

# 1 ELECTRICAL SYSTEM USING PSU 2005

## 1.1 INTRODUCTION

For the safe operation of all electrical equipment within your Caravan / Motorhome / Trailer Tent / Folding Camper it is important that you read and fully understand these instructions. If you are unsure of any point please contact your dealer / distributor for advice before use.

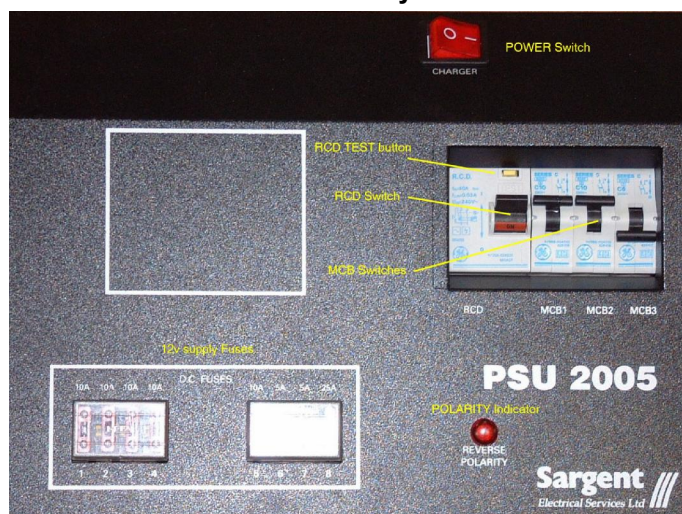
Your Caravan / Motorhome / Trailer Tent / Folding Camper has been fitted with an electrical system from Sargent Electrical Services Ltd. and incorporates the new PSU2005 power supply. This unit provides protection for the 240v (mains) and 12v equipment, supplies 12v power and charges the internal leisure battery. The electrical system complies with EN 1648-1 & -2 and BS7671.

## 1.2 MAINS CONNECTION

For your safety it is **IMPORTANT** that you follow these connections instructions each time your Caravan / Motorhome / Trailer Tent / Folding Camper is connected to a mains supply.

- A) **Ensure suitability of the Mains Supply.** Your Caravan / Motorhome / Trailer Tent / Folding Camper should only be connected to an approved supply that meets the requirements of BS7671. In most cases the site warden will hold information regarding suitability of supply. If using a generator you also need to comply with the requirements / instructions supplied with the generator.
- B) **Switch the PSU2005 unit OFF.** Locate the red power switch on the PSU2005 and ensure the switch is in the OFF (0) position before connection to the mains supply.
- C) **Connect the Hook-up Lead.** Firstly connect the supplied hook-up lead (orange cable with blue connectors) to the Caravan / Motorhome / Trailer Tent / Folding Camper and then connect to the mains supply.
- D) **Check Residual Current Device operation.** Locate the RCD within the PSU2005 and ensure the RCD is switched on (lever in up position). Press the 'TEST' button and confirm that the RCD is turned off (lever in down position). Switch the RCD back to the on position (lever in up position). If the test button failed to operate the RCD see section 1.4.
- E) **Check Miniature Circuit Breakers.** Locate the MCB's within the PSU2005 (adjacent to the RCD) and ensure they are all in the ON (up) position.
- F) **Turn the PSU2005 ON.** Locate the red power switch on the PSU2005 and turn to the ON (I) position. The switch will illuminate when turned on.
- G) **Check correct Polarity.** Locate the 'Reverse Polarity' indicator on the PSU2005 and ensure that the indicator is NOT illuminated. If the indicator is illuminated see section 1.4. Note that the reverse polarity indicator only works when the red power switch is in the ON position. Also, reverse polarity indicator may momentarily flicker as the red power switch is turned on / off, this is normal and does not indicate a fault.
- H) **Check operation of equipment.** It is now safe to check the operation of the 12v and 240v equipment.

