

**JEM HYDROSONIC 2000**

***HYDROSONIC 2000 Std & SV INSTRUCTION MANUAL***

***VERSION 1.2***

***VALID FOR SOFTWARE VERSION'S***

***up to V 1.4***



**Technology**

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A Translucent, Optically Reflective Haze

**PLEASE READ THESE INSTRUCTIONS CAREFULLY**

# **HYDROSONIC 2000 INSTRUCTION MANUAL**

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# ***HYDROSONIC 2000 INSTRUCTION MANUAL***

## **● INTRODUCTION**

Thank you for buying the HYDROSONIC 2000 haze generator. Please take some time to read this instruction manual carefully. The HYDROSONIC 2000 is a revolutionary machine that will enhance your lighting with out the distracting clouds of smoke as with traditional smoke machines. There are no noisy compressors or heaters, just a light haze that will enhance your lighting. The HYDROSONIC also uses much lower concentrates than standard smoke machines or cracked oil machines, so there are no oily deposits left on expensive lighting equipment or on floors and surfaces. Once you use the HYDROSONIC you will never go back.

The HYDROSONIC 2000 is a different breed of haze generators. JEM have developed a revolutionary way of generating a reflective haze. There is a main tank inside the HYDROSONIC that contains ceramic devices called transducers. These transducers are the basis of the effect, the transducers oscillate at high frequency's, this causes a jet to be produced. From this jet are varying sizes of particles some of which are small enough to be filtered out and blown into the atmosphere, the larger particles remain inside the main tank and fall back into the reservoir of fluid. This reservoir of fluid in the main tank is a critical and if this is to high or to low the output will deteriorate. Because of this there are to level detectors ensuring the correct level at all times. If the machine is on an incline or uneven surface this fluid level indicators will give false readings and may shut down the machine. The output from the HYDROSONIC is boosted via a tangential fan This can direct the smoke to where you want it on low output the effect will be dispersed low (around 3 metres high) and at full out put the effect will be dispersed up to five times higher. There is also a feature called AUTO, this will vary the output

## **● FEATURES**

- Virtually silent operation
- Low concentrates of chemicals
- Intelligent onboard controller
- Variable output
- Fluid evacuation system
- Timed operation or continuous
- DMX 512 controllable (uses two channels)
- Martin protocol controllable
- No warm up time
- Low maintenance
- No oily deposits

### **! NOTE**

JEM SMOKE MACHINE CO. LTD.  
Reserve the right to make changes or  
modifications regarding the HYDROSONIC 2000.  
No part of this manual may be copied without permission.

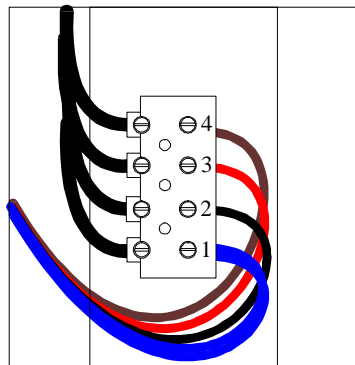
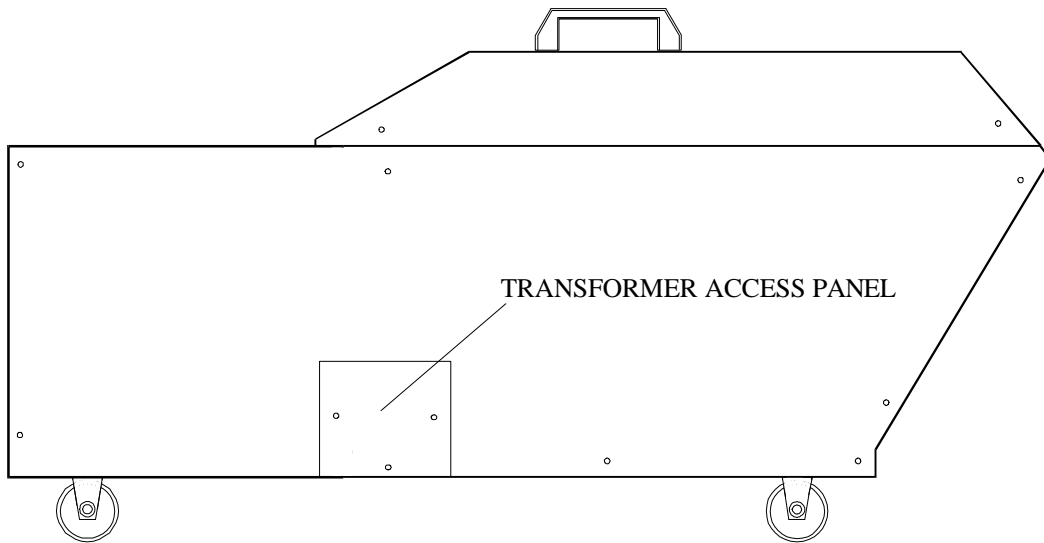
# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● FIRST STEPS

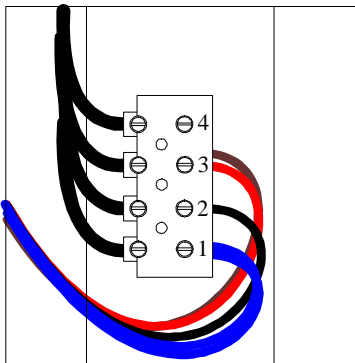
- **NOTE! ALWAYS CHECK THAT THE HYDROSONIC IS DISCONNECTED FROM THE MAINS BEFORE CHANGING TRANSFORMER SETTINGS.**

### CHANGING THE MAINS SUPPLY SETTINGS

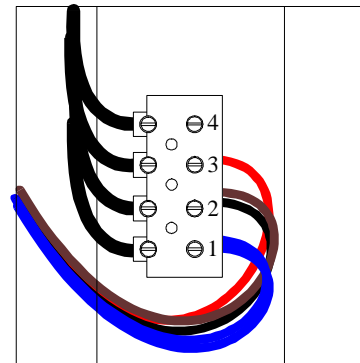
The HYDROSONIC 2000 is able to operate on the three standard mains voltages, 240v, 230v, and 110v. The only modification is to the mains transformer wiring. The HYDROSONIC has a factory setting voltage, this is recorded on the serial label situated on the rear panel. If the HYDROSONIC is setup for the U.K. but is now outside the U.K. the transformer wiring must be modified. Remove the three screws holding the transformer access pane and check that the BROWN wire is in the correct position according to the diagrams below.



