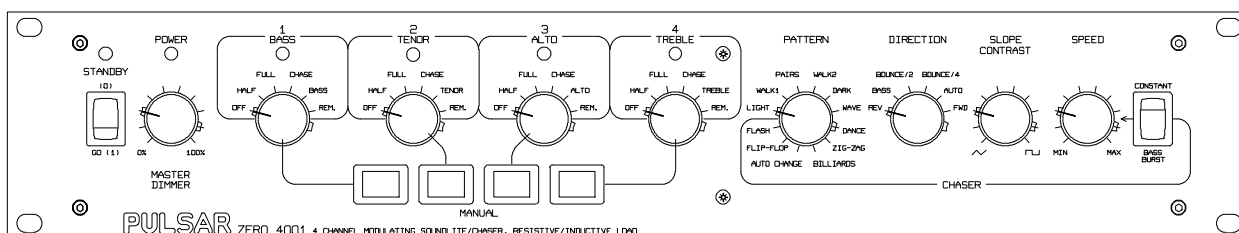


ZERO 4001



SPECIFICATION

23700UK	ZERO 4001 WITH BULGIN P552 SOCKETS
23700US	ZERO 4001 WITH U GROUND SOCKETS
23700IE	ZERO 4001 WITH IEC SOCKETS
23700HA	ZERO 4001 WITH HARTING CONNECTOR

The **ZERO 4001** is capable of controlling resistive or inductive loads, making it suitable for running all types of low voltage lamps (including Pinspots and projectors), electric motors, neon lights, properly ballasted fluorescent lamps etc. besides ordinary resistive tungsten lamps. These different types of loads may be mixed in any combination.

The **ZERO 4001** is not suitable for capacitive loads.

POWER HANDLING - 5 Amps maximum per channel. 15 Amps total maximum. Inductive loads take a higher current than indicated by their wattage rating so although the 5 Amp limit still applies, a wattage reduction is necessary.

INSTALLATION



INSTALLATION AND SERVICE must only be carried out by suitably skilled and competent persons. The **ZERO 4001** 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 **ZERO 4001** should be isolated (disconnected) from the mains supply. If the **ZERO 4001** is not installed or operated according to this instruction leaflet then the protection provided by the **ZERO 4001** may be impaired.

WARNING - THIS APPLIANCE MUST BE EARTHED

VENTILATION - A certain amount of heat is generated by this type of equipment, so it is essential to leave a 25mm air gap around the **ZERO 4001**. Rack cabinets should be ventilated or open backed.

WALL MOUNTING - 4U wall mounting brackets are available - **see Accessories**. Alternatively there are four plastic plugs located on the base of the tray to allow the unit to be fixed flat onto a wall. Wall mounting should only be carried out by suitably skilled and competent persons.

WITH THE UNIT DISCONNECTED FROM THE MAINS, remove the lid. Push out the four small plastic plugs located near the feet. The four holes provided have a diameter of 5mm and suitable screws should be used to fix the unit to the wall.

Important - do not remove the plastic feet as they provide the clearance needed for cooling.

BACK PANEL CONNECTIONS

MAINS SUPPLY - 100-240 VAC, 50-60 Hz. (self adjusting)

15 Amps Max - depending on load connected.

We recommend the use of a Residual Current Circuit Breaker.

The mains cable should be fitted with a suitably approved and rated plug. Note: in some countries it is a requirement that such a plug be fitted by a qualified electrician.

CABLE COLOURS

Green/Yellow = \equiv Earth / Ground

Brown = Live / Phase / Hot

Blue = Neutral

CONNECTION TO YOUR LOAD - Several types of output connectors can be fitted to the **ZERO 4001** (See Specification section). Channel numbers and pin connection details are printed on the back panels.

AUDIO INPUT - A standard **1/4" Stereo Jack Socket** accepts signals from your sound system. A **THRU Socket** is provided.

AUDIO INPUT LEVELS 0.5V - 100V RMS, Input impedance Z_{in} = 33K ohms - placing negligible load on your amplifier. It is normal to feed the units with an audio signal from a speaker system but it may also be connected to a 100V line system or to a pre-amp output. Low level signals from Mono Pre-amps should use a Stereo plug but with the signal connected to both the tip and the ring of the jack plug. Ensure that the polarity of the jack plug connections is correct - the earth must go to the jack plug sleeve. Do not feed the unit with just one channel of a stereo system - it cannot be expected to follow the music accurately with only half the audio information.