PSU2005 Layout



PSU2005 Specification

*Mains Input 230 Volts AC +/- 10%*  
*Frequency 50 Hz*  
*Output Voltage 13.5 Volts nominal*  
*Output Current 12 Amps nominal*  
*(150 Watts)*

## 1.3 BATTERY

### A) Type / Selection

For optimum performance and safety it is essential that only a proprietary brand LEISURE battery is used with a typical capacity of 75 to 120 Ah. A normal car battery is NOT suitable.

It is recommended that the leisure battery is always 'in circuit' when the system is in use.

The battery feed is fitted with an inline fuse between the battery and the electrical harness, which is usually located immediately outside the battery compartment. The maximum rating of this fuse is 20A.

### B) Installation & Removal

Always disconnect the 240v mains supply and turn the PSU2005 charger switch to the OFF (0) position before removing or installing the battery.

When connecting the battery, ensure that the correct polarity is observed (black is negative [-] and red is positive [+]) and that the terminals are securely fastened. Crocodile clips must not be used.

### WARNING

Explosive gases may be present at the battery. Take care to prevent flames and sparks in the vicinity of the battery and do not smoke.

### C) Servicing

Under normal circumstances it should not be necessary to remove the battery other than for routine inspection of the terminals and "topping up" of the battery fluid. Please see instructions supplied with the battery.

Note: Do not over-discharge the battery. One of the most common causes of battery failure is when the battery is discharged below the recommended level of approximately 10.5v. Discharging a battery below this figure can cause permanent damage to one or more of the cells within the battery.

## 1.4 FAULT TABLE

Fault	Possible Cause	Proposed Fix
No 240 volt output	Connecting lead between the site and Caravan / Motorhome / Trailer Tent / Folding Camper not connected	Check and connect lead as per 1.2.C Check also input connector at the base of the PSU2005
	RCD switched off	Reset RCD as per 1.2.D
	RCD not operating correctly	Check supply polarity
	MCB switched off	Reset MCB by switching OFF (down position) then back ON (up position)
	No or deficient supply from site	Contact site Warden for assistance
	Other fault	Contact your Dealer
No 12 volt output	No 240v supply	Check all above
	Charger not switched on	Switch charger switch on (I) position, switch will illuminate
	Battery not connected and / or charged	Install charged battery as per 1.3.B
	Power selector switch on control panel not switched to 'van' (where fitted)	Select 'van' on control panel
	Fuse blown	Check all fuses are intact and the correct value fuse is installed as per fuse table shown in 1.5
	Equipment switched off / unplugged	Check equipment is switched on and connected to the 12v supply
	Other fault	Contact your Dealer

## 1.5 FUSE / MCB TABLE

Fuse	Rating	Fuse Colour	Wire Colour	Description
1	10 Amps	Red	Black / Blue	Omnivent (option)
2	10 Amps	Red	Purple	Pump & Thetford
3	10 Amps	Red	Pink	Rear Roof Lights
4	10 Amps	Red	Slate	Front Roof Lights
5	10 Amps	Red	Yellow / White	12v Sockets & Radio
6	5 Amps	Tan	Yellow / Green	Ignitions
7	5 Amps	Tan	Black / Red	Heater Fan
8	15 Amps	Blue	*	Charger (internally connected)
Battery	20 Amps	Yellow	Brown / Blue	Fuse remotely located near battery

MCB	Rating	Wire outer Colour	Description
1	10 Amps	White	240v Sockets
2	10 Amps	White (Yellow for Heater)	240v Sockets / Heater (if fitted)
3	6 Amps	Black (Blue for Water Heater)	Fridge / Water Heater / 12v Charger