240V setting-brown wire to number 4



230V setting-brown wire to number 3



110V setting-brown wire to number 2

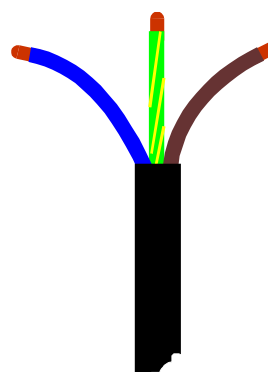
## ***HYDROSONIC 2000 INSTRUCTION MANUAL***

### **● *TIPS AND SAFETY***

- ALWAYS CONNECT TO THE CORRECT MAINS POWER SUPPLY
- ALWAYS USE GENUINE JEM HYDROSONIC FLUID
- ALWAYS DISCONNECT FROM THE MAINS BEFORE ATTEMPTING ANY WORK ON THE HYDROSONIC
- ALWAYS RUN THE HYDROSONIC ON A LEVEL FLOOR
- OPERATE THE TANK EVACUATION SYSTEM ON A REGULAR BASIS
- NEVER ATTEMPT TO DO ANY WORK ON THE HYDROSONIC THAT IS NOT DESCRIBED IN THIS MANUAL
- DO NOT START THE TANK EVACUATION IF THERE IS MORE THAN 6.50 LITRES IN THE CONTAINER
- NEVER POUR FLUID DOWN THE OUTPUT NOZZLE
- READ THIS INSTRUCTION MANUAL FULLY BEFORE OPERATING THE HYDROSONIC
- DO NOT TIP THE MACHINE UPSIDE DOWN
- ENSURE THE CORRECT FUSES ARE FITTED WHEN REPLACING THEM
- DO NOT BLOCK THE AIRFLOW VENTS AT THE REAR OF THE MACHINE
- ALWAYS USE THE ORIGINAL PACKING WHEN TRANSPORTING THE HYDROSONIC
- CONSULT YOUR SUPPLIER FOR ADVICE ON THE CORRECT FLUID TO USE

### **● *CONNECTING THE MAINS PLUG***

BROWN WIRE.....LIVE (L)  
BLUE WIRE.....NEUTRAL (N)  
GREEN/YELLOW WIRE.....EARTH (E)

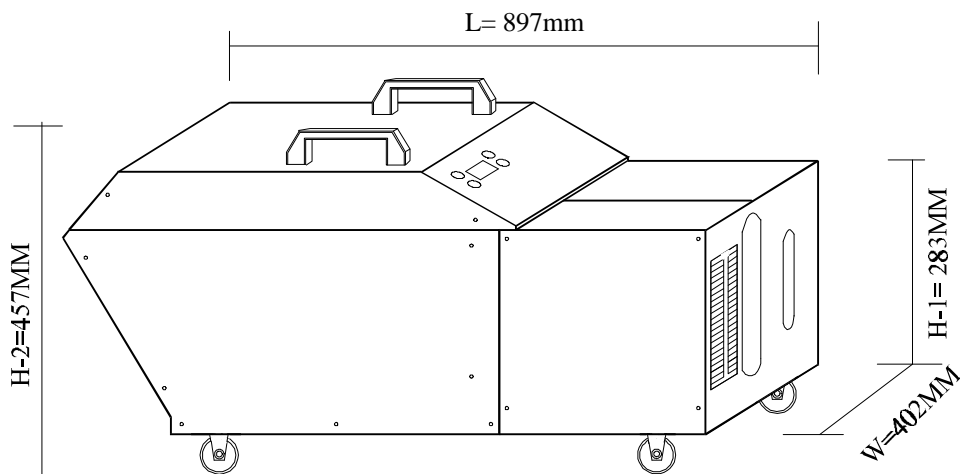


**● *NOTE! THIS APPLIANCE MUST BE EARTHED***

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● SPECIFICATIONS

### ● DIMENSIONS



### ● ELECTRIC'S

POWER SUPPLY..... 240 volts AC  
 ..... 230 volts AC  
 ..... 110/120 volts AC

POWER CONSUMPTION..... @ 230 / 240 volts - 400 watts  
 ..... @ 110 / 120 volts - 400 watts

MAINS CONNECTOR.....3 pin female I.E.C

DMX 512 CONNECTORS.....DMX IN:- 5 pin male XLR  
 .....DMX OUT:- 5 pin female XLR

MARTIN PROTOCOL CONNECTORS.....IN:- 3 pin male XLR  
 .....OUT:- 3 pin female XLR

### ● FLUID

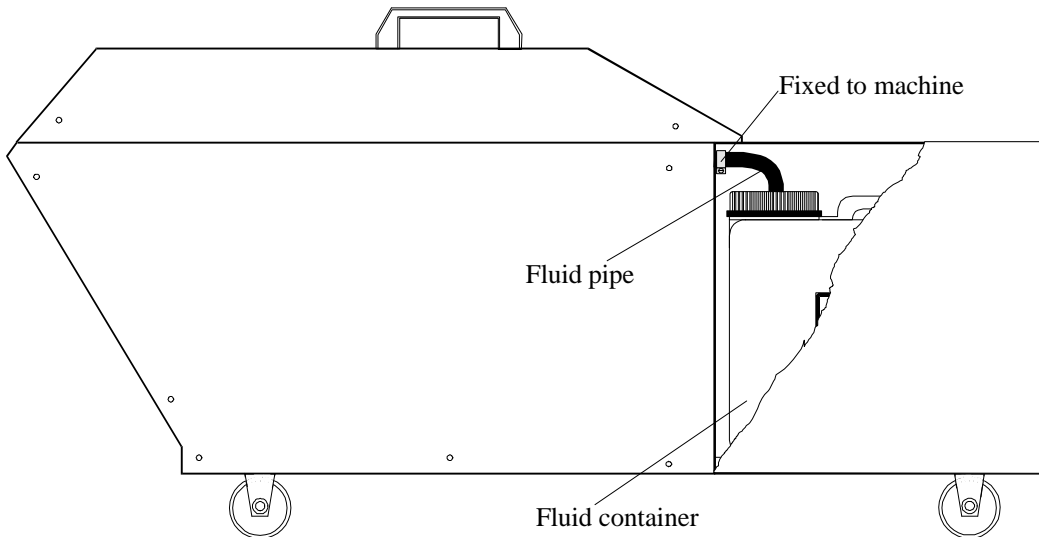
CONTAINER.....9.50 LITRES  
 .....2.09 IMP GALLONS  
 .....2.50 U.S. GALLONS

