

DPX 12/4

DMX Power Pack

- 4A per channel maximum
- 9.6kVA maximum
- DMX Controlled
- Choice of dimming laws
- Terminal block input and output connectors
- Wall or trussing mounted

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 DPX12/4 must be installed by a competent electrician in accordance with the current IEE Wiring Regulations.

Fixing

The DPX12/4 may be fixed to a wall using screws. Four fixing bushes are provided, one in each corner, which may be used with No.8 screws. Alternatively, the DPX12/4 may be fixed from the back using M6 screws which fit the threaded bushes.

If it is required to fix the DPX12/4 to a triangular trussing system, the a fixing kit is available.

Part number Mirage PS/TMK.

Mains input

Remove the top cover fixing screws, and slide out the top cover. Fit cable glands, or the 20mm grommets supplied into the holes to protect the wires.

Connect the incoming mains supply (230V) to the Live, Neutral and Earth terminals of the terminal block using cable rated according to the maximum total load in use.

- Live to the terminal marked L
- Neutral to the terminal marked N
- Earth to the terminal marked with the Earth symbol.
- **The DPX12/4 must be earthed.**

The DPX12/4 cannot be used with a DC supply.

If connected to a supply of lower capacity than 40A, the outputs must be reduced as follows:

- **For a 13A supply**, the maximum total load is 2990W which can be made up of:

- either:** 250W watts on each of the twelve channels

- or:** different loads on each channel so that the total does not exceed 2990W (but not more than 920W on any one channel)

- or:** 920W load may be connected to all twelve channels provided that the unit is operated so that all twelve channels are not switched on together at full power.

- **For a 16A supply**, the maximum total load is 3680W which can be made up of:

- either:** 300W watts on each of the four channels

- or:** different loads on each channel so that the total does not exceed 3680W (but not more than 920W on any one channel)

- or:** 920W load may be connected to all twelve channels provided that the unit is operated so that all twelve channels are not switched on together at full power.

- **For a 32A supply**, the maximum total load is 7360W which can be made up of:

- either:** 600W watts on each of the twelve channels

- or:** different loads on each channel so that the total does not exceed 7360W (but not more than 920W on any one channel)

- or:** 920W load may be connected to all twelve channels provided that the unit is operated so that all twelve channels are not switched on together at full power.

For high-inrush loads (Halogen lamps, motors, transformer operated devices) the outputs should be de-rated to 600W per channel for the most severe inrush loads.

Outputs

Connect the live and neutral cables to the output loads to the terminal blocks. Neutral goes to the back (higher up) terminal block. Connect the earths to the Earth terminal block adjacent to the mains input.

The following loads MAY be connected to the DPX12/4

- 230V filament lamps
- 230V halogen lamps
- Low voltage halogen lighting via standard transformers

Connect the output of the DPX12/4 to the input of the transformer. It is also possible to control multiple channels of low-voltage lighting from a single transformer - refer to "Using the DPX12/4 with a low-voltage supply" on page 10.

- Low voltage halogen lighting via "Electronic" Transformers.

*Low voltage halogen lighting powered by so-called "Electronic Transformers" may be connected to the DPX12/4 provided that the transformers are suitable for **Leading-edge-modulated dimmers**. Flickering or failing to dim is a sign that the transformer is not of a suitable type. NJD recommends using standard laminated or toroidal transformers for low voltage halogen lighting.*

- Fluorescent lighting via a dimming ballast

Dimming ballasts are no longer readily available, a better solution would be to use an electronic ballast with a 0-10V or 1-10V input (which are easily obtained) instead of the DPX12/4.

- Neon

*If using an electronic power supply, it must be suitable for connection to **Leading-edge-modulated** dimmers. Neon will only dim down to about 30% of full brightness, then it will extinguish. At around 30% brightness it may flicker. Connect the input of the neon transformer to the output of the DPX12/4. It may be necessary to adjust the preheat setting to get the best control of neon from a DPX12/4.*

- Universal motors

The DPX12/4 will act as a speed control.

The following are NOT suitable for dimming. They may be connected to the DPX12/4 provided that the channels are set to SWITCHING.

- Low energy fluorescent lighting (*with built-in electronic ballast*)
- Standard fluorescent lighting
- Synchronous motors
- Induction motors
- Lighting effects (*such as NJD Chaos, Sword, Predator, Datamoon etc.*)
- Strobe lighting
- Discharge lighting
- Audio amplification
- Other lighting controllers
- Smoke machines.

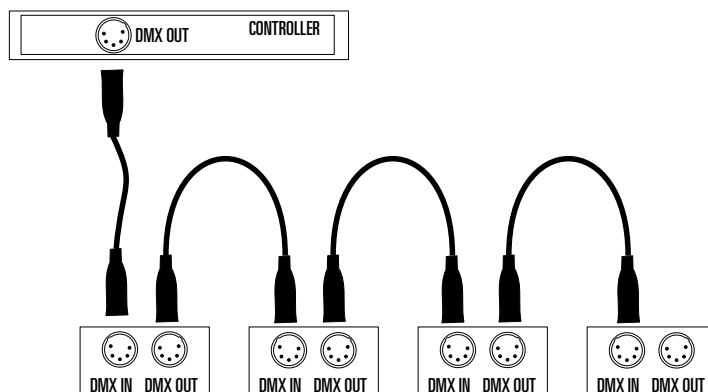
Use a switching pack such as the NJD SP10000 for these applications.

