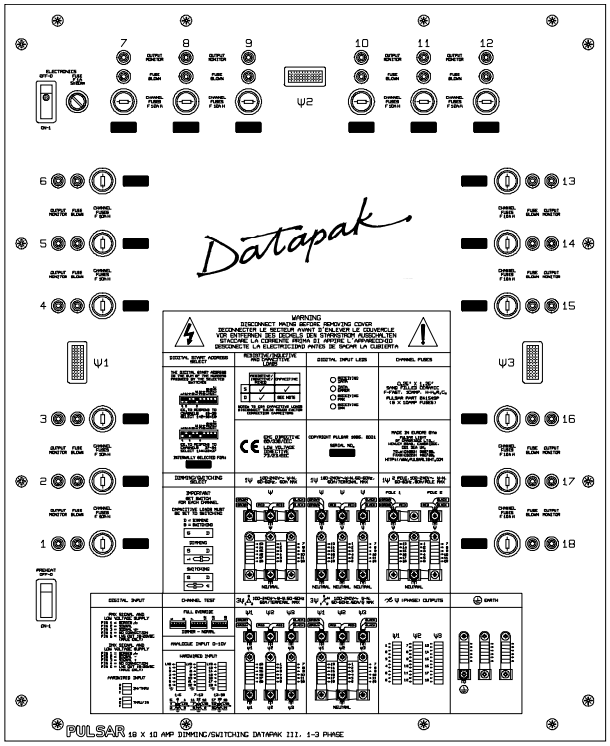
DATAPAK III



INTRODUCTION

The **Dimming / Switching Datapaks** are capable of dimming or switching resistive and inductive loads, and switching capacitive loads. To dim capacitive loads, e.g. projectors with power factor correction (PFC) capacitors, remove their PFC capacitors.

The **Switching Datapaks** are capable of switching resistive and inductive loads, but they are not suitable for capacitive loads.

This makes the **Datapak range** suitable for running all types of low voltage lamps, electric motors, neon lights, properly ballasted fluorescent lamps etc. besides ordinary resistive tungsten lamps.

INSTALLATION

INSTALLATION AND SERVICE must only be carried out by suitably skilled and competent persons. The Datapak must be connected in accordance with current local and national wiring regulations. When not in use for a period of time or before working on the lighting installation, replacing lamps or loads, the Datapak should be isolated (disconnected) from the mains supply. If the Datapak is not installed or operated according to this instruction leaflet then the protection provided by the Datapak may be impaired.

WARNING - THIS APPLIANCE MUST BE EARTHED

INSTALLATION AND VENTILATION All Dimming and Switching Packs generate a certain amount of heat, so it is essential to leave a 25mm air gap around the Datapak. Rack cabinets should be ventilated or open backed. Do not obstruct the cooling air inlets on the back panel or outlets at the top right hand corner. The Dimming/Switching models contain a fan. The mounting brackets supplied space the Datapak suitably from a wall.

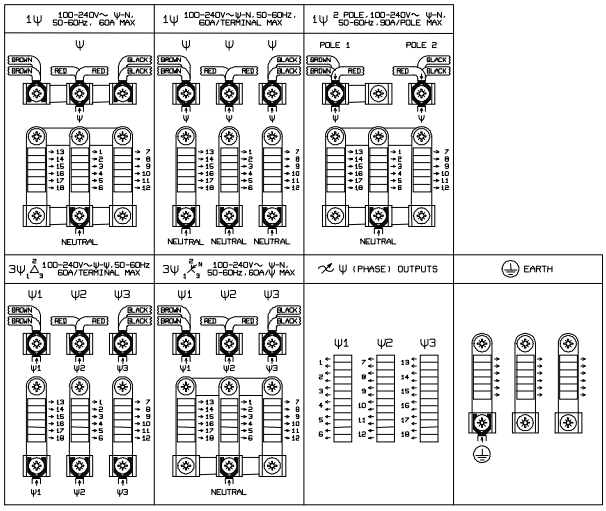
19" RACK MOUNTING To rack mount your Datapak remove the four M4 countersunk screws that hold each of the two wall mounting brackets. Rotate and re-fix these to the front four nutserts provided along each side of the Datapak.

CONNECTIONS

A CONNECTION PANEL for hardwiring the mains input/output connections are located on the bottom panel.
To allow cable access to the mains input and outputs, remove the appropriate knockout (20, 32mm) from the panel.
Knockouts removed, but not in use, must be covered up.
A further two blanking plugs (25, 32mm) are located on the right of the top panel to allow the entry/exit of such cables.
The signal inputs are accessed by removing the 20mm blanking plug from the bottom panel. Another blanking plug is located on the left of the top panel to allow the entry/exit of such cables.
Signal cables following this route **must** be double insulated, mains rated.