FLUID TYPES.....STANDARD  
 .....LONG LASTING

FLUID CONSUMPTION.....2.10 Lt. per hour (average)  
 .....2.50 Lt. per hour (max )

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● GETTING STARTED



## ● CONNECTING THE FLUID

Before operating the HYDROSONIC 2000 you must connect some fluid. Check you have the correct fluid type, remove the cap that is on the new container, now fit the container in to the compartment and screw on the container cap that is fixed to the machine. Check that the pipe is connected properly and that the container cap is secure. Do not loose the cap that is fixed to the machine you will not be able to operate the HYDROSONIC without it. Note care must be taken not to spill fluid over the machine.

***Note: The fluid container must be fitted at all times during operation.***

## ● FLUID TYPES

There are two types of JEM HYDROSONIC FLUID "STANDARD" & "LONG LASTING". They are both suitable for use in the HYDROSONIC 2000 and have slightly different uses.

STANDARD is a low concentrate suitable for most applications where there is not a high ambient (room temperature). This will give a light haze and will last a good while.

LONG LASTING has a slightly higher concentrate and will last longer than the STANDARD fluid in higher ambient. JEM recommends using the LONG LASTING fluid in ambient above 25 degrees Celsius.

If you require more advice on the correct fluid to use please contact the supplier of your machine or contact JEM direct.

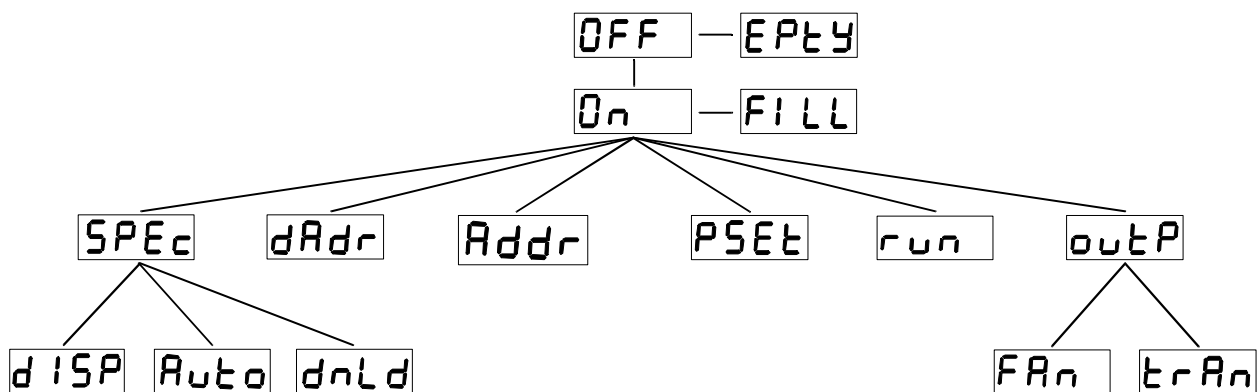
***NOTE! USING NON GENUINE FLUID MAY DAMAGE YOUR MACHINE AND WILL INVALIDATE THE JEM WARRANTY.***

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● OPERATING THE HYDROSONIC 2000

### USING THE CONTROLLER

The HYDROSONIC 2000 has a comprehensive onboard controller that controls all the functions of the HYDROSONIC. The controller can remember the previous settings used, so there is no need to set the output levels and serial communication settings every time you turn the HYDROSONIC on. The controller has four buttons that access and set the various options. Please look at the diagram below to see the layout of the functions..



When you first turn on the HYDROSONIC the controller runs through a sequence and displays the software version number and checks for errors. After this sequence OFF is displayed and the machine is ready to be operated. You should then connect a container of JEM HYDROSONIC FLUID to the fluid pipe ensuring a tight fit. You should then depress the ENTER button on the control panel, FILL should now be displayed (if the main tank had not been emptied the last time the machine was used FILL will only be displayed for a short time) the main tank takes approximately two minutes to fill to the correct level. ON is now displayed on the controller, you can now set the output levels required. Depress the MENU button RUN is displayed, then using the (+) and (-) buttons select OUTP on the display panel (this is the output menu) you then depress ENTER, FAN or TRAN will be displayed FAN is the main fan that throws the effect out of the front of the machine this can be set from 20% to 100% and also has an AUTO setting that varies the output from 20% to 100% automatically. When FAN is displayed depress enter and the current level is shown, to change the level use the (+) and (-) buttons until the desired level is displayed. Once selected depress ENTER and FAN will be displayed, to set the output level of the effect depress the (+) button and TRAN will be displayed. As before depress ENTER and select the output level using the (+) and (-) buttons, once the level is set depress ENTER. Now the machine is ready to operate, depress the MENU button until RUN is displayed and then depress ENTER. You can now set the run time, the HYDROSONIC will operate continuously as long as fluid is present in the container, you can however set a predetermined run time from 1 minute to 10 hours. To set the time use the (+) and (-) buttons until you have your desired time or you can set the HYDROSONIC to run continuously, if you wish to do this set the run time to CONT. Once you have the correct settings depress ENTER and the HYDROSONIC will start. If you wish to change any of the output settings you may do so while the HYDROSONIC is running, simply follow the same instructions as before ensuring to depress ENTER when you have the correct settings. The HYDROSONIC will now operate for the set time or until the fluid is used, you may change the fluid container while the machine is running so not to stop the effect. If the HYDROSONIC runs out of fluid the effect will stop and an error message will be displayed NOFL (no fluid) if this happens you should restart the machine after changing the fluid container.



