

Xenon 50

Features of the Xenon 50

- High output
- Speed control
- Sound animation
- 10V Trigger
- Synchronized operation
- 8 built in chase patterns
- Master/Slave operation
- DMX control
- 2 year warranty
- Extruded aluminium case

IMPORTANT

Installer and Users please note:

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

Installation

Fix the Xenon 50 with the hanging bracket provided. To conform to Health & Safety Regulations, a safety chain must also be employed.

The Xenon 50 must be installed by a competent electrician in accordance with the current IEE wiring regulations.

Connect the Xenon 50 to the mains supply with the lead provided. The wires are colour-coded as follows:

- Brown = Live (phase)
- Blue = Neutral
- Green/Yellow = Earth

• The Xenon 50 must be earthed for safe and reliable operation.

The supply must be fitted with an isolating switch, or plug and socket, and protected by fuse or circuit breaker rated at between 6A and 16A. If the Xenon 50 circuit is connected via an MCB a Type B or Type C may be used.

If the Xenon 50 is connected to a switching pack, ensure that the pack is capable of switching capacitive loads (such as the NJD SP10000). The Xenon 50 should never be connected to the output of a dimmer or dimming pack.

Note: For certain events, a notice stating that strobe lighting is in use must be displayed at the entrance to the venue.

Changing the fuse

If the fuse fails, replace with a new fuse type 20mm x 5mm 1.6 Amp Anti-surge, High breaking capacity. This type of fuse has a ceramic case. Do not replace with any other type or value of fuse. If the new fuse blows, consult a dealer. The fuse is located a drawer in the mains input connector.

Modes of operation

Four different modes of operation are available:

Independent

The Xenon 50 will flash at the speed set on the speed control, or to sound, No connection to the sound source is necessary, as the Xenon 50 has a built in microphone. Refer to page 4 for operating instructions. A remote control is also available (JL10R)

10V trigger.

The Xenon 50 may be triggered by +10V trigger pulse from a strobe controller or lighting controller with 0 to +10V outputs. Refer to page 4 for operating instructions.

Synchronised.

Any Xenon 50 can act as a master and control groups of 4 or 8 strobes, to produced synchronised flashing or chase patterns. The group can flash or chase at the speed set on the speed control, or flash and chase to sound, or can be controlled by a 10V trigger pulse. Refer to page 5 for operating instructions.

DMX controlled.

The Xenon 50 can be controlled from a DMX lighting desk in two ways: single flash, and variable speed control. Refer to page 7 for operating instructions.

Setting Up

Independent mode.

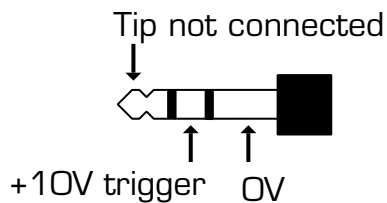
Set all the DMX Address Switches to the OFF position. To operate at constant speed, set the speed required on the speed control.

Note: Health and Safety guidelines recommend that strobes are not used at more than 4 flashes per second.

To stop flashing, rotate the speed control anticlockwise, but do not turn it until it clicks. To operate to sound, rotate the speed control anticlockwise until it clicks. No connection to the sound source is necessary, as the Xenon 50 has a built in microphone.

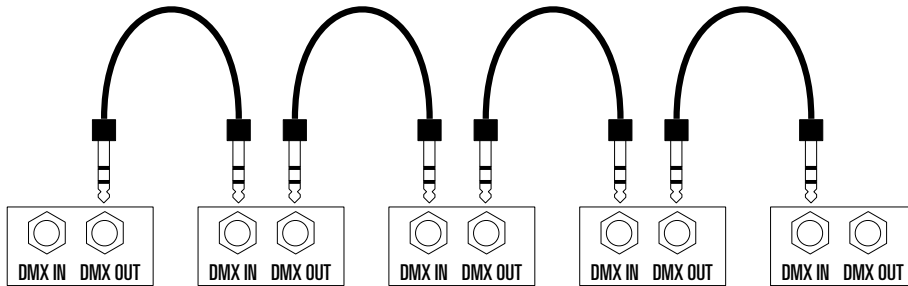
10V trigger.

To operate from a 10V controller, connect the 10V output to the ring and sleeve connections of the 10V input jack. Whenever the output of the controller turns on (goes to +10V) the strobe will flash once. The output must turn off (return to 0V) before the strobe can flash again.



Remote Control.

If a remote control is required the JL10R remote control may be connected to the remote control jack. This will override the speed control.



Synchronized Operation

To synchronize Xenon 50s without a controller, connect a DMX lead from the **DMXout** jack on the first Xenon 50 to **DMXin** on the second. Connect from **DMXout** on the second Xenon 50 to **DMXin** on the third, and so on. DMX line termination is performed automatically by the Xenon 50. DMX leads must never be joined (apart from end-to-end) or split. Using a 2-to-1 splitter or similar will prevent the system working.

