SPECTRE

Features of the Spectre

- 1500W dichroic floodlight
- Temperature controlled fan cooling.
- Extruded aluminium case
- Fitted with barn doors as standard
- Three 500W halogen lamps
- 65536 colours
- Built in dimmer
- Control from DMX, Midi or 0-10V analogue.
- 2 year warranty

IMPORTANT

Installer and Users please note:

These instructions should be read carefully and left with the user of the product for future reference.

Installation

The Spectre must be installed by a competent electrician in accordance with the current IEE wiring regulations.

Fix the Spectre with the hanging bracket provided. If the Spectre is to be mounted with the bracket below the product, then remove the handle, and re-assemble beneath the product. The Spectre must be installed the correct way up. Installing the Spectre upside down will seriously affect lamp life.

To comply with Health and Safety legislation, a safety chain must be employed. A loop is provided at the top of the rear panel for fixing the safety chain.

This symbol means that the Spectre should be mounted at least 0.8m from any object that it is illuminating.

Ensure that there are no obstructions to the ventilation, the air intakes are around the edges of the colour-filter frame, and hot air is exhausted through the fan. Also ensure that there are no readily flammable items in contact with the case.

The Spectre is only intended for use indoors.

Connect the Spectre to the mains supply using the lead provided.

- **Brown = live**
- **Blue = neutral**
- **Green/yellow = earth.**
- **The Spectre must be earthed**

The supply must be fitted with an isolating switch, or plug and socket, and protected by fuse or circuit breaker rated at either 10A and 16A. If the Spectre circuit is connected via an MCB then it is recommended that a time-delay MCB is used (Type 3 or Type C to BS3871). This will reduce the possibility of "nuisance tripping" due to the large inrush current of the halogen lamps.

It is not recommended that the Spectre is connected to a switching pack.

The Spectre must not be connected to the output of a Dimming pack. This is not necessary, as the Spectre contains its own dimming circuitry.

If you wish to use more than one Spectre, where there is a possibility of all three lamps being switched on at the same time (i.e. if selecting "white"), then make sure that you have a mains supply and connectors capable of handling this amount of current. (6.5A for ONE Spectre, 13A for TWO Spectres)

Replacing the lamps

In order to replace a lamp, disconnect from the mains supply, and unscrew the two fixing knobs at either side of the colour filter plate. Then remove the colour filter plate and reflector assembly by pulling forwards (this may be quite a tight fit). The lamps are now accessible, and the faulty lamp may be replaced by a new lamp type A1/244. This type of lamp has a GY9.5 base, with one large and one small pin. This is to ensure that it is inserted the correct way round. Do not touch the glass bulb. Hold the lamp by its ceramic base, or with the paper packet in which it is supplied. If the bulb is accidentally touched, clean it before use with methylated spirit, otherwise lamp life may be reduced or the lamp could shatter due the deposits of grease from the skin reacting with the quartz at high temperature.

Replace the colour filter and reflector assembly.

Lamp life

Lamp life can be extended by the following techniques:

1) Use the high brightness/extended life switch. This extends the lamp life by reducing the power to the lamps. This slightly reduces the brightness, but extends the life by up to 10 times.

2) Operate at less than full brightness.

3) If flashing or chasing the lamps, use a soft-fade type chase.

4) If flashing or chasing the Spectre, leave the filament slightly illuminated so that it just glows red-hot similar in appearance appearance to the element of an electric fire when the Spectre is off, by setting the "Brightness" slider to about 3% instead of completely off.

(When changing colour rapidly, setting the saturation slider to about 3% will have the same effect. It will have negligible effect on the colour, but will keep all the lamps slightly illuminated.

4) Leave the Spectre to cool before moving it. Filament lamps are most

vulnerable to failure just after switching off.

The expected lamp life at various settings of the dimmer are shown below.