## ***HYDROSONIC 2000 INSTRUCTION MANUAL***

### **● OPERATING THE HYDROSONIC 2000**

#### **● TURNING OFF**

There is a routine for switching the HYDROSONIC off after you have finished using it. The main tank should be emptied on a regular basis and should always be emptied when transporting the HYDROSONIC. Failure to do so can reduce the performance of the HYDROSONIC. It is suggested that the main tank is emptied on a daily basis, after operating the HYDROSONIC depress the MENU button until ON is displayed, then depress ENTER. EPTY will be displayed and the pump will reverse emptying the main tank into the fluid container (you must ensure there is a maximum of 6.5 litres in the fluid container when emptying the main tank). This operation takes approximately two minutes, after the tank is empty OFF will be displayed on the controller and you can switch the HYDROSONIC off with the mains switch. If the HYDROSONIC is switched off via the mains switch without the main tank been emptied on a regular basis the performance will detriate.

**● NOTE! ALWAYS CHECK THAT THERE IS LESS THAN 6.5 LITRES IN THE FLUID CONTAINER BEFORE STARTING THE TURNING OFF SEQUENCE.**

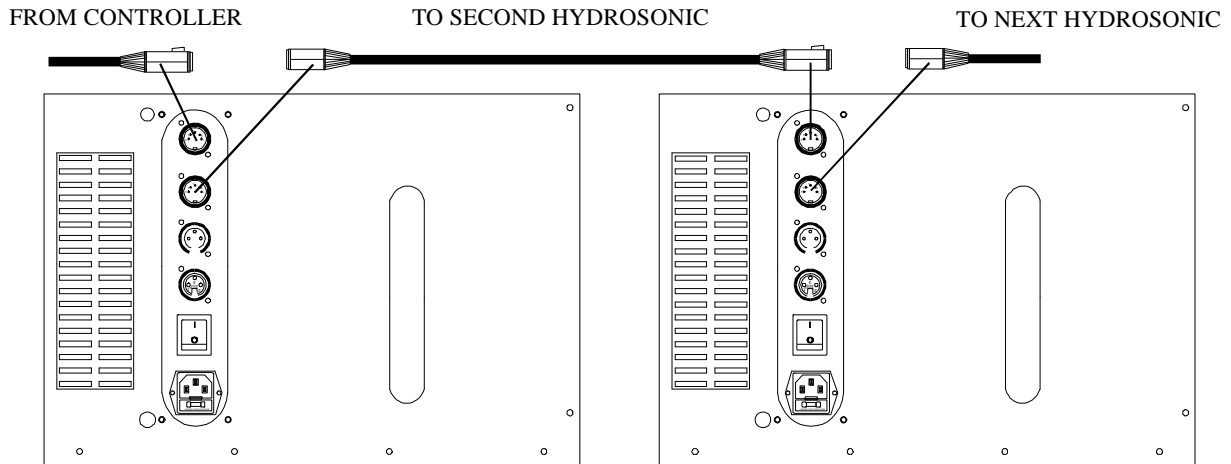
The HYDROSONIC may be left in a standby mode if you are planning on using it intermittently throughout the day. There is no need to empty the main tank between the interval, simply select RUN on the controller display by depressing the MENU and (+) buttons, depress ENTER and using the (-) button select "0" . Depress ENTER and the machine will stop producing the effect. The HYDROSONIC is now in a standby mode with a correct level of fluid in the main tank, when you wish to restart the HYDROSONIC select RUN on the display, depress ENTER and set the desired run time using the (+) button. Once the correct time is displayed depress ENTER and the effect will start.

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ●DMX 512

### CONNECTING THE HYDROSONIC TO DMX 512

The HYDROSONIC 2000 has the capability of been controlled via DMX 512, TWO channels are required to give control over the transducer output and the main fan output. Please see the diagrams below on how to connect DMX 512 and the various controls.



After connecting the HYDROSONIC to DMX you must set the onboard controller. Using the MENU button and the (+) and (-) buttons select PSET on the display, depress enter and using the (+) button select SER1 and depress ENTER, the HYDROSONIC is set to be controlled via DMX. You now have to set the DMX address on the controller. Using the (+) & (-) buttons select DADR, now select the two channels required i.e. hold down the (+) button until 100 is displayed then depress ENTER. The HYDROSONIC is set to run off channel 100 and channel 101.

After you have finished using DMX you should reset the onboard controller, if you do not the HYDROSONIC will not be controllable via the onboard controller. Select PSET again on the controller, depress ENTER, then using the (+) button select AUTO, depress ENTER and the HYDROSONIC is ready to be controlled via the onboard controller.

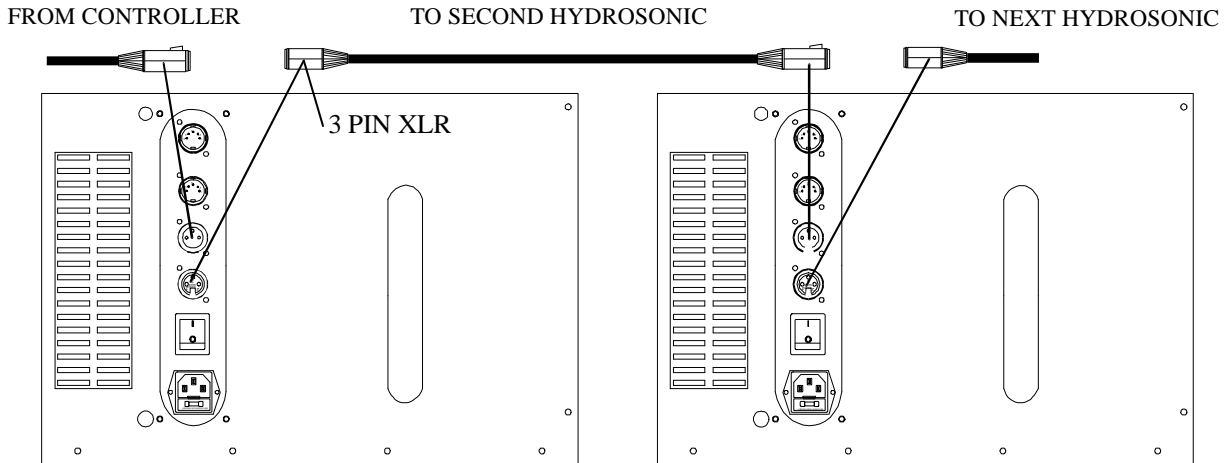
DMX DESCRIPTION		
DMX CHANNEL OFFSET	DMX VALUES	EFFECT
"0"	0- 29 30- 59 60- 89 90- 109 110- 129 130- 149 150- 169 170- 189 190- 209 210- 229 230- 255	Idle Pump out Pump in Transducers off Transducers speed 1 Transducers speed 2 Transducers speed 3 Transducers speed 4 Transducers speed 5 Transducers speed 6 Transducers speed 7 (pump control & transducers)
"1"	0- 39 40- 75 75- 111 112- 147 148- 183 184- 219 220- 255	Fan off Fan speed 1 Fan speed 2 Fan speed 3 Fan speed 4 Fan speed 5 AUTO - sweeps between fan speeds 1 to 5 (main fan control)