To obtain the the correct flash sequences the DMX Address switches on the back of each Xenon 50 must be adjusted to tell it which channel it set to. The switches are labelled 128, 64, 32, 16, 8, 4, 2 and 1. These set the DMX address. The Xenon 50 produces 4-channel and 8-channel flash and chasing patterns.

The four channels are set on the switches as follows: The first Xenon 50, that is, the one with no jack in its DMXin socket controls all the others. It operates as channel 1, regardless of the position of the switches.

If all Xenon 50s are required to operate identically, set all the switches to channel 1 (all switches off).

To achieve the flashing patterns, set the switches so that a group of 8 Xenon 50s has the first set to channel 1, the second to channel 2, the third to channel 3, the fourth to channel 4, the fifth to channel 5, the sixth to channel 6, the seventh to channel 7 and the eighth to channel 8.

Channel	DMX address:	Switches ON (other switches OFF)
1	1	None
2	2	1
3	3	2
4	4	2, 1
5	5	4
6	6	4, 1
7	7	4, 2
8	8	4, 2, 1

The speed control on all slave units should be rotated anticlockwise until it clicks to select DMX "single flash" mode.

The speed control on the Master should be set as follows:

To operate at constant speed, set the speed required on the speed control.

To stop flashing, rotate the speed control anticlockwise, but do not turn it until it clicks.

To operate to sound, rotate the speed control anticlockwise until it clicks. To operate from a 10V controller, connect the 10V output to the ring and sleeve connections of the 10V input jack. Whenever the output of the controller turns on the strobe will flash once. The output must turn off before the strobe can flash again.

To select flashing patterns, set the switches on the 1st (Master) Xenon 50 as shown overleaf:

All switches off:	synchronised: all strobes flash together.
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Switch	
1	four channel chase pattern A
2	four channel chase pattern B
4	four channel chase pattern C
8	four channel chase pattern D

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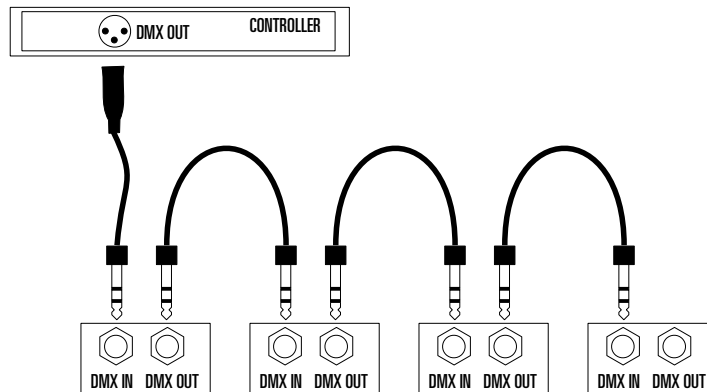
- 16 eight channel chase pattern A
- 32 eight channel chase pattern B
- 64 eight channel chase pattern C
- 128 eight channel chase pattern D

If more than one switch is turned on, the Xenon 50 will sequence through all the selected patterns. For example, if switches 16, 32, 64 and 128 are switched on, it will sequence through all the eight channel patterns.

Remote Control.

If a remote control is required the JL10R remote control may be connected to the remote control jack. This will override the speed control.

Connecting to Merlin or any Lighting control desk with DMX output.



To connect to a controller: Connect a DMX lead from the **DMXout** from the desk to **DMXin** on the first Xenon 50. Connect a DMX lead from the **DMXout** jack on the first Xenon 50 to **DMXin** on the second. Connect from **DMXout** on the second Xenon 50 to **DMXin** on the third, and so on.

DMX line termination is performed automatically by the Xenon 50. DMX leads must never be joined (apart from end-to-end) or split. Using a 2-to-1 splitter or similar will prevent the system working.

The DMX system has 512 addresses, the Xenon 50 can be programmed to any address from 1 to 256, so there can be up to 256 channels of Xenon 50s on a controller. Any number of Xenon 50s can be assigned to each channel or address. If two Xenon 50s are assigned to the same address then they will perform identically. Each Xenon 50 occupies one DMX channel. The DMX address is set using the switches on the back of the Xenon 50. The switches are labelled 128, 64, 32, 16, 8, 4, 2 and 1. Add up the numbers of the switches that are on and add 1, to give the address. (i.e. If switches 32 and 8 are ON, the address is $32+8+1 = 41$.)

As soon as a jack is inserted into the **DMXin** socket, the Xenon 50 is in DMX operation mode, and will ignore any sound or 10V inputs and the speed set on the speed control.