Setting	**Power**	**Brightness**	**Lamp Life**	
				
0%	0W	0%	*	*
25%	62.5W	1.5%	*	*
50%	150W	12.5%	204000	*
75%	320W	42%	1500	11000
100%	500W	100%	50	350

*At power settings this low, the lamp life will be determined by other factors than the power consumed by the lamp, such as switching on and off repeatedly, or mechanical damage. The settings shown above have been chosen after extensive research and testing to produce a control that appears linear to the eye.

Replacing the fuse

There is a small possibility that the fuse may blow when a lamp fails. (This is caused by the filament of the failing lamp producing a short circuit as it falls apart) The fuse is located in a drawer beneath the mains input connector. Replace with another fuse type F10A HBC. (10A Quick-blow, high breaking capacity 5x20mm) If the new fuse fails consult a dealer.

Cleaning

The Spectre should be cleaned periodically as dust will tend to obstruct the fan, and impair the ventilation system. Clean the dichroic filters with a soft lint-free cloth using alcohol or hi-fi cleaning fluid

Operation

The Spectre is a floodlight, and does not produce a focused beam of light. Aim the lantern in order to get the best illumination. The barn doors may be used to control light spill at the edges of the area to be illuminated, but should be used with care, as multiple-coloured shadows will result when more than one lamp is illuminated.

The Spectre must not be operated with the barn doors completely closed, as this will result in an obstruction to the ventilation system, and will overheat the barn doors.

Do not place coloured gels in front of the Spectre. The dichroic filters must not be replaced by colour gels.

It is recommended that all four barn-doors are closed when the product is to be transported, in order to protect the dichroic filters, which are expensive to replace.

The fan is operated by a temperature sensing circuit, and switches on when the temperature exceeds 50° C and off when it falls below 40° C

Control

For DMX operation see page 6

For operation from the SFC1 DMX remote controller see page 9

For Chroma HX emulation see page 13

(Use Chroma HX emulation if running from an IQ-MX80 or IQ-MX60 controller)

For MIDI operation see page 9

For 0-10V analogue operation see page 12

DMX operation

Connecting the data leads.

The spectre is provided with 3-pin XLR connectors for the DMX. Data+ is on pin 2 and Data- on pin 3. Pin 1 is earth. Connect a lead from the DMX controller to **DMXin** on the first lantern. Connect a DMX lead from **DMXout** on the first lantern to **DMXin** on the second, from **DMXout** on the second to **DMXin** on the third, and so on.

If the Spectre is the LAST lantern in the chain, then it is necessary to "terminate" the DMX line. This is done by plugging a "terminator" into the (otherwise unused) DMXout socket of the last lantern. A "terminator" is a XLR plug with a 120Ω resistor between pins 2 and 3.

The LED lights red when the Spectre is switched on and changes to yellow when it receives a valid DMX signal.

Setting the DIL switches

There are two DMX modes available: MX90 mode and 3-channel mode

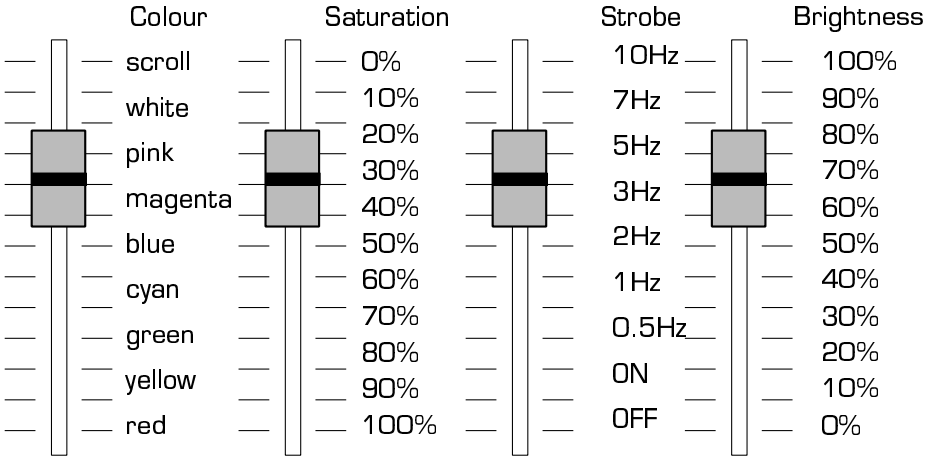
MX90 mode.

