

**Magnum 650**  
**Magnum 850**  
user manual

**Martin** 

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# Safety information

The following symbols are used to identify important safety information:



Caution! Safety hazard. Risk of personal injury.



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 system 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 Martin Service.

## 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 Magnum smoke 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 Martin Service 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 Martin Service for assistance.
- Disconnect the machine from AC power before servicing and when not in use.
- This system 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 system out of service and contact Martin for advice.
- Do not remove the covers or attempt to repair a faulty machine. Refer any service not described in this manual to Martin.

- Do not operate the machine if any parts are damaged, defective or missing.
- Moisture and electricity do not mix. Do not aim smoke output at electrical connections or devices.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

### Preventing burns and fire



- The smoke 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 1 meter (39 inches) away from the smoke output nozzle.
- Do not touch the smoke output nozzle during or after use – it becomes extremely hot and remain hot for several hours after the machine has been shut down.
- Smoke output contains glycol, a flammable alcohol that burns with an almost invisible blue flame. Do not point smoke 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 100mm (4 inches) around the machine.
- Provide a minimum free space of 500mm (20 inches) around fans and air vents and ensure free and unobstructed air flow to and around the machine.
- Keep the machine at least 600mm (24 inches) away from combustible and heat-sensitive materials.
- Do not operate the machine if the ambient temperature ( $T_a$ ) 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



- Ensure that the surface on which the machine is located or installed can safely hold the weight of the machine.
- This appliance 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 appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- Do not install the machine over areas where people are present.
- Verify that the machine's temperature setting is suitable for the type of fluid in use whenever changing fluid or resetting the default menu values.
- Smoke machines 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 2m visibility in areas where smoke is being produced.

- Smoke fluid contains food-grade glycols in solution but may present health risks if swallowed. Do not drink it. Store it securely. If eye contact occurs, rinse with water. If fluid is swallowed, give water and obtain medical advice.

### **Preventing breathing problems**



- A smoke machine can operate safely only with the smoke fluid it is designed for. Use the machine only with fluids specified under “Smoke fluid options” on page 17 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 smoke in confined or poorly ventilated areas.
- Do not expose people with health problems (including allergic and/or respiratory conditions such as asthma) to smoke output.
- Do not point smoke output directly at a person’s face or at face height.

# Product overview

## Product description

The Magnum 850 and Magnum 650 smoke machines from Martin provide a uniquely flexible and convenient solution to a wide range of smoke requirements whether permanently installed or taken on the road.

The machines feature a unique new design that encompasses what the Magnum range is all about: state of the art technology, high quality and ruggedness.

The Magnum 650 delivers a heavy punch of fog. It's tough and rugged enough to meet the demand of mobile discos and parties.

The Magnum 850 is a higher power fogger suitable for larger venues or night clubs.



