



### 24 volt 10 amp Power Supply / Charger

#### Specification:

Our 24 volt 10 amp power supply unit is a 27.6 volt (typical) Switched Mode Power Supply and Battery Charger. Its features include a universal mains supply input, Power Factor correction, multiple fault indicators and load-shedding to prevent excessive battery drain. The unit is designed to comply with many international requirements including BSEN54 and the European CE approval. It requires no setting-up or adjusting.

#### Input:

**Voltage:** 110 - 240v AC  
**Current:** 3.8A @ 115v. 1.9A @ 230v  
**Inrush:** Cold Start <40A surge  
**Frequency:** 47 - 63Hz  
**Leakage:** <3.5mA @ 50Hz  
**Protection:** Mains input, T6.3A fuse

#### Output:

**Voltage:** 18 - 33v at 20c (no load)  
**Current:** 11A @ 27.6v  
**Regulation:** 1% (line & load combination)  
**Overload:** Continuous short-circuit protection  
**Overvoltage protection:** Min. 31v. Max. 33v (approx).

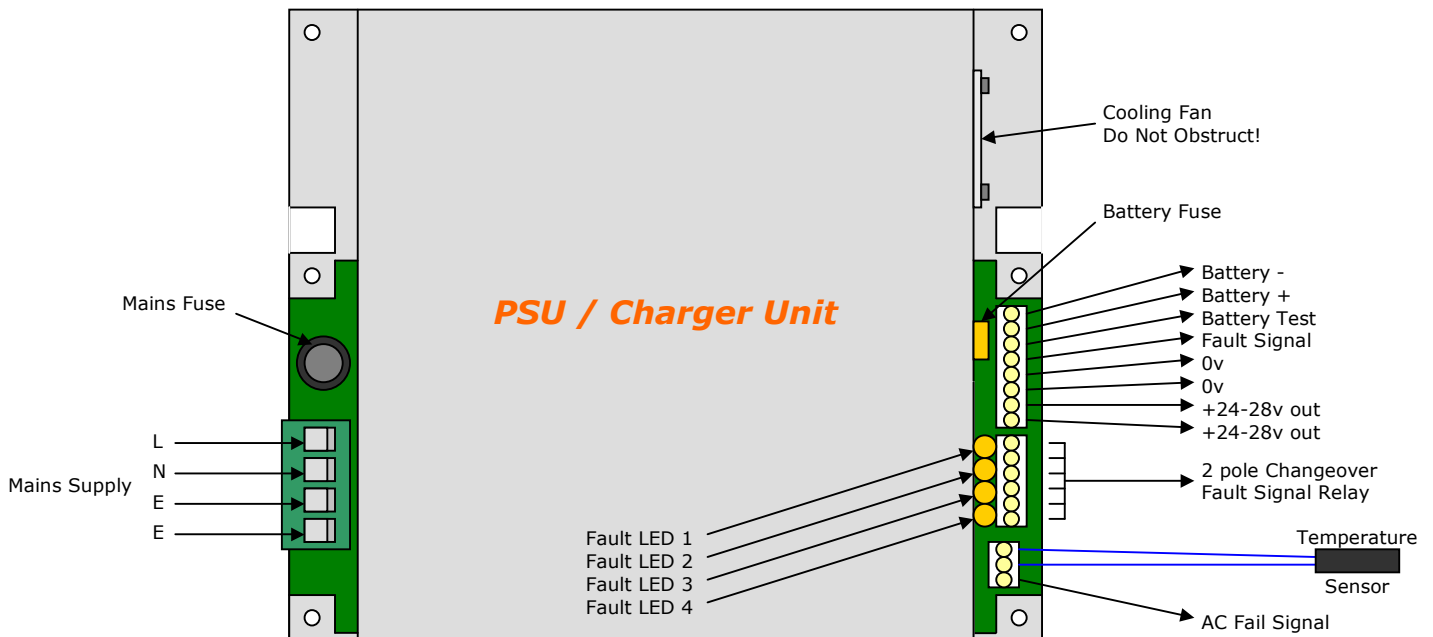
#### Battery:

A battery input/charge output is provided for the connection of 2x12 volt sealed lead-acid batteries to supply standby power in the event of a mains failure. In the standard cabinet these batteries may be up to 36Ah, and with an extra cabinet they may be up to 64Ah to give a longer standby time. This input is protected against reverse polarity connection of the batteries. It is protected against overcurrent by a 20-amp ultrafast blade-fuse. The battery drain caused by the power unit alone is typically 120mA.

