DMX compliance ..... ANSI E1.11 - USITT DMX512-A
RDM compliance ..... ANSI/ESTA E1.20 RDM

Construction

Housing ..... Steel & aluminum
Hanging bracket ..... Integrated yoke with safety attachment point
Color ..... Black
Heat exchanger, ZR25 ..... 1150 W, thermally protected
Heat exchanger, ZR35 ..... 1500 W, thermally protected
Heat exchanger, ZR45 EU ..... 2000 W, thermally protected
Heat exchanger, ZR45 US ..... 1800 W, thermally protected
Fluid pump, ZR25, ZR35 ..... Oscillating piston, high pressure
Fluid pump, ZR45 ..... Dual oscillating piston, high pressure
Fluid management ..... Fluid out sensing, sealed for transportation
Fluid reservoir, ZR25 ..... 2.5 l drop-in reservoir with quick-connect fitting
Fluid reservoir, ZR35 ..... 4 or 5 l drop-in reservoir with quick-connect fitting
Fluid reservoir, ZR25 ..... 5 l drop-in reservoir with quick-connect fitting
External fluid control ..... Fluid sensing
Remote control ..... Integrated digital remote with 5 m (16.4 ft.) cable, 3-pin XLR

Installation

Mounting ..... Standing or hanging
Clearance around machine ..... 100 mm (4 in.)
Orientation ..... Up to +/- 40° from horizontal

Connections

AC Power ..... Neutrik PowerCON TRUE1
DMX, Link mode in/out ..... 5-pin locking XLR
Remote control ..... 3-pin locking XLR
Firmware ..... AVR socket

Electrical

AC power (EU models) ..... 220-240 V nominal, 50/60 Hz
AC power (US models) ..... 100-130 V nominal, 50/60 Hz
ZR25
Main fuse (220-240V power) ..... 6.3A/250 V
Main fuse (115-125V power) ..... 10A/250 V
ZR35
Main fuse (220-240V power) ..... 10A/250 V
Main fuse (115-125V power) ..... 15A/250 V
ZR45
Main fuse (220-240V power) ..... 12.5A/250 V
Main fuse (115-125V power) ..... 20A/250 V

Typical Power and Current

ZR25 (EU model) ..... 1200 W, 5.3 A*
ZR25 (US model) ..... 1050 W, 8.8 A*
ZR35 (EU model) ..... 1550 W, 6.8 A*
ZR35 (US model) ..... 1450 W, 12.1 A*
ZR45 (EU model) ..... 2100 W, 9.2 A*
ZR45 (US model) ..... 1800 W, 15 A*
**Measurements made at nominal voltage. Allow for a deviation of +/-10%*

Thermal

Minimum ambient temperature (Ta min) ..... 5°C (41°F)
Maximum ambient temperature (Ta max) ..... 40°C (104°F)
Exterior surface temperature, steady state, at 20°C ambient ..... 30°C (86°F)
Maximum nozzle temperature ..... 290°C (554°F)

Approvals

EU Model
EU safety: ..... EN 60 335-1
EU EMC: ..... EN 61000-6-3, EN 62233
EU Immunity: ..... EN 61000-6-1
Australia/NZ (pending) ..... RCM
United Kingdom ..... UKCA
US Model
US safety ..... UL 998
Canada safety ..... CSA C22.2 No.104

Included items:
User manual ..... P/N 35010042
Fluid reservoir ZR25, 2.5 l ..... P/N 34300521
Fluid reservoir ZR35, 5 l ..... P/N 34300506
Fluid reservoir ZR45, 5 l ..... P/N 34300506
JEM ZR Series Integrated Digital Remote Control ..... P/N 55765048
ZR25/35/45 EU, power input cable, PowerCON TRUE1, stripped ends, 3 m (9.8 ft.) ..... P/N 11501043
ZR25 US, power input cable, 10A, PowerCON TRUE1, molded NEMA 5-15P, 3 m (9.8 ft.) ..... P/N 11501044
ZR35 US, power input cable, 15A, PowerCON TRUE1, molded NEMA 5-15P, 3 m (9.8 ft.) ..... P/N 11501045
ZR45 US, power input cable, 20A, PowerCON TRUE1, molded NEMA 5-20P, 2 m (6.6 ft.) ..... P/N 11501046

Accessories

JEM ZR25 Ducting System, with 5 m (16.4 ft.) ducting ..... P/N 92625012
JEM ZR35 Ducting System, with 5 m (16.4 ft.) ducting ..... P/N 92625013
JEM ZR45 Ducting System, with 5 m (16.4 ft.) ducting ..... P/N 92625014

Approved Fluids*
JEM Pro-Fog Fluid, Extra Quick Dissipating
JEM Pro-Fog Fluid, Quick Dissipating
JEM Pro-Fog Fluid
JEM Pro-Fog Fluid, High Density
RUSH & THRILL Fog Fluid
JEM Pro-Clean and Storage Fluid

Approved Discontinued Fluids
Pro Smoke High Density (SP)
i-Fog Fluid
Pro Smoke Super (ZR)
Pro Smoke Studio (DX)
RUSH Fog Fluid
RUSH ELX Smoke Fluid
Regular DJ Fluid (DJ)
Pro Steam Simulation Fluid (ZR45 only)
JEM Pro Clean Supreme

Service Tools

Epsilon 5 AVR Programmer ..... P/N 50502004
Temperature Calibration Box ..... P/N 92620005

**Various sizes available – contact your dealer or see jemprofessional.com for details.*

Ordering information

JEM ZR25, US ..... P/N 92215330
JEM ZR25, EU ..... P/N 92215320
JEM ZR35, US ..... P/N 92215350
JEM ZR35, EU ..... P/N 92215340
JEM ZR45, US ..... P/N 92215370
JEM ZR45, EU ..... P/N 92215360

Specifications subject to change without notice. For the latest product specifications, see www.jemprofessional.com

Disposing of this product

JEM products are supplied in compliance with Directive 2012/19/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), where applicable. Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of JEM products.