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# Power Supply & Battery Charger

## Installation, Commissioning & Operating Manual



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## **1. Installation**

### **1.1 Safety**

#### **IMPORTANT - READ THIS SECTION FIRST!**

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work Act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used. An article is not regarded as properly used if it is used "without regard to any relevant information or advice" relating to its use made available by the supplier.

This product should be installed, commissioned and maintained by or under the supervision of competent persons according to good engineering practice and:-

- i) IEE regulations for the electrical equipment of buildings.
- ii) Codes of practice.
- iii) Statutory requirements.
- iv) Any instructions specifically advised by the manufacturer.

According to the provisions of the act you are therefore requested to take such steps as are necessary to ensure that any appropriate information about this product is made available by you to anyone concerned with its use.

This equipment is designed to be operated from 220-240V AC mains supplies and is of class I construction. As such it must be connected to a protective earthing conductor in the fixed wiring of the installation.

Failure to ensure that all conductive accessible parts of this equipment are adequately bonded to the protective earth will render the equipment unsafe.

### **1.2 General**

Installation of the panel should only be carried out by qualified personnel. The electronic components within the panel can be damaged by static charge. Suitable precautions must be taken when handling circuit boards. Never insert or remove boards or components with power on.

## **1.3 Mounting the Cabinet**

The site chosen for the location of the panel should be clean and dry, and not subject to shock or vibration. The temperature should be in the range 5° to 350°C, and the humidity should not exceed 95%.

Using the cabinet as a template, mark the position of the four fixing holes, ensuring that the wall is flat at the chosen location, drill and plug the wall and fix the cabinet using the four fixings cabling.

Suitable cables should be brought into the cabinet using the knockouts provided, making sure that tails are long enough to reach the relevant terminals. The screen or drain wire should be bonded to earth at one location only, it should be continuous throughout the circuit. Terminals will accept one single or stranded conductor up to 2.5 mm .

## **2. Commissioning**

### **2.1 Mains Connection**

The mains is connected to the PSU via a fused terminal block marked with live, neutral and earth symbols. It is imperative that the equipment is soundly earthed and this connection should be made and checked first.

Following connection of the live and neutral cables and with no other connections made, the unit should be powered and the battery output measured at around 28 volts DC.

### **2.2 Load Connection**

Terminals are provided for connection to the load and are marked + and -. The voltage at these terminals under normal conditions (i.e. off load) should be around 28.5 to 29 volts.

With the mains power off, connect the load cables.

Double check the load connection for correct polarity before switching on mains. After switching on mains check the voltage at the load for correct polarity.

Do not connect or disconnect the wiring to the load terminals with mains or battery power on.

### **2.3 Fault/Healthy Connection**

Switched -VE outputs are available for signalling of power fault and power healthy indication marked PO (power on) and PF (power fault). Under normal circumstances (mains and battery connected and fuses intact) the -VE appears at the PO terminal.

Failure of the mains or battery supply will transfer the -VE to the PF terminal.

A volt free changeover contact is also available for fault/healthy signalling which can be used to switch other voltages or signals

### **2.4 Battery Connection**

An output is provided via flying leads with 0.25 inch spade receptacles for connection to sealed lead acid rechargeable batteries. Normally two 12 volt batteries are connected in series and then to the charger.

Before connecting the batteries measure the output voltage on the leads. It should be 28 volts  $\pm$ 0.1 volt. If the voltage differs from this, adjust it to the correct level using the control on the PCB. (This may vary from the factory setting due to variations in mains supply voltage.)

It is very important that the correct polarity is observed before connecting the batteries as the wrong polarity connection will blow the charging fuse and may damage the unit.

With the batteries connected and the mains on the fault contact should show continuity between the "C" and "NC" terminals. With the battery on mains disconnected the fault contact should show continuity between the "C" and "NO" terminals.

With the battery connected switch off the mains and ensure that a supply is present at the load terminals.

### **3. Operation & Maintenance**

Under normal circumstances the power supply requires no attention and will transfer automatically to battery supply in the event of a mains failure. Periodic checks should be made however to ensure maximum life of the sealed lead acid battery.

To do this, disconnect the battery and using a calibrated voltmeter ensure that the voltage on the battery leads is 28 volts  $\pm 0.1$  volt. Adjust this if necessary using the control on the PCB.

Disconnect the mains supply and ensure that the fault contact operates and that the battery can supply the load.

#### **3.1 Specifications**

Frequency - 50/60 HZ

Input voltage range - 220 to 240 V AC

Battery charge voltage - 28 V DC

Load voltage - 29 V DC (nom)

Max continuous load - Half rated load

Construction - Class I

Terminal capacity - 2.5 mm

Fault contact rating - 1 amp 30 V DC

Battery type - Sealed lead acid