LEVER OPERATED TERMINAL BLOCKS are used for all input /output connections for speed and reliability.
Use a small bladed screwdriver or similar, to operate the lever.
Max. cable size: 2.5 mm^2.

MAINS SUPPLY
Important: For your Safety the Datapak must be Earthed, fed via a Residual Current Circuit Breaker and Local Isolator fused for the max IMUM current taken by the load. You might find a Pulsar Mains Distribution Unit suitable.
Mains Voltage: 100 - 240VAC +/-10%, single or three phase, star or delta. There is no voltage selector - the electronics automatically adjusts to the incoming voltage.
Mains Frequency: 48-62Hz, the electronics automatically adjusts to the frequency.
Power Consumption: The Datapak itself uses very little power, so the maximum power consumed (when all the lights are on full) = the total wattage of lamps connected. The maximum load per channel is 5, 10 or 20 Amps - see Front Panel.

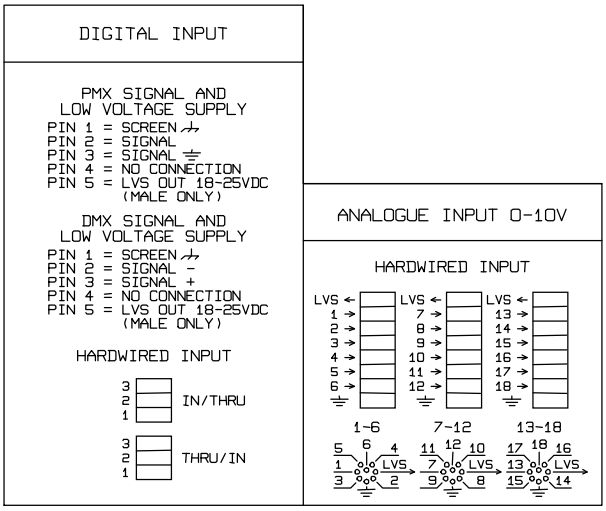


MAINS CONNECTIONS
Live, Neutral and Earth Inputs:
As supplied, the, short brass bars are set for 3 phase star mains operation. To convert the Datapak for other mains configurations they must be relocated or removed, following the diagrams printed on the Front Panel and shown above.
Delta supplies:
In order not to exceed the rating of the terminal blocks, a supply connection with two cables per phase is required. Connect one cable to the upper phase terminal and the other to the lower phase terminal.
All supplies:
When connecting your live phase cables be sure to re-connect the ring connectors that take this supply to the front panel fuse holders.
The ring connectors must be in direct contact with the supply cable.

CONNECTIONS cont.

Live, Neutral and Earth Outputs: Terminal blocks are provided for connection to your lamps etc. Two terminals are provided for each live output.
Important: with 3 phase delta supply use the correct neutral terminal block - see Front Panel printing for channel numbers.

SIGNAL CONNECTIONS may be made by either using the sockets provided (8 pin DIN / 5 pin XLR) or by hardwiring**.**



Analogue Control Signals: One 8 pin DIN socket is provided for each six channels. The pin connections are:

Pin 1 = Low Voltage Supply Out	Pin 5 = Channel 3/ 9/15
Pin 2 = ⏚ Chassis Earth	Pin 6 = Channel 4/10/16
Pin 3 = Channel 1/7/13	Pin 7 = Channel 5/11/17
Pin 4 = Channel 2/8/14	Pin 8 = Channel 6/12/18

For hardwiring, the connections to the terminal blocks are indicated on the Front Panel and the PCB.

Digital Control Signals: Two 5 pin XLR sockets (in / thru) and two 3 way terminal blocks are provided for the digital inputs. The pin connections are:

PMX SIGNAL AND LV SUPPLY	**DMX SIGNAL AND LV SUPPLY**
Pin 1 = ⏚ Chassis Earth - Screen	Pin 1 = ⏚ Chassis Earth - Screen
Pin 2 = Signal	Pin 2 = Signal -
Pin 3 = Signal Earth	Pin 3 = Signal +
Pin 4 = no connection	Pin 4 = no connection
Pin 5 = Low Voltage Supply Out	Pin 5 = Low Voltage Supply Out
male XLR only	male XLR only

For hardwiring, the connections to the terminal blocks are indicated on the Front Panel and the PCB.

Note:

- Pins 4 and 5 are occasionally used by other manufacturers for data. We recommend the use of 2 core plus screen cable, leaving pins 4 and 5 open circuit, to connect to this type of equipment. However, the Low Voltage Supply on pin 5 of the male XLR is limited to cause no harm to such equipment.