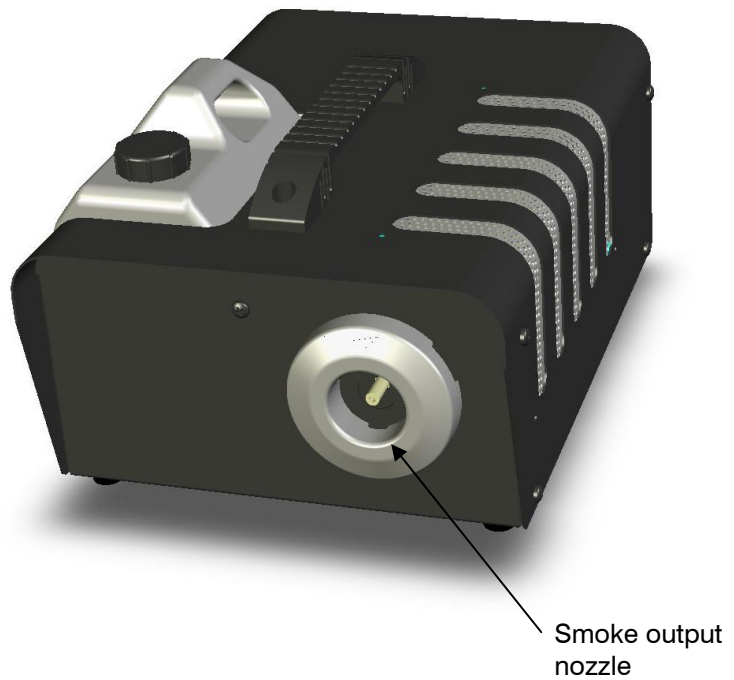
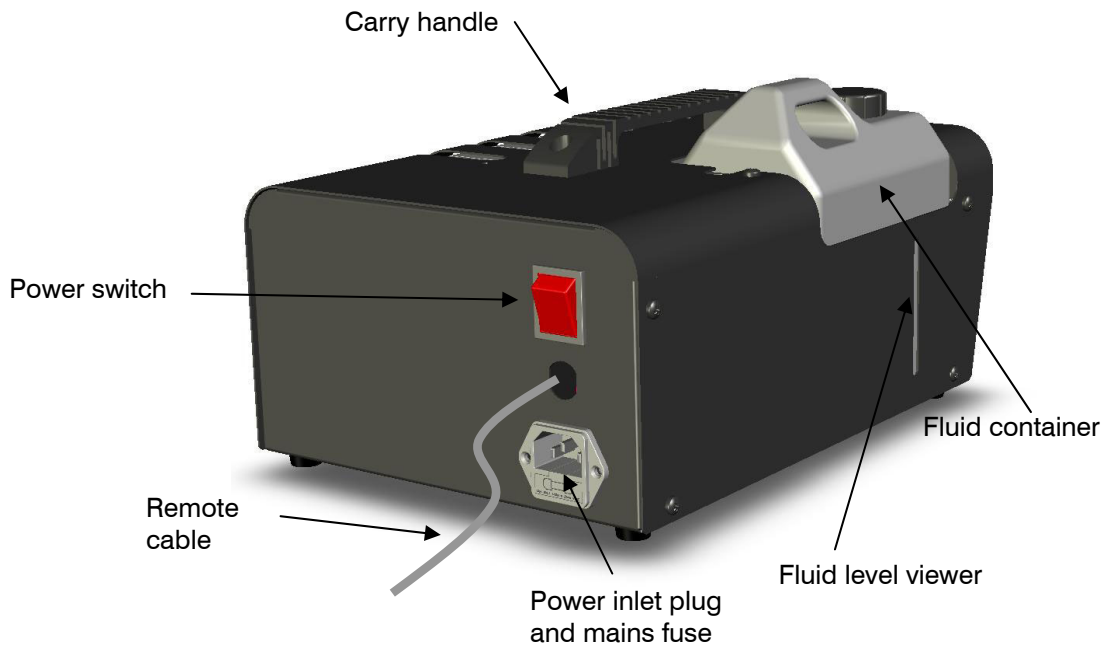
*This manual contains instructions for both the Magnum 650 and Magnum 850 machines. Where the Magnum 850 is different, you will see this symbol.*

Congratulations on your purchase of the Magnum smoke machine from Martin. Details of the full range of Martin products are available on our website at [www.martin.com](http://www.martin.com).