This refers to the new 8-channel protocol which will be incorporated into all new NJD luminaires and controllers. Select MX90 mode if you are using an MX90-compatible controller, or the SFC1 DMX remote controller, or if you are using a Merlin or other DMX lighting control desk and wish to access features such as flashing or colour scrolling. Set both "mode" switches **OFF**.

NJD's MX90 protocol uses 8 DMX channels for every product. The allocation of the channels is consistent throughout all products complying with the protocol. This protocol will be used on all future products and controllers.

The channels are:

Channel 1: x-position (pan) or dish rotation
Channel 2: y-position (tilt)
Channel 3: colour (plus colour scrolling)
Channel 4: gobo or colour saturation
Channel 5: speed
Channel 6: strobe/blackout
Channel 7: gobo rotation
Channel 8: brightness.



On the Spectre only the channels marked in bold are used (the third, fourth, sixth and eighth above the DMX address set on the DIL switches)

This mode can be used from a controller such as the Merlin, in order to access the automatic colour scrolling and flashing. Alternatively, the *DMX 3-channel mode* (see page 8) uses fewer channels, and if flashing or colour scrolling were required, it could be written as a program in the Merlin.

The colour is continuously variable: for example, orange will be found mid-way between red and yellow, and purple between blue and magenta.

The saturation control allows every pastel shade between the deepest possible colour ("fully saturated") and white to be selected.

To set up the Spectre, set the saturation control to zero, then set the brightness to the level required, and then set the colour. If a paler shade of the colour is required, increase the saturation control as required.

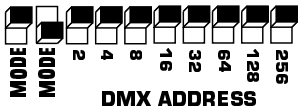
If operating from a controller, refer to the instructions supplied with the controller regarding how to set the address switches. The following information may be useful.

Lantern numbers are 8 DMX addresses apart.

Lantern number	DMX address	Switches on (all other switches off)
1	1	none
2	9	8
3	17	16
4	25	8, 16
5	33	32
6	41	32, 8
7	49	32, 16
8	57	32, 16, 8
9	65	64
10	73	64, 8
11	81	64, 16
12	89	64, 16, 8
13	97	64, 32
14	105	64, 32, 8
15	113	64, 32, 16
16	121	64, 32, 16, 8

DMX 3-channel mode

DMX mode allows the Spectre to be controlled from a general-purpose DMX controller such as the Merlin using the least number of channels. Set the mode switches OFF-ON for DMX mode.



To set a DMX address, add up the numbers of all the switches that are ON and add 1 to give the DMX address. For instance to set DMX address 41, set switch 32 on and switch 8 on, and all other switches off: 32+8+1 = 41.

The Brightness will then be controlled by DMX Channel 42

The Colour will then be controlled by DMX Channel 43

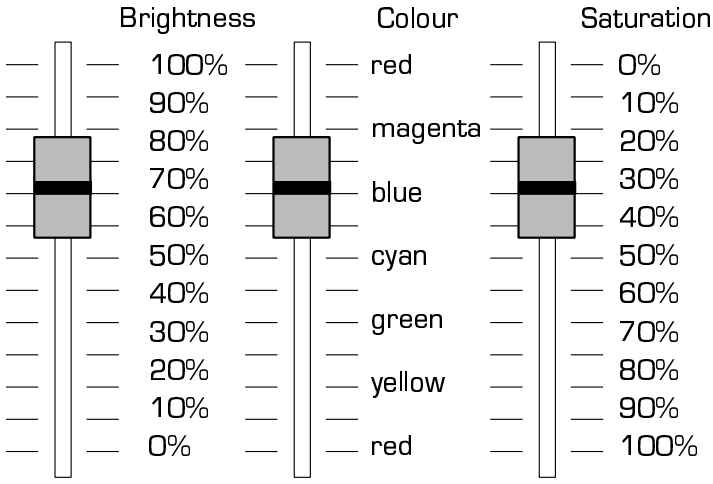
The Saturation will then be controlled by DMX Channel 44