The Xenon 50 provides two DMX control modes, as follows:

Single Flash mode:

One flash will be produced whenever a DMX level of greater than 240 is sent to the Xenon 50. A level of less than 16 must be transmitted before the Xenon 50 will flash again. To obtain single flash mode, rotate the speed control anticlockwise until it clicks. This mode must be selected on slave strobes when operating without a controller.

Speed control mode:

The flashing rate of the Xenon 50 is set by the DMX output level. A level of 255 corresponds to 10 flashes per second, an output level of 1 corresponds to 1 flash per 2 seconds. To obtain the speed control mode, set the speed control to stop. (The actual position of the speed control has no effect in DMX control mode)

Additional information on DMX

The DMX system is a high-speed digital data system, which can transmit all the information required for light dimmers, multi-motor lighting effects etc. down a single cable. Up to 32 DMX controlled products may be connected to the DMX signal, and it is recommended that the total cable length should not exceed 250m.

Each unit connected to the DMX signal is given an address, and it compares this to the data being sent on the DMX cable, so it can determine which data is addressed to it. It then uses this data to move a motor or set a brightness level as required by the controller. As the DMX system can transmit as much information as 512 analogue control wires down a single cable, it has to transmit very quickly, in fact, at a frequency 12 times higher than the highest audio frequency. Anyone who has used long leads for audio will realize that it is difficult to do without losing the higher frequencies.

To make the DMX system work at such high frequencies, it requires special circuitry and special cable. Cable can be designed to pass high frequencies with no loss if it has the correct resistance connected at each end, this resistance is called the characteristic impedance of the cable. DMX cable has a characteristic impedance of 120Ω . All NJD DMX products with $\frac{1}{4}$ " jack sockets are designed to ensure that the resistors are connected automatically. Without them, the signal reflects off the end of the cable and interferes with the new data coming the other way. If the cable is not correct, the system will not work. Most good quality low-capacitance screened twisted pair cables will work, but twin individually screened will not. Also, if the cable is split or joined other than end-to-end, the system will stop working.

Fault Finding

Flashes erratically in stand alone mode

- Patterns selected: All DIL switches should be off

Patterns do not run correctly

- DIL switches set wrongly on slave strobes

Some strobes do not flash exactly on cue when choreographed on a DMX controller.

- Wrong DMX control mode selected: Speed control should be rotated fully anticlockwise until it clicks.

10V trigger does not work.

- Jack plug wired wrongly: Should be connected to "ring" and "sleeve" terminal on $\frac{1}{4}$ " stereo jack

Strobe lighting and Epilepsy

About 1 person in 200 is epileptic and of those about 1 in 20 is a photosensitive epileptic. Only photosensitive epileptics are affected by flashing lights. Photosensitivity is most common in the young, rare in anyone over the age of late teens to early twenties. A seizure can be brought on by flashing lights, sunlight reflecting off water, any strongly contrasted patterns, flickering televisions, looking out of train windows and driving past lines of trees or railings. This information comes from the web page of the National Society for Epilepsy

<http://www.erg.ion.ucl.ac.uk/NSEhome/photo.html>

The most sensitive frequency is 10 flashes per second, but some people are sensitive as low as 5 flashes per second, and any frequency less than the persistence of vision (which is about 25 flashes per second but can be as high as 60 flashes per second) can be troublesome.

Strobe lights would not be the only lighting effect likely to trigger a seizure, as sufferers are sensitive to high contrast patterns, so most other projected lighting effects are equally likely to cause trouble. For this reason standard advice given to photosensitive epileptics is not to go to discos.

It is recommended (and mandatory for certain types of event) that a notice stating that strobe lighting is in use is displayed at the entrance to the venue.

Technical Specification.

Power supply:	230V AC 50Hz 30VA
Power factor:	0.5 leading
Peak input power:	500W for 10ms
Fuse:	T1.6A 5×20mm HBC to IEC127 (1.6A Amp anti-surge) A HBC fuse has a ceramic case.
Discharge energy:	5 Joules per flash @ <2 flashes/second 50Watts average power at 10 flashes/seconds
Discharge power:	100kW peak
Discharge current:	400 Amps peak
Tube voltage:	680 Volts DC
Flash Duration:	50µs
Tube life:	1000000 flashes (275 hours @ 10 flashes/seconds)
DMX input/output:	complies with DMX512 (1990) 4µsec
Connector:	¼" jack data+ = tip data- = ring OV = sleeve

Safety Standards

The Xenon 50 complies with:
EN60598 (Electrical safety standard for luminaires)
EN55015 (Electromagnetic Compatibility)

If dismantling the unit for any reason, please note that internal circuitry can remain at dangerous voltages for up to 2 minutes after the unit is switched off. Always disconnect the unit from the mains before removing the cover. Lethal voltages exist on the internal circuitry (up to 700V DC).

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