## Features at a glance

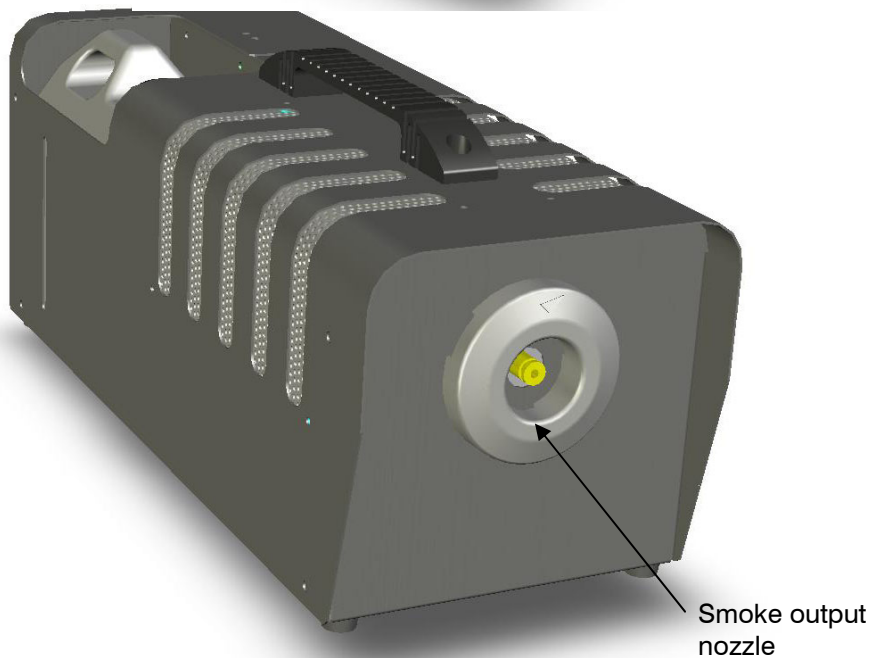
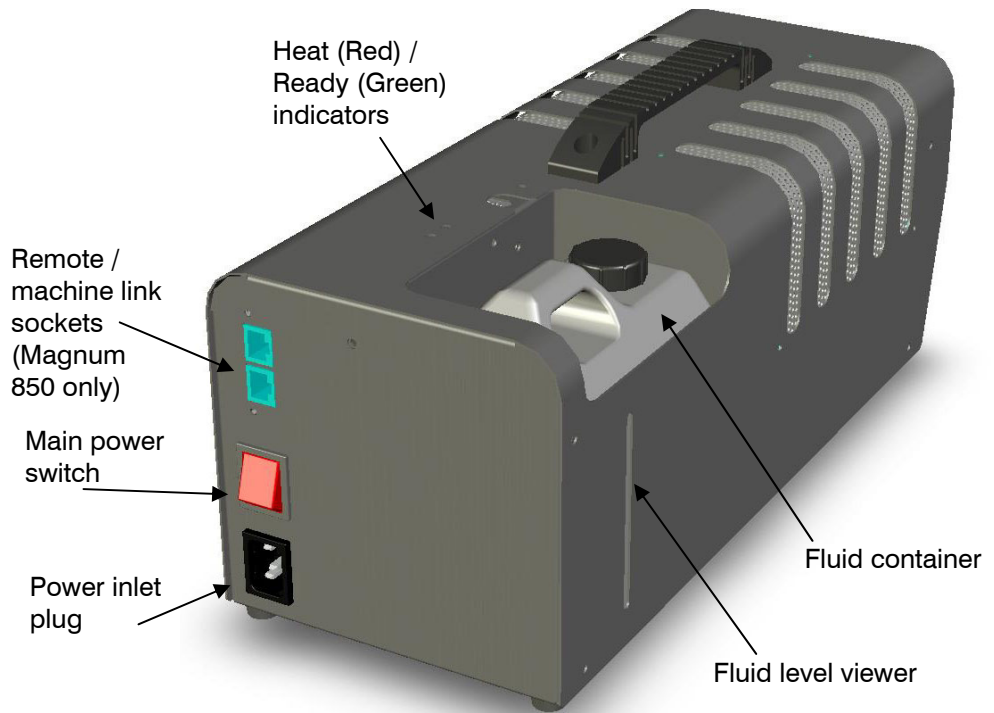
- Attractive and rugged design
- Machine to machine link (Magnum 850 only)
- Continuous operation (at reduced output) (Magnum 850 only)
- 730W (Magnum 650) / 790W (Magnum 850)
- 1 litre fluid capacity
- Pushbutton remote control (hardwired on Magnum 650)
- Optional timer remote (Magnum 850 only)
- Thermal fault protection device

Product details – Magnum 650



	<p>WARNING HIGH TEMPERATURE VAPOUR AND SURFACES</p>
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**Product details – Magnum 850**



	<p><b>WARNING HIGH TEMPERATURE VAPOUR AND SURFACES</b></p>
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## 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 smoke output.

Fill the fluid tank with MARTIN/JEM approved fluid (see page 17).

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

Magnum 650: 2.66A at 230V (EU) or 6.1A at 120V (US)

Magnum 850: 3.4A at 230V (EU) or 6.6A at 120V (US)

Turn the machine on, the on/off button and the remote control light will illuminate. From cold the machine will take approximately five minutes to reach operating temperature. When the light on the remote control has gone out the machine is ready to use. When the light on the remote control comes on again it indicates that the machine is reheating, this will take approximately two minutes.



If using the Magnum 850 connect the remote control to the REMOTE IN connector on the rear panel. The remote control is permanently connected to the Magnum 650. Turn on the power switch. The red Heat indicator on the remote and the top of the unit will light. After about 7-10 minutes the green Ready indicator on the remote and the top of the unit will light. The machine is then ready to produce fog. To obtain maximum fog output wait another couple of minutes for the Heat indicator to go out.

## Making fog

Once the machine has heated up, hold the button on the remote to start the fog output.