Technical Details:

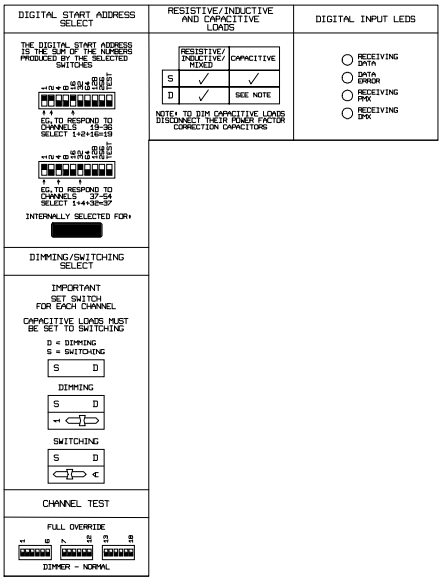
- 0V = Off (Dimming and Switching Datapaks)
- >+3V = Full On (Switching Datapaks)
- +10V = Full On (Dimming Datapaks)
- The input impedance is 100k ohms.
- **The Low Voltage Supply (LVS)** available for a Controller from pin 1 of the DIN sockets or pin 5 of the XLR male chassis connector is +18...25VDC at up to 120mA.
- Analogue control cables do not need to be screened as the inputs of the Datapak are filtered against hum and interference.
- The cables may be as long as necessary and the minimum size of their conductors is limited only by considerations of mechanical strength.

INTERNAL CONTROLS AND INDICATORS

The internal controls and indicators are only to be operated by suitably skilled and competent persons.

Digital Start Address Select and Test Switches: The digital start address is the sum of the numbers produced by the selected switches - see examples on Front Panel. The Test Switch provides a block of three channels moving through the Datapak channels.

Digital Input LEDs (Red): There are four LEDs provided, the **RX** LED shows when data is being received, the **ERR** LED indicates an ERRor in the received data, and the **PMX** (**P**ulsar **M**ultiple**X** using RS232/423) and **DMX** LEDs show the type of data being received by the Datapak. The software automatically recognises both **PMX** and **DMX**.



Normal/Full-On Channel Test Switches: One per channel. The switches should be in the "Norm" position for control from a desk. Use the "Full On" position for testing and diagnostics without having to connect a desk.

Output Monitor LEDs (Green): One per channel, indicating it's status before the output circuitry (triac, choke etc.). Thus it may be used in conjunction with the ***Output Monitor Neon*** to indicate the location of a possible fault. If it fails to light when the appropriate ***Channel Test Switch*** is set to full then there will be a fault in the electronics or the input may be shorted. If it lights but the ***Output Monitor Neon*** does not then there will be a fault in the output circuitry.

Resistive / Inductive Loads: All Datapak III models will work with a resistive, inductive, or mixed load.

Dimming / Switching Datapaks ONLY

Dimming / Switching Switches may be set to **D** (Dimming) or **S** (Switching) for each channel.
Capacitive Loads may be **S**witched but not **D**immed.

FUSES

If a channel fails to light, a fuse may have blown. These fuses normally only blow if the output is overloaded. Do not exceed the maximum load stated on the Front Panel per channel and do not short circuit the outputs. We recommend that you check your lighting equipment regularly for damaged wiring, loose connections and potential short circuits. If a fuse blows, locate and rectify the fault before replacing it.

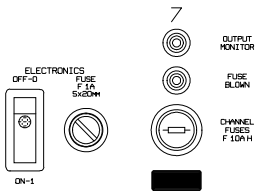
Channel Fuses: If a channel fuse blows, isolate the Datapak from the supply, then locate and rectify the fault in the lighting system before changing it. **Important** - Only the type of fuse specified on the front panel may be used - other types will not protect the triacs.

Electronics Fuse: Failure indicates an internal fault and servicing by a qualified engineer will be required.

DATAPAK III

OPERATOR INFORMATION

FRONT PANEL CONTROLS AND INDICATORS



Phase Supply Neons show when there is mains voltage at the Datapak.
Output Monitor Neons (Green) show the status of the output, whether or not a load is connected.
Fuse Blown Neons (Red) light when their channel fuse has blown.
Electronics On/Off switch with built in indicator neon controls the power to the electronics.

Lamp Preheat switch prevents the lamp filaments from cooling right down. This prevents the heavy surge currents that occur when cold filaments are switched on and thus extends lamp life.

OPERATOR INFORMATION

WARNING – FUSING OF INDUCTIVE LOADS In the unlikely event of a fault occurring in your Datapak, it is possible that damage could occur to incorrectly fused transformers or ballasts of inductive loads if you do not switch off within about one minute of the fault occurring. Make sure that your inductive loads are fitted with the lowest value of anti-surge fuse that does not blow in normal use. If in doubt contact Pulsar. Pulsar cannot be held responsible for damage to incorrectly fused inductive loads under these circumstances. Pulsar Pinspots are fully protected by self-resetting solid-state fuses.