REMOTE CONTROL - A standard **8 pin DIN socket** on the back panel provides 6 input channels.

Channel 5 enables the remote function to work in two **MODES**,

MODE 1 - Desk Operation (channel 5 <5V)

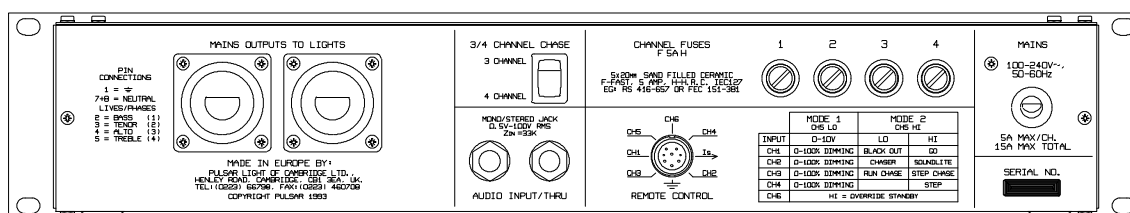
allows any channel that is switched to Remote to become a dimmer channel (0 - 10V = 0 - Master Dimmer Level).

MODE 2 - Litefoot Operation (channel 5 >5V)

allows the four channel inputs to have the special functions, **Blackout/Go, Chase/Soundlite, Run Chase/Step Chase** and **Chase Single Step**, available on the **Pulsar Litefoot**.

Channel 6 can be used to override the **Standby** function on the front panel, (channel 6 - >5V to override).

Further information is printed on the back panel.



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3/4 CHANNEL SWITCH - When the 3 channel chase patterns are selected, channels 1 and 4 are the same, this enables either channel to be used as one of the 3 chase channels.

FRONT PANEL

LEDs (Light Emitting Diodes) - one LED for **Standby/Go** indication, one LED for Mains (**Power**) indication plus one **Monitor** LED per channel.

STANDBY SWITCH - In **Standby** the Monitor LEDs stay working so a particular function may be selected before enabling the lights by switching to **Go**. **Standby** may be overridden by e.g. a Pulsar Litefoot connected to the channel 6 input of the **Remote Control Socket** on the rear of the unit.

MASTER DIMMER - The overall brightness level of all the channels is controlled by the **Master Dimmer**.

MANUAL BUTTONS - The Manual buttons will flash a channel to the **Master Dimmer** level at any time, providing the unit is **NOT** in **Standby**.

CHANNEL SELECTION SWITCHES - Each Channel can be individually switched to select a feature.

The **Off**, **Half** and **Full** functions statically control the output brightness of the desired channel.

The **Chase** function steps a choice of light patterns in a forward or reverse direction through a 4 channel display at variable **Speed**, continuously or for the duration of each bass beat of an audio signal. The **Slope** control will vary the chase from a crossfade to a switching chase.

For **Sound-to-Light** the **Slope** control acts as a **Contrast** control, which varies the effect from a gentle fading action through to a fast switching effect.

The **Sound-to-Light** function separates an audio signal into 4 audio bands and uses the volume in those bands to control the 4 channels. The Sound to Light feature has fully automatic Sound-to-Light circuits with a master Automatic Volume Control (AVC) circuit to adjust for overall changes in the music volume and one AVC circuit for each audio channel to adjust for changes in the balance between, for example, the bass and treble.

The **Remote** position enables the unit to become a 4 channel dimmer pack in **MODE 1** (channel 5 lo) controlled from any 0 - 10V desk, OR a remotely controlled Chaser/Soundlite in **MODE 2** (channel 5 hi) controlled either from a 0-10V desk or a Pulsar Litefoot foot switch.

PATTERN SELECT SWITCH(ES) - Select a particular pattern or allow the unit to **AutoChange** the pattern after a number of chase steps. Note that the patterns **Flip-Flop** and **Flash** are NOT included in the **AutoChange** function and for this reason are printed in grey.

DIRECTION SELECT SWITCH - Select **Forward**, **Reverse**, **Bass Direction Change**, **Bounce/2**, **Bounce/4** or allow the unit to **Autochange** the direction after a number of chase steps.