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● MARTIN PROTOCOL

### CONNECTING THE HYDROSONIC TO MARTIN PROTOCOL

The HYDROSONIC 2000 has the capability of been controlled via MARTIN protocol, TWO channels are required to give control over the transducer output and the main fan output. Please see the diagrams below on how to connect MARTIN protocol and the various controls.



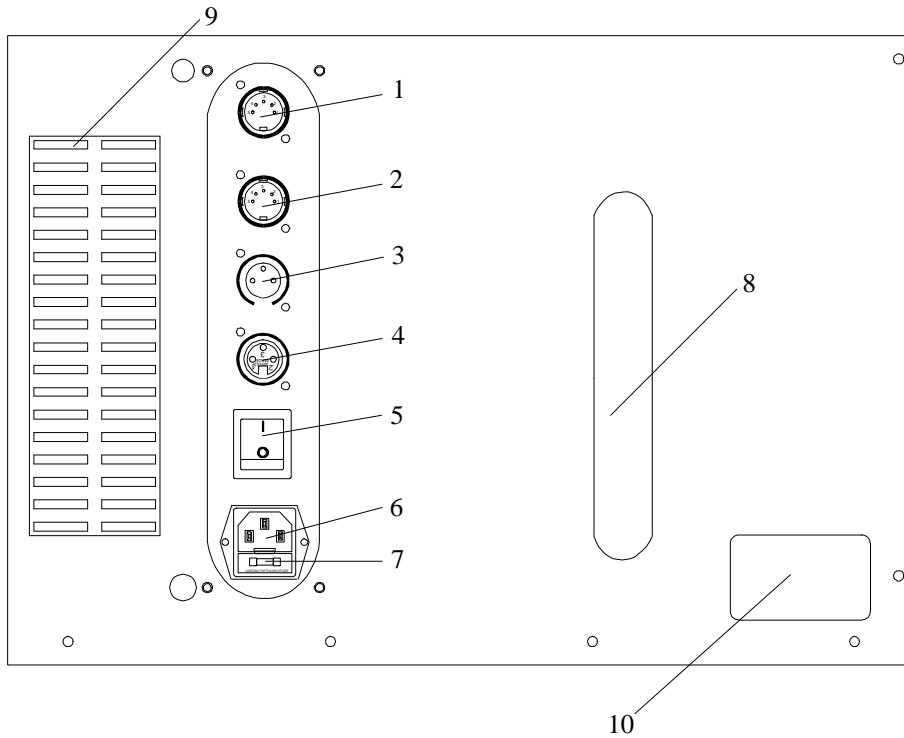
After connecting the HYDROSONIC to MARTIN protocol you must set the onboard controller, using the MENU button and the (+) and (-) buttons select PSET on the display, depress enter and using the (+) button select SER2. Depress enter and the HYDROSONIC is set to be controlled via MARTIN protocol. After you have finished using MARTIN protocol you should reset the onboard controller, if you do not the HYDROSONIC will not be controllable via the onboard controller. Select PSET again on the controller, depress ENTER, then using the (+) button select AUTO, depress ENTER and the HYDROSONIC is ready to be controlled via the onboard controller.

MARTIN PROTOCOL DESCRIPTION			
	M.P. VALUES	EFFECT	
MSB  (MOST SIGNIFICANT BYTE)	0- 29	Idle	
	30- 59	Pump out	
	60- 89	Pump in	
	90- 109	Transducers off	(pump control & transducers)
	110- 129	Transducers speed 1	
	130- 149	Transducers speed 2	
	150- 169	Transducers speed 3	
	170- 189	Transducers speed 4	
	190- 209	Transducers speed 5	
	210- 229	Transducers speed 6	
230- 255	Transducers speed 7		
LSB  (LEAST SIGNIFICANT BYTE)	0- 39	Fan off	
	40- 75	Fan speed 1	
	75- 111	Fan speed 2	(main fan control)
	112- 147	Fan speed 3	
	148- 183	Fan speed 4	
	184- 219	Fan speed 5	
	220- 255	AUTO - sweeps between fan speeds 1 to 5	

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● MACHINE LAYOUT

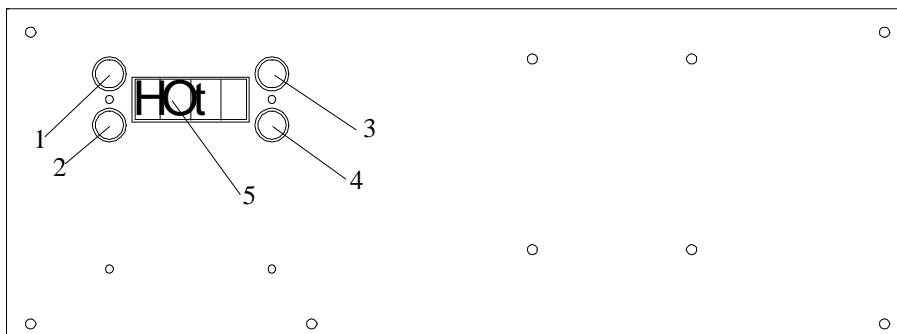
### ● REAR PANEL LAYOUT



### ● REAR PANEL LAYOUT

1. DMX 512 *IN* connector
2. DMX 512 *OUT* connector
3. Martin Protocol *IN* connector
4. Martin Protocol *OUT* connector
5. Mains switch
6. Mains IEC connector
7. Fuse holder
8. Fluid level window
9. Airflow vents
10. Serial label