# Installation and setting up



**DANGER!** DO NOT operate the Magnum smoke machine until you have read and observed all the precautions listed under “Safety information” on page 3.

## Location

The Magnum smoke machine should be located on the floor or a suitably robust surface.

The machine can operate in any orientation from 45 degrees upwards to 45 degrees downwards. Steeper tilting may cause fluid leakage.

Do not suspend the machine over areas where people will be underneath.

Ensure that there is at least 100mm clearance all round the machine and at least 600mm in front of the smoke output.

## AC power

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



**DANGER!** Make sure the power plug is correctly rated:

- For EU (230V) use fit a plug rated 6 amp minimum
- US (120V) models must be fitted with a plug rated 10 amp 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 Magnum smoke machine to power, verify that the AC supply is adequately dimensioned for the current draw of the machine. The machine requires:

Magnum 650: 2.66A at 230V (EU) or 6.1A at 120V (US)

Magnum 850: 3.4A at 230V (EU) or 6.6A at 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 Martin Service for assistance.

## Setting up

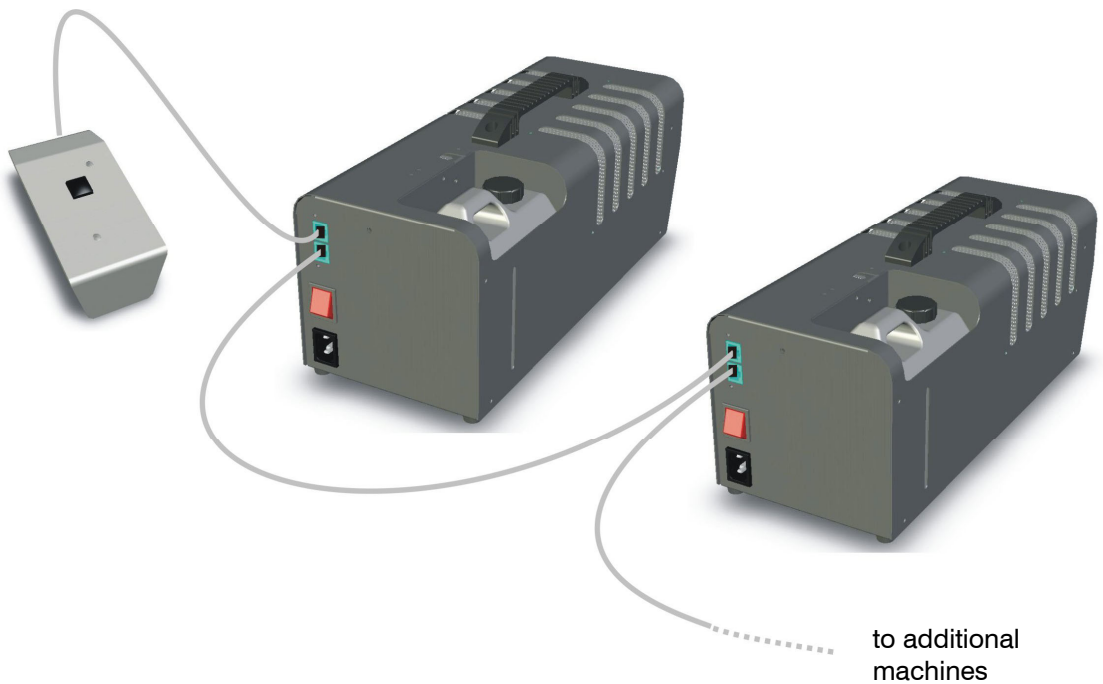
Fill the fluid container with MARTIN-approved fluid (see page 17).



*If using the Magnum 850 connect the remote control to the REMOTE IN connector on the rear panel. The remote control is permanently connected to the Magnum 650.*

If you are operating several machines using the machine-to-machine link function, connect up the machines in a daisy-chain using RJ45 (computer network) type cables. The maximum total length of cable, including the remote cable, is 50 metres.

Machine-to-machine link is not available on the Magnum 650.



Do not connect a computer network to the RJ45 remote / link sockets on the Magnum 850. Although the connectors are compatible, the electrical signals are not, and equipment may be damaged.

## Final checks

Before applying power to the Magnum smoke machine, verify the following:

- the machine is safely located or installed and meets the location requirements stated on page 10
- the operator is familiar with, and able to comply with, the requirements for safe operation listed on page 3
- the smoke fluid is one of the genuine Martin fluids listed under “Smoke fluid options” on page 14
- the machine is electrically grounded (earthed)
- the AC power distribution circuits and lines are adequately rated for the current load

## Turning on the power

Turn on the main power switch located next to the power cable inlet. The red Heat indicator on the remote will illuminate.