#### General:

**Efficiency:** Typically 75% at full load.  
**Ripple & Noise:** 1% maximum at full load measured from DC - 30Mhz across a 100nF MPE capacitor.  
**Power:** 300 watts, convection cooled.  
**Current Limit:** 14.4A Maximum (typical).  
**Battery Charging:** Constant-current mode above 11A.  
**Isolation, In - Out:** 3750v AC.  
**Isolation, In - Gnd:** 1500v AC.  
**Operating Temp.:** -5 - +50 degrees C.  
**Storage Temp.:** -20 - +80 degrees C.  
**Safety Standards:** Designed to comply with EN60950, UL1950.

#### Connection Details:





### **Operation:**

There are four Fault LEDs on the PSU chassis adjacent to the Fault Relay terminals as indicated on the diagram.

#### **LED 1: Loss of Mains Power.**

Illuminates when the incoming mains voltage falls below the specified limits.

#### **LED 2: Loss of Standby power.**

Illuminates if the battery becomes disconnected from the charger or if the terminal voltage is below 19 volts.

#### **LED 3: Reduction of Battery Voltage.**

Illuminates when the battery voltage falls to within the range 21.6 - 22.8v DC, measured at the PSU terminals.

#### **LED 4: Loss of Battery Power.**

Illuminates when there has been a failure of the charger.

There are three additional indicators on the front of the cabinet. The green AC On lamp lights to indicate a healthy mains supply input. The green DC On lamp lights to indicate a healthy DC supply output. The yellow Fault lamp lights to indicate a fault condition, and is accompanied by one of the four internal lamps.

#### **Low Battery (Load Shedding - 19.0 - 20.0v at the PSU terminals):**

If a battery is not connected, no voltage appears on the positive terminal. The battery positive is connected internally to the 24 volt output via a relay only when the battery voltage exceeds the load-shed level. If a battery is connected which is below the load-shed voltage level, the power supply looks briefly at the battery voltage and if after approximately 1 second the voltage is below the load-shed level, the battery is disconnected from the load.

The unit can be operated from the battery with no mains present, and likewise it may be operated from the mains without a battery present. However the fault output and relay will both be activated.

If a battery is first connected to the unit and mains applied, then it is subsequently removed, the unit will show a fault signal on LED 2 and / or 3. This will show up within 60 seconds.

#### **Fault Terminal:**

The fault output terminal in normal conditions will give a 21v (approximately) high output signal. When any fault condition is detected, this output terminal goes low to a voltage less than 1v. Upon the fault condition being removed, the terminal will return to its former high state. This is an open collector output and will require protection circuitry when used in remote field supply applications. It is capable of sinking 50mA.

In addition to the Fault output terminal, two sets of changeover relay contacts are provided which will activate in any fault state. These contacts must only be used to switch low voltages of under 30v AC or DC, and no more than 0.5A.

#### **Other Details:**

The AC Fail output terminal in normal conditions will give a 21v (approximately) high output signal. When the mains supply is removed, this output terminal goes low to a voltage less than 1v. Upon the supply being restored, the terminal will return to its former high state. This is an open collector output and will require protection circuitry when used in remote field supply applications. It is capable of sinking 50mA.

The automated battery testing which the unit periodically carries out may be disabled by connecting the Battery Test terminal down to 0v.

The unit is temperature-compensated. A remote sensor is supplied pre-attached to flying leads, connected to terminals on the PCB. This sensor should be attached to one battery using a semi-permanent means such as a clip.

Regulation is specified as a worst-case combination of any line, load or cross-regulation.

#### **Order Codes:**

**11973.1**  
**11973.3**

**24v 10A PSU in Standard case for up to 32Ah batteries.**  
**Large External Cabinet to house up to 64Ah batteries.**