In 3-channel mode, the sliders operate the Spectre as follows:

The colour is continuously variable: for example, orange will be found mid-way between red and yellow, and purple between blue and magenta.

The saturation control allows every pastel shade between the deepest possible colour ("fully saturated") and white to be selected.

To set up the Spectre, set the saturation control to zero, then set the brightness to the level required, and then set the colour. If a paler shade of the colour is required, increase the saturation control as required.



DMX remote control (SFC1).

Connect the DMX remote control unit to the Spectre using an RJ45 lead. Connect the remote to the LEFT hand side RJ45 socket. If controlling more than one Spectre, then

EITHER connect an RJ45 lead from the spare socket on the first Spectre to an RJ45 connector on the second Spectre and from the spare RJ45 socket on the seconds Spectre to an RJ45 socket on the third, and so on,

OR connect using 3-pin XLR connectors: Connect a DMX lead from **DMXout** on the first lantern to **DMXin** on the second, from **DMXout** on the second to **DMXin** on the third, and so on. A terminator is not necessary, but may be fitted.

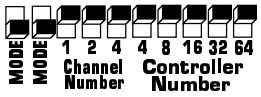
Set the DIL switches as follows: (Set both MODE switches off)

Lantern number	DMX address	Switches on (all other switches off)
1	1	none
2	9	8
3	17	16
4	25	8, 16

MIDI

The Spectre is provided with Midi in and Midi through connectors. It can be connected to other midi equipment using standard Midi leads. When the Spectre is switched on the led will light red, and when it receives a valid midi command it will flash yellow.

MIDI



When changing from DMX operation to Midi operation, after setting the MODE switches, turn the mains power off, wait ten seconds, and turn the power back on again. Both mode switches should be ON for Midi operation.

To set the channel and controller number, the function of the DMX address switches is changed, and are used as shown. The spectre may be used on any Midi channel from 9 to 16, and on any group of four controllers. Set the Midi channel as follows:

Midi Channel	**Channel Switches on** (all other channel switches off)
9	None
10	1
11	2
12	2, 1
13	4
14	4, 1
15	4, 2
16	4, 2, 1

(Add up the numbers of the switches, and add nine to get the Midi Channel)

Set the Midi controller number as follows

Controller number	**Controller Switches on** (all other controller switches off)
0 - 3	None
4 - 7	4
8 - 11	8
12 - 15	8, 4
16 - 19	16
20 - 23	16, 4
24 - 27	16, 8

28 - 31	16, 8, 4
32 - 35	32
36 - 39	32, 4
40 - 43	32, 8
44 - 47	32, 8, 4
48 - 51	32, 16
52 - 55	32, 16, 4
56 - 59	32, 16, 8
60 - 63	32, 16, 8, 4
64 - 67	64
68 - 71	64, 4
72 - 75	64, 8
76 - 79	64, 8, 4
80 - 83	64, 16
85 - 87	64, 16, 4
88 - 91	64, 16, 8
92 - 95	64, 16, 8, 4
96 - 99	64, 32,
100 - 103	64, 32, 4
104 - 107	64, 32, 8
108 - 111	64, 32, 8, 4
112 - 115	64, 32, 16
116 - 119	64, 32, 16, 4
120 - 123	64, 32, 16, 8
124 - 127	64, 32, 16, 8, 4

(Add up the numbers of the switches that are on, and add one to get the first controller number)

Because the switches require different functions to set the Midi channel and controller number, always refer to the drawing above, not the drawing on the product label.