CONSTANT SPEED/BASS BURST SWITCH - With an Audio input, **Bass Burst** gives a burst of chase steps for the duration of the bass beat. The number of chase steps per beat depends upon the setting of the **Speed** control.

CHASE SPEED CONTROL - Approx 10 Mins per step at **Min**, to approx 50 steps per second at **Max**. With **Bass Burst** selected, the number of flashes per bass beat is determined by the setting of the **Speed** control - from 1 step per beat at **Min** to around 20 steps per beat at **Max**.

FUSES & PRECAUTIONS

If a channel fails to light, a fuse may have blown. These fuses will only blow if the output is overloaded. Do not exceed the maximum load of 5 Amps 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.

One, 5 Amp, F-Fast, 5 x 20mm, Ceramic, High Rupture Current (HRC) output fuse is provided for each channel. Only this type of fuse has the correct blowing characteristics to protect the triacs - **do NOT use any other type of fuse**.

The fuse holders are mounted on the back panel for easy access when the unit is rack mounted.

OTHER INFORMATION



MAINS CABLE REPLACEMENT - This modification should only be carried out by suitably skilled and competent persons.

Important - the earth wire must be longer than the live and neutral wires so that the earth will always be the last wire to come off if the cable is pulled from the unit. Ensure the outer sheath covering the live and neutral wires is within 15mm of the live and neutral pads on the PCB. Replace the cable ties (Pulsar Part No.4267) which were removed to allow replacement.

AUDIO INPUTS - these are not earthed directly within the unit but through a resistor. This eliminates earth loops and hence hum and interference on your sound equipment. There is an electronic circuit to enhance the separation between the 'Sound-to-Light' channels.

WARNING - FUSING OF INDUCTIVE LOADS. In the unlikely event of a fault occurring in your unit, it is occasionally possible that damage could occur to incorrectly fused transformers or ballasts of inductive loads. 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.

WARNING - CAPACITIVE LOADS Remove all Power Factor Correction capacitors. Damage to your load may occur if this is not done. Pulsar cannot be held responsible for damage to capacitive loads under these circumstances. If in doubt contact Pulsar.

INTERFERENCE SUPPRESSION - The **Z4001** has a comprehensive choke/capacitor interference suppression system which reduces the level of interference produced to below the levels required by EN55014, BS800, VDE0875 etc.. However a small amount of residual interference always exists with this type of equipment, so it is advisable to keep all lighting and mains leads associated with the **Z4001** 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

PORTABLE APPLIANCE TESTING - The **ZERO 4001** may be safely Earth Bond and Insulation (500V) Tested.

STANDARDS - The **ZERO 4001** complies with the following International and National Standards:

Electrical Safety - IEC65, EN60065, BS415

EMC - EN50081-1, EN55014, EN55022, EN50082-1

Rack Mounting - IEC297

Index of Protection - IP20

Marking Directive 93/68/EEC - The **ZERO 4001** meets both the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC



GUARANTEE - 12 months from the date of original purchase. The guarantee is limited to parts and labour. The guarantee is void if the unit is mis-used, if repairs are performed by unauthorised persons or the incorrect type of fuse has been used. In the unlikely event of a fault occurring, do not use without repair. Return the unit, 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 **ZERO 4001** Soundlite/Chaser.

Remote Control

Product No.	Accessory
23705	4 Channel Desk
23706	Litefoot - Footswitch

Ventilation Panels

25261/2/3/4 1,2,3 and 4U Ventilation Panels

Wall Mounting Brackets

25033 4U wall mounting

PULSAR also manufactures a comprehensive range of Cables, Splitter Blocks, Strobes, Dimming and Switching Packs, Control Desks, Pinspots, and Stage and Rock and Effects Lanterns. Please contact us to receive further details of these superb products!

Code	Unit	Width	Height	Depth	Weight
		mm.	mm.	mm.	kgs.
23700XX	ZERO 4001	483.0	86.0	160.0	3.0
23700XX	ZERO 4001 (Inc. Skts)	483.0	86.0	191.0	3.0
	Console Cut Out	448.0	80.4	193.0	-
	Fixing Holes	465.6	76.3	-	-