Turn on the main power switch located next to the power cable inlet. The red Heat indicator on the remote and on top of the machine will illuminate for about 7-10 minutes as the machine heats up to operating temperature. When the green Ready indicator comes on, the machine is ready to make fog.



*To obtain maximum output, wait another few minutes for the red Heat indicator to go off, as fog output is reduced while the unit is heating up.*

## Operating with remote

The unit is controlled using the remote control. Press the button to generate fog.



## Priming the machine after fluid out

If the machine runs out of fluid it may not pump properly after refilling the fluid due to airlocks in the fluid pipework.

To prime the machine, hold down the FOG button and keep the button held until the fog output is strong and steady.



If the machine is left to run when out of fluid, damage will be caused to the pump which may cause premature pump failure.

## What the status lights mean

The red heat light on the remote control has the following meanings.

on	Machine is heating but is not yet up to operating temperature
off	Machine is either ready to fire or not powered (check mains switch light for status)



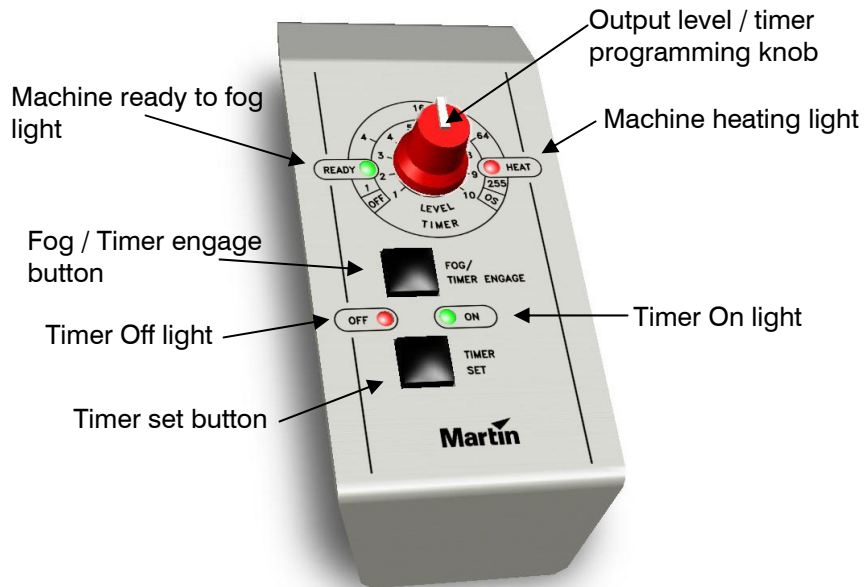
The red/green Heat / Ready lights on the top of the machine have the following meanings.

HEAT+READY	meaning
no lights	Machine is not powered
heat	Machine is heating but is not yet up to operating temperature
heat + ready	Machine is heating and has reached minimum operating temperature. Fog output level may be reduced while heating
ready	Machine has finished heating and is at full operating temperature

## Optional accessories (Magnum 850 only)

### Timer remote

**850** The timer remote is an optional accessory for the Magnum 850.



The timer remote can be used in these ways:

- Manual firing by holding down the FOG button
- Automatic fog bursts using a repeating timer
- You trigger a timed burst of fog using the “one-shot” timer

You can also set the fog output level using the knob.

### Manual firing

Hold down the FOG button. The machine will produce fog until you release the button.



*You must hold the FOG button for one second or more. If you hold the FOG button for less than one second, the unit will enter timer mode, unless the timer is disabled.*

If a long burst of fog is produced, after a time the fog output level will be automatically reduced to keep the machine temperature within the operating range. This allows continuous operation, so that the machine does not have to stop and re-heat.

## Setting fog output level

Set the knob to the desired output level while firing the machine. The fog output level is always set by the current position of the knob, whether manually firing or in timer mode.

## Setting the Automatic Timer

The Automatic Timer allows you to set the machine to keep producing timed bursts of fog without anyone having to press any buttons. You need to set two times: the run/on time during which the machine will produce fog, and the wait/off time during which the machine will idle.