### ● CONTROL PANEL LAYOUT

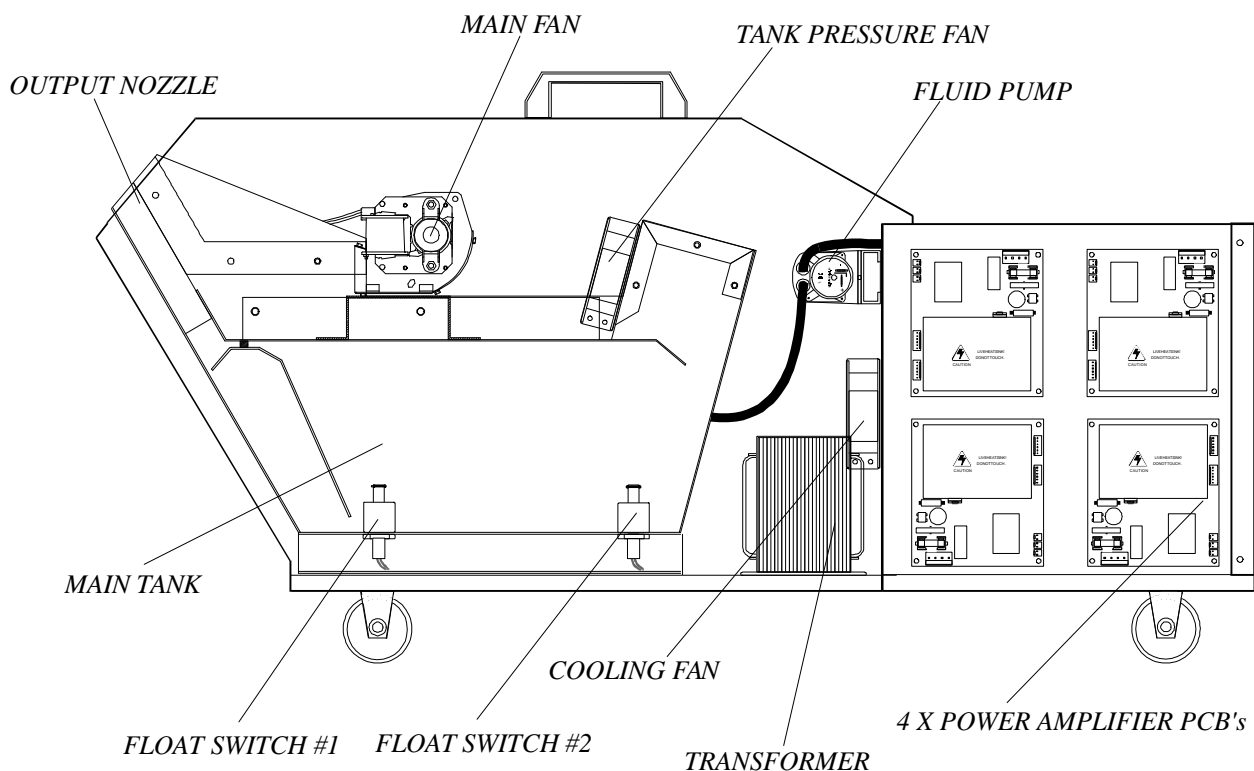


### ● CONTROL PANEL LAYOUT

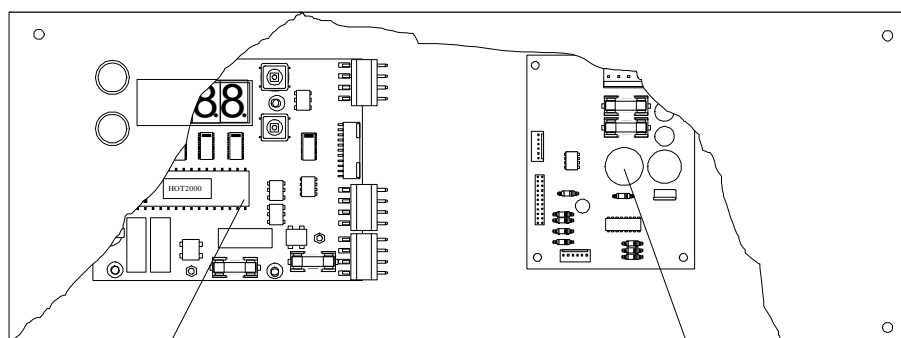
1. MENU BUTTON
2. ENTER BUTTON
3. (+) BUTTON
4. (-) BUTTON
5. DISPLAY

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● MACHINE LAYOUT



## CONTROL PANEL



CONTROLLER / DMX PCB

PUMP CONTROLLER PCB  
(SHOWN REVERSED FOR CLARITY)

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● SERVICE AND MAINTENANCE

### HYDROSONIC ERROR MESSAGES

The HYDROSONIC has the ability to check the status of the electronics and reports any errors via the onboard controller. Most of these errors are not serious and will only mean resetting the HYDROSONIC. Listed below are the different error messages and a solution, please refer to this when you see an error displayed on the controller.