IMPORTANT- CAPACITIVE LOADS may only be Switched by a Dimming / Switching Datapak. To dim such loads remove all of their Power Factor Correction capacitors. It is possible to damage your load if this is not done. Pulsar cannot be held responsible for damage to capacitive loads under these circumstances.

INTERFERENCE SUPPRESSION The Datapak has a comprehensive choke/capacitor interference suppression system which reduces the level of interference produced to below the levels required by EN55022, BS800, VDE0875 etc.. However, a small amount of residual interference always exists with this type of of equipment, so it is advisable to keep all lighting and mains leads associated with the Datapak as far away as possible from sensitive microphone or guitar pick up leads and A.M. radios; by doing this we do not envisage any problems.

MAINTENANCE Pulsar Datapaks use the very latest techniques (pioneered by us) to completely eliminate the need for routine adjustments. The sophisticated circuits we have developed are self stabilising against changes in mains voltage, mains frequency, top and bottom control voltage levels, preheat drift, drifting of component values, etc.

PORTABLE APPLIANCE TESTING - The Datapak may be safely Earth Bond and Insulation Tested (500V).

STANDARDS - The Datapak complies with the following International and National Standards:
Electrical Safety - IEC65, EN60065, BS415
EMC - EN50081-1, EN50014, EN55022, EN50082-1
Rack Mounting - IEC297
Index of Protection - IP20

CE **Marking Directive 93/68/EEC** - The **DATAPAK** meets both the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC.

GUARANTEE - three years from the date of original purchase. The guarantee covers defects in manufacturing workmanship and materials. It is limited to parts and labour. The guarantee becomes void if the product is: a) misused, b) not used in accordance with the instructions, c) the cable connections are not made according to our instructions if the unit is used in damp or wet environments, d) repairs are made by unauthorised persons, e) the serial number label has been removed or defaced. Pulsar's maximum liability shall not exceed the price paid for the product. In the unlikely event of a fault occurring, do not use without repair. Return the product, with a description of the fault, to your supplier or direct to Pulsar for immediate attention.

ACCESSORIES

The following products have been designed to work with and complement the Pulsar **Datapak**. Please contact us to receive further details of these superb products!

Digital Control

Product No.	Controller
23000	48 Channel Masterpiece Control Desk
24000	108 Channel Masterpiece Control Desk
20216	216 Channel Masterpiece Control Desk
27216	Masterpiece Replay Unit 216
20054	Minipiece 54 Control Desk

Analogue Control

Product No.	Controller
25200	6 Channel Desk with Master and Flash Buttons
23910	12 Channel Single Preset Desk
23920	18 Channel Single Preset Desk
23900.1	12 Channel Two Preset Desk
23900.2	18 Channel Two Preset Desk
24400	18 Channel Rock Desk Mk2
26000.3	Programmable Touch Panel II

Lanterns
A comprehensive range of stage, rock and effects lanterns, and PAR36 and PAR46 Pinspots.

19" Racks and Accessories

Product No.	Accessory
25600.2	12U Rack Cabinet
25700	20U Rack Cabinet
26600	29U Rack Cabinet
26700	38U Rack Cabinet
25700.1	20U Rack Door

1, 2, 3 and 4U Blank and ventilation panels also available

Mains Distribution

Product No.	Unit
29600AA	180A Mains Distribution 3U 3 x 60A, 13A Skt
29600AC	180A Mains Distribution 3U 3 x 60A, Schuko Skt
29600AE	As 29600AA but also with CEE17 Inlet
29600AG	As 29600AC but also with CEE17 Inlet

Cables

Product No.	Cable
28200	10m 6 Channel DIN Signal Lead (1 Plug + 1 Skt)
28100.1	25m 6 Channel DIN Signal Lead (2 Plugs)
28100.2	50m 6 Channel DIN Signal Lead (2 Plugs)
21750.1	2m DMX Extension Lead (1 XLR-5 Plug, 1 Skt)
21750.2	2m DMX Extension Lead (1 XLR-5 Plug, 1 Skt)
21750.3	10m DMX Extension Lead (1 XLR-5 Plug, 1 Skt)
21750.4	DMX Line Terminator Plug

DIMENSIONS AND WEIGHTS

Code	Unit	Width	Height	Depth	Weight
		mm	mm	mm	kg
29900.3	12 x 5A Datapak	482.6	533.4	150	11.5
29901.3	12 x 10A Datapak	482.6	533.4	150	12
29902.3	18 x 5A Datapak	482.6	533.4	150	14
29903.3	18 x 10A Datapak	482.6	533.4	150	14.5
29904.3	9 x 20A Datapak	482.6	533.4	150	14.5