1. Press the TIMER SET button. The ON light will flash. You are now setting the On/Run time.
2. Turn the knob to the required “run” time, as shown on the outer scale of the knob (OFF – 255 seconds).
3. Press the TIMER SET button once. The ON light will come on static and the OFF light will flash. You are now setting the Off/Wait time.
4. Turn the knob to the required “wait” time.
5. Press the TIMER SET button once more. Both ON/OFF lights will come on to show the timer is programmed.

The run and wait times are now stored and will be remembered even after the unit has been switched off. When valid times are stored, but the timer is not engaged, the OFF and ON lights remain lit constantly.

To start the timer using the times you’ve set, press the FOG / TIMER ENGAGE button briefly. To turn off the timer, press the FOG / TIMER ENGAGE button briefly again. When the timer is engaged, the ON light will come on during the On/Run time and the OFF light will come on during the Off/Wait time.



*If you only want to change the Off/Wait time, leaving the On/Run time unchanged, press TIMER SET twice. This will take you directly to setting the Off time without changing the On time.*

To find out what the current time settings are, press TIMER SET then rotate the knob slowly until the “ON” light begins to flash very rapidly. The knob is now set to the current run/on time. Press TIMER SET once and rotate the knob slowly again until the “OFF” light begins to flash very rapidly. The knob is now set to the current wait/off time. Press TIMER SET again to get back to normal.

## Setting the “one-shot” timer

The “one shot” timer allows you to pre-program the length of the fog burst. This can be useful if you want to have a fixed-time burst of fog which you can repeat at will by pressing the fog button.

1. Press the TIMER SET button. The ON light will flash. You are now setting the On/Run time.
2. Turn the knob to the required “run” time, as shown on the outer scale of the knob (OFF – 255 seconds).
3. Press the TIMER SET button once. The ON light will come on and the OFF light will flash.
4. Turn the knob fully right to where “OS” (“One Shot”) is marked.
5. Press the TIMER SET button once more.

The timer is now programmed to one-shot mode and this will be remembered even after the unit has been switched off.

To produce a timed burst of fog, press the FOG button briefly. To stop the timed fog output early, press the FOG button briefly again.

### Disabling timer mode

If you wish to simplify the remote control, you can disable the timer function. This means that a short press on the FOG button will just produce a short burst of fog and the timer will not be enabled.

1. Press the TIMER SET button once. The ON light flashes.
2. Turn the knob fully left to the "OFF" section.
3. Press the TIMER SET button again.

The zero times will be stored, disabling the timer. This will be remembered even after the unit has been switched off. The ON and OFF lights remain off when the timer is disabled.

To re-enable the timer function, store some non-zero times as described above.

### Meaning of remote control lights

The four lights on the remote have the following functions. The red "HEAT" light and the green "READY" light are also duplicated on the top of the machine itself.

HEAT+READY	meaning
no lights	Machine is not powered, or remote is not connected
heat	Machine is heating but is not yet up to operating temperature
heat + ready	Machine is heating and has reached minimum operating temperature. Fog output level may be reduced while heating.
ready	Machine has finished heating and is at full operating temperature

OFF+ON	meaning
no lights	Timer is disabled
both on	Timer is programmed but not enabled
"OFF" lit	Timer is running, currently in Off/Wait period
"ON" lit	Timer is running, currently in On/Run period
"ON" flashing	The timer "ON" time is currently being programmed
"ON" lit, "OFF" flashing	The timer "OFF" time is currently being programmed



## Fog fluid types

The following types of Martin/Jem fog fluid are suitable for use in this machine. Each produces a different effect as described below. Martin supplies high quality fog fluids that are based on ultra-pure deionized water. Use only the following genuine Martin/Jem fog fluids. No other fluid is suitable for use.



**DANGER!** The Magnum smoke machine can run safely only on the specific smoke fluids it is designed for. Use **ONLY** the Martin/Jem smoke 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 system that is not covered by the product warranty. Do not dilute smoke fluid with water or any other liquid. Discard smoke fluid if it becomes contaminated.

### **Regular DJ Fluid (DJ mix)**

Regular DJ fluid is an economical fluid that gives a good, medium density smoke well-suited for atmospheric effects.

### **Pro Smoke Super (ZR mix)**

Pro Smoke Super fluid is a high-quality, general purpose fluid that produces a dense white airborne fog with medium dispersal time. Its medium to high index of refraction permits both good atmospheric effects and denser “white-outs”.

