

**G85483**

## Spacesaver College Power Supply

**NFU 504**



### Purpose:

For demonstration and use by students in advanced courses, where an accurately monitored voltage or current may be required.

Output: ac and dc 0 to 25 volts, adjusted by rotary control, smoothed by a 2200 $\mu$ F capacitor, at a maximum total current of 8A.

Meter: Digital, backlit display of voltage or current for ac or dc.

### Ratings:

230V ac +/-10% 50Hz 363VA

Fuse: T2A time delay

Internal fuse: T50mA time delay

Temperature range: 10 to 40°C

Humidity: 10 to 90%

RH Mass: 5.9kg

### EMC:

This equipment is Class A according to the EMC standard EN 55011 and is intended for use in a non-domestic environment only.

Interference from nearby sources of RFI (radio frequency interference) may affect the accuracy of the display. PCs, laptops, tablets and mobile phones may have this effect.

### Warnings:

For your safety, this product should be used in accordance with these instructions, otherwise the protection provided may be impaired.

**Do not open or remove covers or panels.** Repairs and service may only be carried out by our repair agent, otherwise the warranty may be void.

Use only the 3-core mains cable supplied with the unit. If the mains cable is replaced, the rating of the replacement must be the same or better than the original.

The unit must be earthed at all times. The unit is earthed/grounded through the 3-core mains lead, so no additional earth connection is required.

Always position the power supply so that it can be disconnected from the mains, if an emergency arises.

This unit is intended for use in DRY conditions. Avoid spillage of water and other liquids on to the unit. If spillage occurs, disconnect the mains supply.

There is no specific requirement for insulation of external circuits as they cannot become hazardous live, as a result of connection to this unit. Limit the length of any connecting leads to 3 metres. version G85483 2014

## Continuous use:

This power supply is intended for all normal school experiments, providing ac and dc currents up to 8 amps.

If the power supply is used continuously at currents in excess of 6 amps, then we advise a maximum period of 60 minutes, followed by cooling for the same period. Similarly, if it is used at full load (8.5 amps) for 10 minutes, a cooling period of 10 minutes is advised.

## Features

- Output voltage continuously variable by rotary control up to 25V
- Continuously rated output of 8A, ac or dc, dc is smoothed
- LCD indication of voltage or current, ac or dc - selectable by membrane switches
- Sockets accept standard 4mm plugs and shrouded plugs • Illuminated mains on/off switch, prominently displayed.
- Internal fan for cool-running
- Secondary fully protected by high speed, resettable electronic trip
- Time-delay fuse protection for transformer primary
- Additional thermal trip protection for transformer

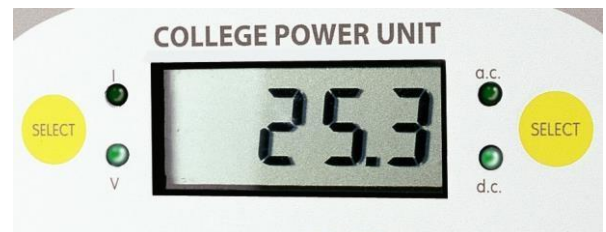
## Outputs

The ac and dc outputs may be used simultaneously, provided the combined output does not exceed 8A

## Display:

The illuminated digital display has two associated membrane switches with LED indicators.

The user can choose to display current (I) or voltage (V), for either the ac or dc output of the unit.



## Overload - electronic trip

Overloads are indicated by the LED changing from green to red. Once the cause of the overload has been removed, the supply can be restored by pressing the RESET button.

Operation of the electronic trip can be tested by short circuiting either the ac or dc terminals using a 4mm plug lead.

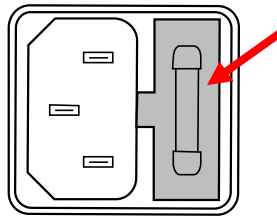
## Mains lead and fuse replacement

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The mains cable stows on the back of the unit with a wind and clip feature. The mains cable retainer can be removed to allow the cable to be stored separately. Simply remove the screw and retainer from the base of the unit. The IEC cable is now detachable. In the unlikely event of the fuse blowing, the retainer and mains cable must be removed to gain access to the fuse carrier.



The carrier can be removed with a fingernail or tip of a screwdriver. A spare fuse is provided in the



cartridge

T2A There is also an internal fuse, rated at T50mA, which protects the supply to the cooling fan and LCD meter.



Replacement fuses must be 20mm time-delay fuses, of the correct rating:

## Cooling

Spacesaver power supplies have built-in, quiet-running fans. Ventilation is provided through slots in the base and top of the unit. These should not be obstructed. Under conditions of continuous use at full load and high ambient temperatures, the thermal trip may operate. Reducing the load and/or ambient temperature will allow the supply to operate after a delay.

## Cleaning

The front panel membrane conceals and protects switches and LEDs. It may be wiped clean using a damp cloth. Be sure to disconnect the unit from the mains before cleaning, and do not use any abrasive cleaners or organic solvents.

## Periodic testing:

Check the mains lead and plugs at both ends for any damage.

Periodically check the earth bonding and insulation, by performing a Portable Appliance Test (PAT). Most schools and local authorities have a regular schedule for such testing.

Check the action of the electronic cutout, by short circuiting the power supply output (check dc and ac outputs separately) using a short 4mm plug lead.

Check that the fuse in the mains plug (5A recommended) and the two fuses (active and spare) in the IEC socket on the back panel are all of the correct rating.

## Warranty, repairs and spare parts:

The power supply is guaranteed for a period of one year from the date of delivery to the customer. This warranty does not apply to defects resulting from the action of a user such as misuse, improper wiring, any operations outside of its specification, improper maintenance or repair, or unauthorized modification. Version 085483 2014

Our liability is limited to repair or replacement of the product. Any failure during the warranty period should be referred to Customer Services.

In the event of a fault, apart from replacing the instrument fuse in the IEC socket, the power supply should be referred to the Philip Harris recommended repair agent.

Please contact Customer Services or [techsupport@philipharris.co.uk](mailto:techsupport@philipharris.co.uk) for advice

**Instructions for authorized service technicians:**

Ensure that any replaceable mains cord is of the correct rating.

Ensure that all earth conductors and protective earth bonding is maintained after service work. Please refer to the detailed service procedures, safe servicing and continued safety - contact [techsupport@philipharris.co.uk](mailto:techsupport@philipharris.co.uk) for advice.

For any manufacturer specific parts please refer to our recommended repairer.

Please refer to product specific risks that may affect service personnel, the protective measures and verification of the safe state after repair.

**Supplier details:**

Philip Harris Education, 2 Gregory Street, Hyde, Cheshire SK14 4RH

Orders and Information      Tel: 0845 120 4521

Fax: 0800 138 8881

Repairs                              Tel: 0845 120 3211

E-mail:      [techsupport@philipharris.co.uk](mailto:techsupport@philipharris.co.uk)

Website: [www.philipharris.co.uk](http://www.philipharris.co.uk)

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