ERROR MESSAGE	DESCRIPTION	SOLUTION
FrEr	Main fan not working	Restart the HYDROSONIC. If still displayed contact your supplier for advice.
LoEr	Fluid level low	Check fluid level, add if low. Check machine is on a level surface. It may be necessary to restart the machine.
FiEr	Pump fill timed out	Check fluid level, add if low. Check machine is on a level surface. It may be necessary to restart the machine.
Err0 - Err3	Power amplifier PCB not communicating	Restart the HYDROSONIC. If still displayed contact your supplier for advice.
Er(x)(y)*	Power amplifier PCB reports error	Restart the HYDROSONIC. If still displayed contact your supplier for advice.
NoFL	No fluid in main tank	Add fluid if container is empty. Restart the machine.
*(x) = Power amplifier PCB (i.e. power amplifier PCB at address 0 has fault) *(y) = An error code from 1-7		

If any error messages are displayed your, HYDROSONIC will normally operate at a satisfactory level, you may notice a slight reduction in output. If a serious error occurs the HYDROSONIC will shut down and no effect will be visible. You should then contact the company who supplied the HYDROSONIC and ask for advice, you may also contact JEM direct and speak to our service department.

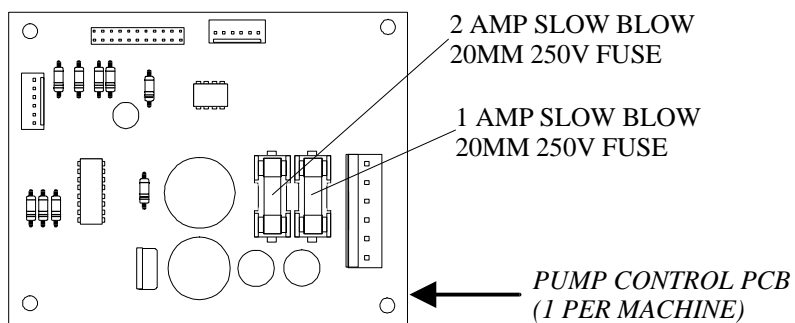
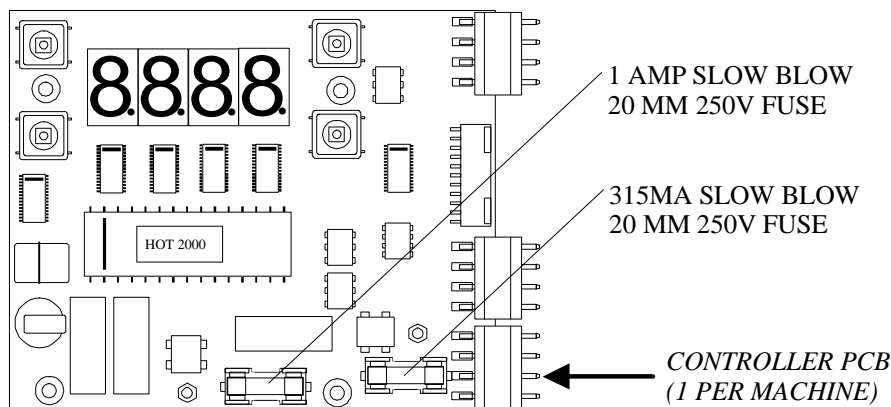
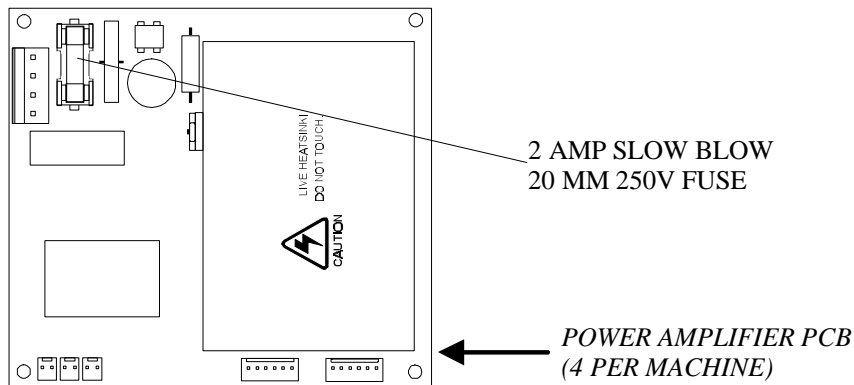
NOTE! If there are surges or sliques down the mains supply ERR3 may be displayed.

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● SERVICE & MAINTENANCE

### ● CHANGING A PCB FUSE

● **NOTE! ALWAYS CHECK THAT THE HYDROSONIC IS DISCONNECTED FROM THE MAINS BEFORE REPLACING A FUSE.**



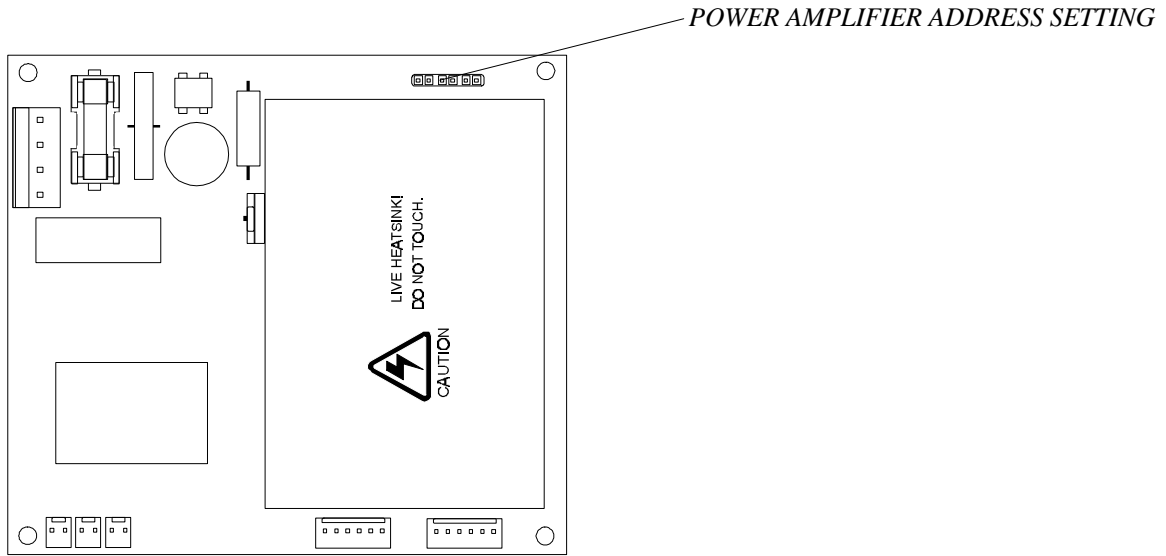
● **NOTE! ALLAYS USE THE CORRECT RATING FUSE**