## Basic service



Before servicing the Magnum smoke machine, read and observe all the precautions listed in “Safety information” on page 3. Any service not described in this section must be carried out by a Martin service technician.

### Cleaning

Excessive dust, smoke fluid, and dirt buildup 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 smoke output nozzle remains hot for up to 10 hours after use.

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

### Fuse replacement

The main fuse for the Magnum 850 smoke machine is located on the electronics board inside the unit. The fuse for the Magnum 650 is located in a tray on the mains connector.



**DANGER!** Disconnect the power supply before removing any covers. Live parts inside!

**850:** To replace the 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 at the back of the unit near the remote control sockets. Remove the fuse holder cover and pull out the fuse.

**650:** To replace the fuse, disconnect the power cord from the mains plug on the rear panel. Using a screwdriver, pull out the small fuse compartment underneath the plug. Lift out the fuse.

Remove the spent fuse and replace with one of exactly the same size and rating. The fuse type is indicated below. Contact Martin Service if the fuse blows repeatedly.

Magnum 850  
120V = 10AT  
230V = 6.3AT

Magnum 650  
120V = 10AT  
230V = 5AT

# Troubleshooting

Problem	Probable cause(s)	Suggested remedy
Machine will not produce fog when remote control Fog button pressed	Machine not at operating temperature	Wait 10 to 15 minutes
	Machine not powered up	Ensure mains power switch on and AC power is OK
Smoke output is weak	Machine requires priming	Prime machine (page 13)
Wet, greasy, non-uniform smoke output, fluid drips or spits from nozzles, or very loud noise when firing machine	Incompatible smoke fluid	Use only approved fluid!
Machine appears dead	Mains fuse blown	Replace fuse (page 18)
	No power at AC cable inlet	Check power cable and circuit breaker

# Specifications

## Magnum 650

## Magnum 850

### Physical

Length .....	293mm.....	450mm
Width .....	216mm.....	205mm
Height.....	170mm.....	244mm
Dry weight .....	8.2Kg.....	9.9Kg

### Performance

Effect coverage .....	160m <sup>3</sup> /min.....	200m <sup>3</sup> /min
Operating time .....	cycles.....	continuous
Warm up time .....	7.5 minutes.....	8 minutes
Safety device.....	OTP device.....	DTP device

### Control and programming

Control options .....	remote.....	remote, timer remote
DMX channels .....	n/a.....	n/a

### Fluid system

Capacity .....	1 litre.....	1 litre
Fluid consumption .....	.23ml/min.....	.35ml/min
Compatible fluids .....	DJ,ZR.....	DJ,ZR

### Connections

DMX.....	n/a.....	n/a
Remote / machine link .....	hardwired.....	RJ45 x2
AC power .....	IEC plug.....	IEC plug

### Electrical

AC voltage .....	120V / 230V, 50/60Hz.....	120V / 230V, 50/60Hz
Main fuse (120V US version) .....	10AT.....	10AT
Main fuse (230V EU version) .....	5AT.....	6.3AT
Power usage (120V US version) .....	730W (6.1A).....	790W (6.6A)
Power usage (230V EU version) .....	620W (2.66A).....	790W (3.4A)

The following specifications apply to both machines:

### Thermal

Maximum ambient temperature (Ta max).....	40°C (104°F)
Exterior surface temperature, steady state, at 20°C ambient .....	40°C (104°F)

### Approvals

European EMC:.....	EN61000-6-3,EN61000-3-2,EN61000-3-3
European safety: .....	EN 60 335-1
Immunity: .....	EN61000-6-1, EN61000-4-2,EN61000-4-3
ETL approvals (cETLus).....	UL60335-1, CSA-E60335-1

### **Included items**

EU Model:

3m(9.8ft) IEC power cable 3x1.0mm<sup>2</sup> with Schuko male connector

3m(9.8ft) IEC power cable 3x1.0mm<sup>2</sup> with no male connector

US Model:

2m(6.5ft) US power cable 18AWG with US male connector(UL approved)

1 x fluid container (empty)

### **Accessories**

Timer remote (Magnum 850 only) .....P/N 92765032

### **Ordering information**

Martin Magnum 650 smoke machine 120V .....P/N 92228810

Martin Magnum 650 smoke machine 230V .....P/N 92228811

Martin Magnum 850 smoke machine 120V .....P/N 92229110

Martin Magnum 850 smoke machine 230V .....P/N 92229111

Martin Magnum 850 remote control .....P/N 92765030