The Spectre can be controlled directly from MIDI using four Midi-controllers. The Midi channel used and the controller numbers are set on the DIL switches.

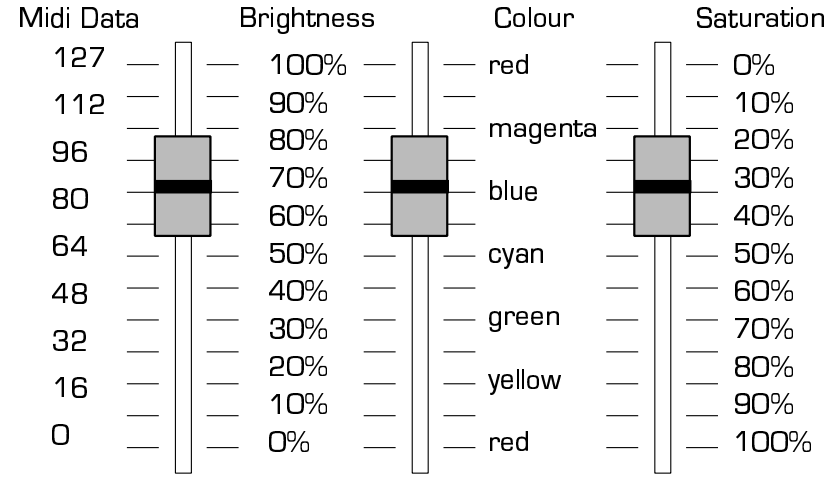
The four controllers operate as follows;

Controller 48: Fade rate

Controller 49: Brightness

Controller 50: Colour

Controller 51: Saturation.



Fade rate

Setting Controller 48 to 0 selects an instantaneous change when either the brightness, colour or saturation are altered. Setting controller 48 to 127 will instruct the Spectre to fade gradually from its present settings to the new settings when brightness, colour or saturation are altered.

Intermediate values set fade rates of less than 30 seconds.

The operation of the other three controllers is shown below.

It is assumed for the preceding examples that the Spectre is set to Midi Channel 16 and controller number 48.

0-10V analogue operation

Three channels from a 0-10V analogue controller may be connected to the 7-pin DIN socket. An unregulated +15V supply is provided on pins 6 and 7 to run controllers such as the **NJD Fade-4**.(Connect to either pin 6 or pin 7) For a short cable run (less than 5m), use 6-core cable such as telephone or burglar-alarm cable. For longer cables, use overall-screened cable.

When using analogue control, it is possible to control more than one Spectre, by linking the Spectres together using DMX. If this is required, connect a DMX lead from the **DMXout** socket on the first Spectre (the one which has the analogue inputs connected) to the **DMXin** socket on the second, and from the **DMXout** socket on the second Spectre to the **DMXin** socket on the third, and so on. The unit with the analogue inputs connected is called the MASTER, and the other units are called SLAVES.

Setting the DIL switches

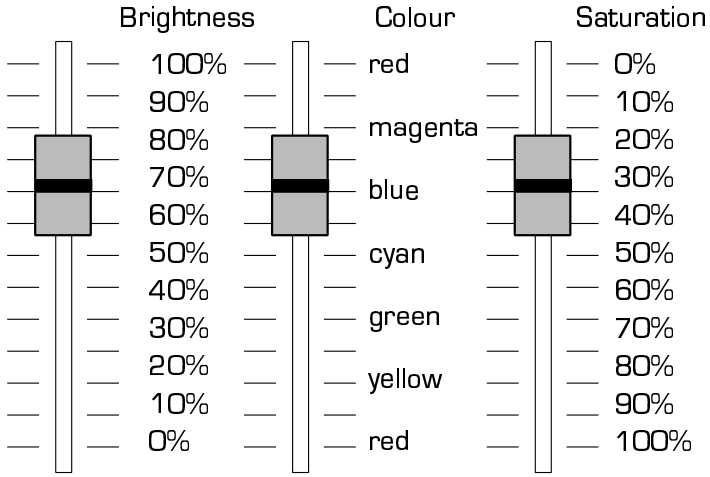
For single operation, set the MODE switches OFF and all other switches ON as shown on the rear label.