Interference.

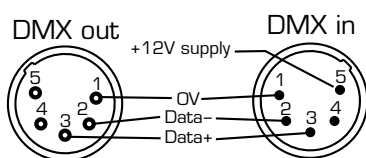
The DPX12/4 is fully suppressed against interference to European Standards, but problems may be encountered if running the output cables too close to sensitive audio circuits. Improved performance can be achieved as follows:

- Each output channel should have its own separate neutral wire of the same length and thickness as the live wire
- Each live output wire should be twisted together with its corresponding Neutral.
- The neutrals from all four channels should be commoned only at the terminal block inside the DPX12/4.

DMX Input



To connect to a controller: Connect a DMX lead from the **DMXout** from the controller to **DMXin** on the first DPX12/4 . Connect a DMX lead from the **DMXout** jack on the first DPX12/4 to **DMXin** on the second. Connect from **DMXout** on the second DPX12/4 to **DMXin** on the third, and so on. If the DPX12/4 is the last product in the chain (i.e. it has no plug in its **DMXout** socket) then switch the DMX line terminator **ON**, otherwise switch it **OFF**.



DMX connections are by 5-pin XLR socket, with an extra +12V supply on pin 5 of the DMXin socket to provide power for remote controls. This voltage does not exceed the RS485 maximum voltage specification, so no damage will result if a DMX connection using pins 4 and 5 is connected to the DPX12/4 .

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. Without it, 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.

Setting up.

DMX Address.

Set the DMX address as follows. This example shows how to set DMX address 65. Press **SELECT** until the hundreds digit flashes, and then press **ADJUST** until it shows 0. Press **SELECT** until the tens digit flashes, and then press **ADJUST** until it shows 6. Press **SELECT** until the units digit flashes, and then press **ADJUST** until it shows 5. The DMX address is now set to 065.

The Data Present led will light if the DPX12/4 is receiving DMX data.

Output channel #1 will be controlled by the address set on the DMX address display.

Output channel #2 will be controlled by the next DMX address (66 in the example above)

Output channel #3 will be controlled by the address set on the DMX address display plus 2 (Channel 67 in the example above).

Output channel #12 will be controlled by the DMX address set plus 11 (Channel 76 in the example above)

Dimming/Switching.

The DPX12/4 may be used as a switching or a dimming pack. The number of Dimming channels is set using the "F" function.

To change the number of dimming channels, press the **SELECT** button, until the letter F shows in the left-hand display, with the figure in the right-hand display flashing. Press the **ADJUST** button until the correct setting is shown opposite.

F0	All channels switching
F1	Channel 1 dimming, Channels 2-12 switching
F2	Channels 1-2 dimming, Channels 3-12 switching
F3	Channels 1-3 dimming, Channels 4-12 switching
F4	Channels 1-4 dimming, Channels 5-12 switching
F5	Channels 1-5 dimming, Channels 6-12 switching
F6	Channels 1-6 dimming, Channels 7-12 switching
F7	Channels 1-7 dimming, Channels 8-12 switching
F8	Channels 1-8 dimming, Channels 9-12 switching
F9	Channels 1-9 dimming, Channels 10-12 switching
F10	Channels 1-10 dimming, Channels 11-12 switching
F11	Channels 1-11 dimming, Channel 12 switching
F12	All channels dimming.

When set to switching, the channel is either fully on or fully off, with no intermediate settings and no preheat.

Preheat.

Preheat allows a small current to be passed through the filaments of lamps which are 'off'. This current is not sufficient to illuminate the lamp, but keeps the filament warm enough to prevent a large surge when the lamp is brought up to full brightness. This increases lamp life.

To change the level of preheat, press the **SELECT** button, until the letter P shows in the left-hand display, with the figure in the right-hand display flashing. Press the **ADJUST** button until the correct setting is shown.

Preheat may be set from zero to 19.

Dimming Law.

When set to dimming, the DPX12/4 can be optimized for the type of load that it is operating.

Linear power: The *power* supplied to the load is proportional to the DMX input level (or the slider position). If used with a heater, the power supplied will be proportional to the DMX input level (or slider position)

Linear voltage: The *voltage* supplied to the load is proportional to the DMX input level (or the slider position). If used as a speed control for a universal motor, this will make the motor speed proportional to the DMX level (or slider position)

Linear Light: If used with filament lamps, the brightness of the lamp will be proportional to the DMX input level (or slider position)

To set the Dimming law, press the **SELECT** button, until the letter L shows in the left-hand display, with the figure in the right-hand display flashing. Press the **ADJUST** button until the correct setting is shown.

- L1 = Linear Power
- L2 = Linear Voltage
- L3 = Linear Light

Guarantee

This product (except fuses and triacs) is guaranteed for a period of 12 months against faulty components or manufacture from the date of purchase. Upon proof of purchase, NJD shall, at its own option, repair or replace the defective item at no cost to the purchaser.

This guarantee is contingent upon the proper use of the product in the application for which it is intended and does not cover products that have been modified, subjected to unusual physical conditions, or electrical conditions outside its specification, or damaged in any way.

This guarantee is limited to the product only and does not cover carriage costs, installation costs or travel expenses. Your statutory rights are not affected.

In the event of any problems with this product contact the retailer from which it was purchased for technical assistance, or e-mail technical@njd-electronics.demon.co.uk

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