## 2 TECHNICAL DATA & APPROVALS

### 2.1 Outline Specification

INPUT 230v	230 Volts / 0 to 16 Amps	+ / - 10%
OUTPUT 230v	RCD protected, 3 x MCB outputs of 10, 10 and 6A via 2 x 9 way connectors	
INPUT 12v	2 x 20A battery inputs via 4 and 12 way connectors	
OUTPUT 12v	20A total output protected by 7 fused outputs via a 12 way connector	
Integrated CHARGER	Input 220-240 Volts AC +/- 10%, Frequency 50 Hz +/- 6%, Current 1.7A max. DC Output 13.5 Volts nominal, Current 12 Amps max (150 Watts).	
IP rating	IP31	
Operating temperature	Ambient 0 to 35° Centigrade PSU case temperature with full load 65° C Max	

### 2.2 Dimensions

PSU2005	Overall size (HxWxD) 230 x 370 x 110mm	Fixing centres 195 x 360mm
	Weight 2.9 Kg	

### 2.3 Approvals

System: BSEN 1648-1, BSEN1648-2 compliant, BS7671: 2001 compliant

Residual Current Device: RCD 40A 30mA trip to BS EN 61008

Miniature Circuit Breakers: MCB's (10 & 6A) type C 6000A breaking capacity to BSEN 60898

Electro Magnetic Compatibility (EMC) directive 89/336/EEC

Integrated Charger: BS EN 60335-1/2.29, 89/336/EEC, IEC61000-3.2/3:1995, EMC certificate 5172TC 3<sup>rd</sup> party tested.

## 2.4 Declaration of Conformity

Equipment: Caravan / Motorhome Power Supply Unit (PSU)

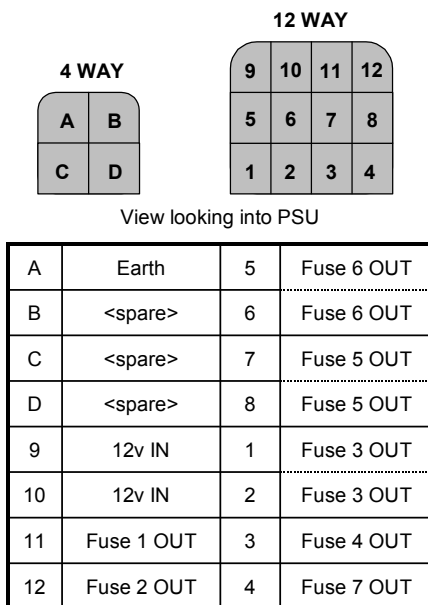
Model name: PSU2005-AV / -AU / -P / -C / -L

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced approvals. The unit complies with all essential requirements of the Directives.

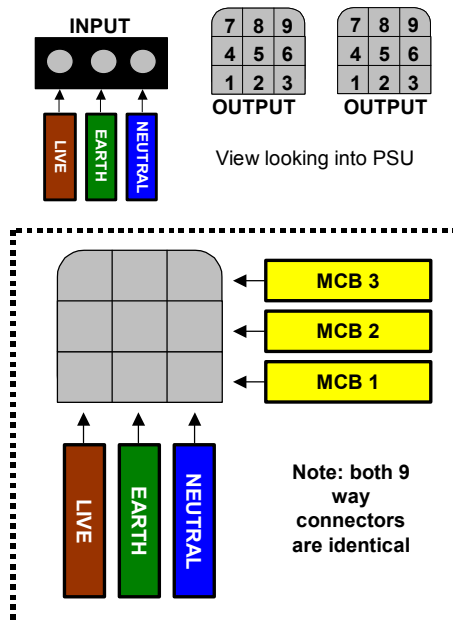
Signed:	Name:	Position:	Manufacturer:
<i>Ian Sargent</i>	I L Sargent	Technical Director	Sargent Electrical Services Ltd Unit 39, Tokenspire Business Park Woodmansey Beverley East Yorkshire United Kingdom
Date:			
17/6/2008			

## 2.5 Electrical Connections

### 12 Volt



### 230 Volt



## PSU2005 Connector Kit – T1005