

# SERIES 1948, 0.5A POWER SUPPLIES INSTALLATION & OPERATING INSTRUCTIONS



Manufactured By:  
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To place into operation:

- |  |  |
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| (i) Install the cabinet as per Section 1.              | (iv) Switch mains on.                        |
| (ii) Wire as per Section 2 (do not connect batteries). | (v) Check the voltage, adjust if necessary.  |
| (iii) Configure options as per Section 3.              | (vi) Connect the batteries as per Section 2. |

## 1. CABINET INSTALLATION

The cabinet is intended for wall mounting at "eye" level. Allowance should be made for cable entry (one hole is provided at top of rear wall, near centre). Relevant standards may apply (e.g. AS1670.1 and NZS4512).

The following conditions are required:

- Dry area (inside building);
- Moderate ambient temperature;
- Clear access for viewing and maintenance.

THE UNIT IS NOT SUITABLE FOR INSTALLATION WITHIN A "HAZARDOUS AREA"  
AS DEFINED BY AS3000.

Four mounting holes are provided (5mm diameter) on a rectangular pattern (172mm W x 221mm H). The unit should be mounted with at least 2 screws (top and bottom of opposite sides).

## 2. WIRING

ENSURE MAINS SUPPLY IS ISOLATED AT THE SWITCHBOARD BEFORE CONNECTING

Observe all relevant standards, e.g. AS3000.

### Mains Wiring:

- (a) Remove the cover and terminate the mains cable to the 3-way terminal block: brown to A; blue to N; green/yellow to E.
- (b) Take care not to "nick" wires when stripping, or to leave exposed bare wires outside of the terminal block.
- (c) Cable tie the wires to the pcb, and the cable to the cabinet.
- (d) Refit the warning cover before connecting the supply.

### Field Wiring:

Three terminals are provided for connection to external loads:

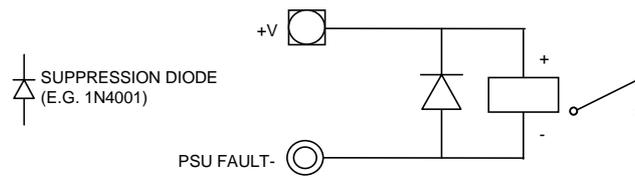
- +VNB for non-battery backed loads (e.g. door holders);
- +V for battery-backed loads;
- 0V (for common return of both the above).

Three terminals are provided for connection to internal or co-located equipment. Terminate the wires with 2mm "fast-on" receptacles, (e.g. Utilux H1129).

Charger Disable- Input (J7) requires a normally open switch, close to 0V to reduce output voltage to 80%.

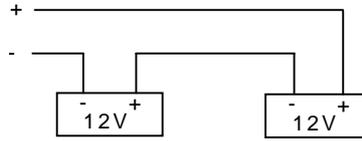
Timer Disable- Input (J18) requires a normally open switch (or transistor), close to 0V to terminate and hold off automatic battery tests.

PSU Fault- Output (J8) is an open collector transistor, closing to 0V when active. Example of wiring a relay to the PSU Fault- output.



Battery connection:

Connect red lead to battery + terminal  
 Connect black lead to battery - terminal  
 E.g. For a 24V system connect as shown.



### 3. CONTROLS & CONFIGURABLE OPTIONS (FIELD ADJUSTMENTS)

Mains On/Off (switch in top, left corner of cabinet).

- Switches mains (but not the batteries).

Output Adjust (potentiometer PT1 on pcb)

- Adjusts output voltage (and fault thresholds), preset in factory for nominal output.  
 If field adjustment is required, rotate clockwise to increase voltage, anti-clockwise to decrease voltage.

Timer Disable (remove link LK1 on pcb)

- Disables all automatic battery tests (i.e. battery connected check, and hourly and 48 hourly battery capacity tests).

Current Limit (snip out resistors R14, R15 on pcb).

- Reduces current limit (also charger current rating) if required by battery manufacturer's specification.

Charger Fault (LK2 on pcb)

- If the link is fitted the PSU Fault output will be active during a charger high or low condition.  
 Remove the link for AS1603.4 or NZ operation as this feature is not required.

Mains Fail (LK3 on pcb) (software V2.01 onwards)

- If the link is not fitted the PSU Fault output will be active after 90 minutes of continuous mains failure.

### 4. STANDARDS COMPLIANCE

To comply with AS1603.4 Clause 2.8.8 an appropriate external battery test load needs to be applied at the same time as activating the Charger Disable input.

AS4428.5:1998 has two clauses that only need to be complied with if the standard for the product the PSU is powering requires them. At present there are no such standards. The 1948 PSU cannot meet Clause 2.2(c) when a short circuit or polarity reversal is applied to the battery terminals. The 1948 PSU does not support disconnecting the battery from the PSU load when the final voltage is reached. (Clause 2.3(c)).

To signal the loss of mains power (Clause 2.4(a)), remove LK3 (see Section 3 above).

## 5. INDICATORS

Mains On (green LED)

- On when mains is applied and mains on/off switch is on.