If controlling a number of Spectres from one analogue input by connecting them together using a DMX lead as described above, set the DIL switches on the MASTER as shown on the label (both mode switches OFF, all address switches ON, and set the DIL switches on the SLAVES as follows:

	Mode switches	**Address switches**
Master	OFF-OFF	All ON
Slave #1	OFF-ON	8 on (all others OFF)
Slave #2	OFF-ON	16 on (all others OFF)
Slave #3	OFF-ON	16,8 on (all others OFF)

The 0-10V inputs operate the Spectre as follows:

The colour is continuously variable: for example, orange will be found mid-way between red and yellow, and purple between blue and magenta.



The saturation control allows every pastel shade between the deepest possible colour ("fully saturated") and white to be selected.

To set up the Spectre, set the saturation control to zero, then set the brightness to the level required, and then set the colour. If a paler shade of the colour is required, increase the saturation control as required.

Chroma HX Emulation mode.

In this mode the Spectre will emulate the Chroma HX, allowing it to be mixed with the Chroma HX in an installation, providing a floodlighting effect in identical colour when the Chroma HX produces a spotlight effect. (Split colours are not available on the Spectre). Chroma mode is the most suitable when using with the IQ-MX60 and IQ-MX80 controllers. Set the mode switches ON-OFF for Chroma mode.

Setting the address switches.

Lantern number	DMX address	Switches on (all other switches off)
1	1	none
2	9	8
3	17	16
4	25	8, 16
5	33	32
6	41	32, 8
7	49	32, 16
8	57	32, 16, 8
9	65	64
10	73	64, 8
11	81	64, 16
12	89	64, 16, 8
13	97	64, 32
14	105	64, 32, 8
15	113	64, 32, 16
16	121	64, 32, 16, 8

Operation from the IQ-MX80 (or IQ-MX60)

If operating from the IQ-MX80 controller, use the Chroma mode. The colour pads will operate, and the vertical movement of the Joystick will control the Brightness. (It is also possible to use the DMX 3-channel mode, although the colours will not match those printed on the panel. In this mode, the gobo selections can be used to set the saturation of the colour)

Technical Specification.

Dimensions:	250mm x 250mm x 245mm	
Weight:	5.2kg	
Lamps:	3 x A1/244 (240V 500W)	
Lamp Life:	50 hours at 240V AC	
	100 hours at 230V AC	
Colours:	Red:	(0.700,0.296)
	Green:	(0.246,0.686)
	Blue:	(0.128,0.153)
	and all intermediate shades	
Power Supply:	230V AC 50Hz	
Power:	1500W (all lamps illuminated)	
Current:	6.5A rms. (all lamps illuminated)	
Power factor:	cos ϕ = 1.000	
	(The Spectre is a resistive load)	
Switch-on Surge:	30 Amps for 60ms	
	(all three lamps switched at the same time, 0.4Ω mains source impedance)	
Beam spread:	56° (to 50% brightness).	
	(1m wide at 1m distance)	
Beam intensity: 2200 candela per channel.		
DMX input/output:	complies with	
	DMX512 (1990) 4µsec protocol	
Connectors:	3-pin XLR	
	Data+:	Pin 2
	Data-:	Pin 3
	Earth:	Pin 1
Analogue input voltage:	0-10V	
Analogue input impedance:	44kΩ	
Analogue connector:	7-pin DIN	
Channel 1: pin 3		
Channel 2: pin 5		
Channel 3: pin 4		
Channel 4: pin 1		
0V (ground): pin 2		

Standards

The Spectre complies with Electrical Safety Standard EN60598 Parts 1 and 2-17 (1997), and Electromagnetic Compatibility Standard EN55015.

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