



# Statronics Power Supplies

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## 53/U24 POWER SUPPLY – BATTERY CHARGER SYSTEM

### Features

- extensive battery and system supervisory circuits
- float voltage temperature compensation
- simple, high reliability design
- overload protection
- over temperature protection
- flexible alarm circuits



53/U24 is an un-interruptable 24V DC power supply suitable for loads from 0 to 3A., with an average load up to 2A. The product can be used as a charger in larger un-interruptable systems.

INPUT	240V $\pm 10\%$ for full performance, or $\pm 20\%$ with load current derated to 60%. 50Hz +20% -10%
OUTPUT	27.1V 2A (AT 25°C, Voltage trimmable $\pm 2V$ )
TOTAL BAND REGULATION	$\pm 1\%$ (Temperature Compensated)
RIPPLE AND NOISE	<2mV RMS
CURRENT LIMIT	2.0A at 40°C ambient, foldback to 0.5A $\pm 30\%$ at shorted load.
CHARGE EQUALISATION	Ensures equal charge to each battery once fully floated. This greatly enhances battery life. The centre node is trickle charged at maximum $\pm 20\text{ma}$ .
TEMPERATURE COEFFICIENT	Introduced negative temperature coefficient to compensate for battery float potential against ambient temperature. (Optimised for sealed - recombination electrolyte - lead-acid batteries.)
DIMENSIONS	Length 234mm, Width 130mm, Height 130mm Mounting points 220 x 91 mm (slots), or 220 x 75 (holes 6mm dia.)

Note: The continuous total **average** load current should not exceed 2A. The maximum ambient for full reliability is 40°C, while excursions to 50°C can be tolerated. Above approximately 55°C automatic thermal overload protection will occur for prolonged full load.

**ALARMS:** Isolated, potential free changeover contacts are provided for:

- A) Mains failure.** Changeover to battery power occurs automatically without any interruption or glitch. The alarm relay is energised during the presence of mains power. The contacts are labeled on the schematics and board "no" for normally open with mains on, "nc" for normally closed with mains on, and "c" for common. The contact ratings are 125v, dc/ac, 1.25A. (Resistive load) dielectric strength: contacts to output: 1000v rms.
- B) Battery warning.** Monitors for NEARLY equal voltage distribution between two series-connected 12V batteries in order to indicate imbalance of ±1V between the two batteries during charge, discharge, or standby. This provides early warning for impending problems with either of the two batteries, in particular, to detect a **faulty cell**. With the mains on and the battery fully floated, no indication can be given, however as soon as a reasonable discharge or charge current occurs, the relay will de-energise should there be a faulty cell. Again, the "normal" relay conditions apply to a good battery. Relay ratings as above.
- C) Battery fail (under-voltage):** Warning of battery under-voltage at threshold 21V (ADJUSTABLE FROM 19V TO 23V) also disables the un-interruptable "load" terminals from batteries to prevent deep discharge. MAINS POWER MUST BE RE-APPLIED TO RE-CONNECT BATTERIES TO THE LOAD AFTER UNDER-VOLTAGE LOCKOUT OCCURS.

**BATTERY SIZE:** The system can be used with ANY battery size, however, because the charger is capable of delivering up to 2A, batteries that cannot accept this charge rate (less the minimum standing load) should not be used. The minimum suggested battery size is thus 6 A-H, since most battery manufacturers recommend a maximum charge rate of C/3.

Unacceptably long re-charge times may result from the use of very large capacity batteries. Very large batteries may have sufficient internal leakage to severely reduce the net available recharge current. Thus, the suggested maximum battery size is 40A-H.

**FUSING:** The supply is protected against inadvertent battery polarity reversal and battery discharge current overload. The recommended replacement fuse is a 3.15A (standard) HRC 5mm \* 20mm fuse. A 5A fuse may be used to handle surge loads, provided the auctioneering diode is not thermally stressed due to a long overload between 3 and 5A.

**WARRANTY:** Our warranty on all production units is against faulty parts, design, or workmanship for a period of 5 years from date of delivery, provided that the units are used as outlined in the specification, and excluding consequential loss. Freight to Statronics is payable by the client, while return freight is at Statronics' expense if a fault is detected and is covered by warranty.

**OUTPUT TERMINATIONS:**

Note: NO and NC (Normally open and normally closed) refer to the correct operation status, that is, no fault. As an additional precaution against alarm relay failure, the relays are energized in the correct operation condition.

1	2	3	4	5	6	1	2	3	4	5	6		1	2
NC	COM	NO	NC	COM	NO	NC	COM	NO	BAT+	CT	BAT-		+27.1V	0V
MAINS FAIL	BATT FAIL		BATT WARN		27.1V	13.6V	0V	BATTERY		TB2		F1 3.15A HRC	UI 27.1V O/P	TB3
TB1	-----ALARMS-----													