# HYDROSONIC 2000 INSTRUCTION MANUAL

## ● SERVICE & MAINTENANCE

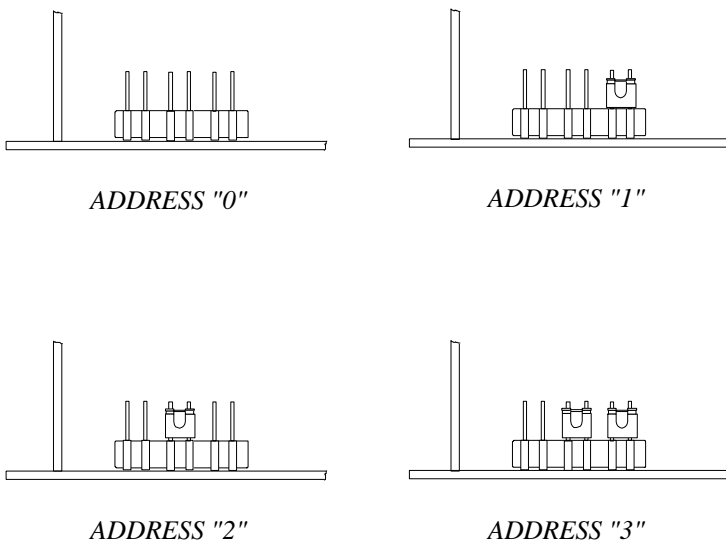
### CHANGING A POWER AMPLIFIER PCB

● **NOTE! ALWAYS CHECK THAT THE HYDROSONIC IS DISCONNECTED FROM THE MAINS BEFORE ATTEMPTING ANY WORK.**

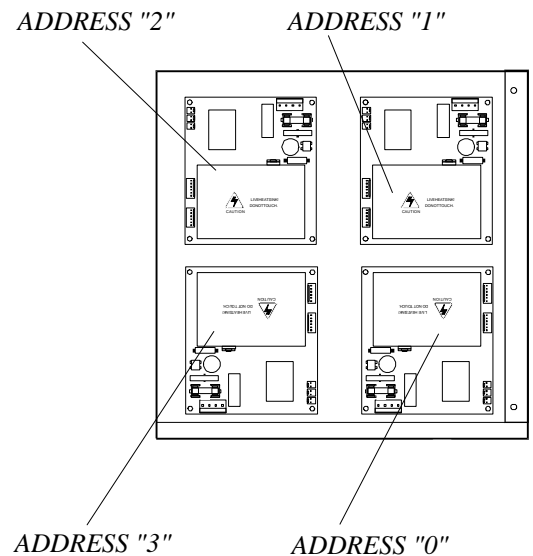


If it becomes necessary to change a power amplifier PCB you must set the address to the same as the one that you remove. Simply note the position of the jumpers on the board you remove and place the jumpers in exactly the same position on the new PCB. Please look at the diagram below to see the different address settings, and there position in the machine.

#### ADDRESS SETTINGS



#### POSITION IN MACHINE





## HYDROSONIC 2000 INSTRUCTION MANUAL

### ● TROUBLE SHOOTING

<i>PROBLEM</i>	<i>POSSIBLE CAUSES</i>	<i>SOLUTION</i>
Machine will not fill the main tank when first switched on, (FiLL) is not displayed.	The onboard controller is set to be controlled by DMX or MARTIN protocol.	Select PSET on the controller then depress ENTER, then using the (+) button select AUTO and depress the ENTER button.
Low output from machine even when on 100% output.	<ol style="list-style-type: none"> <li>1. Fault on power amp PCB.</li> <li>2. Incorrect fluid concentrate.</li> <li>3. Machine on uneven surface.</li> <li>4. Transformer set to wrong setting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check display for errors.</li> <li>2. Activate tank evacuation and add fresh fluid.</li> <li>3. Move machine to an even floor.</li> <li>4. Check and set to correct setting.</li> </ol>
No display when switched on.	<ol style="list-style-type: none"> <li>1. No power supply connected.</li> <li>2. Main fuse faulty.</li> <li>3. Transformer set to wrong settings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect to correct power supply</li> <li>2. Check and replace main fuse if faulty.</li> <li>3. Check and set to correct settings.</li> </ol>
Machine will not work when connected to DMX 512.	<ol style="list-style-type: none"> <li>1. Onboard controller is not set to run on DMX 512.</li> <li>2. The controller is not set to the correct channels.</li> </ol>	Check the controller settings as described on page 9 of this manual.
Machine will not work when connected to MARTIN protocol.	<ol style="list-style-type: none"> <li>1. Onboard controller is not set to run on MARTIN protocol.</li> <li>2. The controller is not set to the correct channels.</li> </ol>	Check the controller settings as described on page 10 of this manual.
No main fan output even when set to 100%.	Fuse blown on controller pcb	Check and replace fuses on the controller pcb

If you cannot fix the fault by using this guide or the fault is not described you should contact the company who sold you the HYDROSONIC, or contact JEM direct. Please do not attempt any work that you are not qualified to do, it could result in serious damage to your machine.

● **NOTE! ALWAYS CHECK THAT THE HYDROSONIC IS DISCONNECTED FROM THE MAINS BEFORE ATTEMPTING ANY WORK.**

# **HYDROSONIC 2000 INSTRUCTION MANUAL**

## **● ADDITIONAL INFORMATION**

### **● ADDRESS**

**JEM SMOKE PLC  
VALE ROAD INDUSTRIAL ESTATE,  
BOSTON ROAD, SPILSBY,  
LINCOLNSHIRE,  
PE23 5HE,  
ENGLAND.**

### **● TELEPHONE & FAX**

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**FAX: (+44) (0) 1790 754051**

### **● E-MAIL ADDRESS**

***jemsmoke@sol.co.uk***

**● Please contact JEM if you require any further information regarding the HYDROSONIC or any JEM product.**