Battery/Charger Fault (yellow LED)

- On steady for charger voltage high or low (only when mains is on, inhibited during battery test).
- Flashing for battery not connected, battery voltage low or battery charge capacity low.

Charge/Test (red LED)

- Brightness indicates rate of charge/load current during normal operation.
- Flashing indicates battery test or battery charge capacity test in progress.

## 6. OPERATION

Automatic Battery Connection Check:

- For this to operate correctly a minimum external load is required on either the +V or VNB outputs, of at least:
  - 12mA for the 12V supplies (PA0735, FP0634);
  - 14mA for the 24V supplies (PA0736, FP0635).
- Reduces output voltage to 80% for up to 500ms every 30 seconds of continuous mains supply (uses 50Hz based timer), to allow the battery voltage to be measured.
- If battery low is detected during the test, the output voltage is restored to 100% immediately, the PSU Fault output is activated and the Battery/Charge Fault LED flashes until the next battery connection check passes.

Automatic Battery Charge Capacity Check:

- Reduces output voltage to 80% for up to 90 seconds every hour of continuous mains supply, to allow the battery voltage to be measured.
- If battery low is detected during the test, the output voltage is restored to 100% immediately, the PSU Fault output is activated and the Battery/Charge Fault LED flashes until the next battery charge capacity test passes.
- If a low battery charge capacity is detected future battery charge capacity tests are carried out at 30 minute intervals until the low battery charge capacity test passes.

Automatic Battery Test:

- Reduces output voltage to 80% for the last 40 minutes of every 48 hours of continuous mains supply, to allow load to be powered from battery.
- If battery low is detected, the output voltage is restored to 100% immediately, the PSU Fault output is activated and the Battery/Charge Fault LED flashes until the end of the 40 minutes.

Reset:

- The timer for automatic battery checks and tests, and the latched Battery Fault are reset by:
  - Removing the Timer Disable link (LK1),
  - Activating the Charger Disable Input (J7),
  - Activating the Timer Disable- Input (J18), or
  - Turning the Mains switch off.

**Note that inputs take approximately 1 second to operate and changes of voltage state take 3-4 seconds to register.**

## 7. SPECIFICATIONS

	<u>12V</u>	<u>24V</u>
<b>Ordering Codes</b>	: Unit FP0634(Aus) FP0665(NZ)	FP0635(Aus) FP0666(NZ)
	: PC Board PA0735	PA0736
<b>Mains Voltage</b>	230/240Vac (50 Hz) (+6%, -10%)	230/240Vac (50 Hz) (+6%, -10%)
<b>Nominal Output Voltage (+V)</b>	13.7V	27.3V
<b>Nominal +VNB Voltage</b>	14.4V	28.0V
<b>Current Rating</b>	500mA	500mA
<b>Nominal Current Limit</b>	650mA 400mA (Snip R14)	700mA 600mA (Snip R15) 500mA (Snip R14)
<b>Battery Protection Device RT2 (Mounted on pcb)</b>	20V, 1.5A PTC (non-trip at 25°C)	30V, 2.5A PTC (non-trip at 25°C)
<b>Input Fuse F1 (In transformer secondary cct)</b>	2A, 5 x 20mm (standard blow)	2A, 5 x 20mm (standard blow)
<b>Battery Test Resistor (suitable for 1.2Ahr)</b>	100 Ohm, 2W	220 Ohm, 5W
<b>Heat Loss</b>	8W	15W
<b>Quiescent Current</b>		
From battery with mains off	9mA (typical)	10mA (typical)
Additional load in PSU Fault	6mA	6mA
Minimum load for Battery Tests	12mA	14mA
<b>Voltage Monitoring (+V)</b>		
Nominal Charger High	14.1V	28.1V
Nominal Charger Low	13.3V	26.5V
Nominal Battery Low	12.1V	24.2V
<b>Inputs/Outputs</b>		
Timer Disable- Input (J18)	Requires closure to < 1V.	
"Off" Current	<2uA	
"On" Current	<1mA @ 1V	
Charger Disable- Input (J7)	Requires closure to 0V, voltage-free switch.	
"Off" Current	< 5uA	
"On" Current	< 0.1mA	
PSU Fault- Output (J8)	Switches to 0V for fault (open collector transistor)	
"Off" State	30V max	
"On" State	20mA max, < 0.5V @ 20mA	
<b>Mechanical</b>		
Cabinet Material	1.2mm mild steel	
Finish	Powdercoat, cream wrinkle BFF-998-CW	
Dimensions	240mm W x 295mm H x 80mm D (Space for up to 2 of 12V 6.5Ahr batteries)	
Lock	L&F cam lock keyed 003 / NZ models 60124	
Weight (unpackaged)	2.9kg (12V)	3.1kg (24V)
<b>Environmental Operating Conditions</b>	-5°C to 45°C max. 95% humidity max (non-condensing)	
<b>Approvals</b>		
AS1603.4:1987	SSL Test Report XF1146/R2	
AS4428.5:1998	SSL Test Report XF1596/R1	
NZS4512:1997	Central Laboratories Report 00-527564-03	
AS3548 Class B	EMC Test Report 80550.1	