



## SERIES 1948, 2A POWER SUPPLIES

# Installation & Operating Instructions

17 Mary Muller Drive  
PO Box 19-545  
Woolston  
Christchurch 8241  
NEW ZEALAND  
Tel: +64-3-389-5096  
Fax: +64-3-389-5938

To place into operation:

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

## 1. CABINET INSTALLATION

**WARNING:** The 24V 2A models are Class A products. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures.

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. 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  
MAINS WIRING MUST BE DONE BY A REGISTERED ELECTRICIAN

**Mains Wiring:** Observe all relevant standards, e.g. AS/NZS 3000 "Wiring Rules".

- (a) Remove cover and Terminate the mains cable to the 3-way terminal block: brown to A; blue to N; green/yellow to E.
- (b) Do not "nick" wires when stripping, or leave exposed strands outside of the terminals.
- (c) Refit mains terminal cover with M4 Nylon screw and Secure the wires to the cabinet with the P clamp and barrel nut.
- (d) Connect the supply

### Field Wiring:

Three terminals (J2) are provided for connection to external loads:

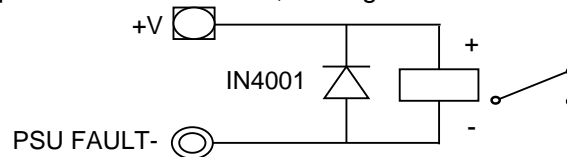
- +VNB for non-battery backed loads (e.g. door holders);
- +V for battery-backed loads;
- 0V (for common return of both the above).

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

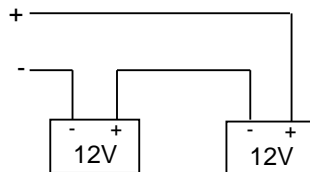
Charger Disable- Input (J7), close to 0V with voltage free switch to reduce output voltage to 80%.

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

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 (fuse holder in terminal block acts as a mains switch. Remove fuse to switch off, Fuse is 20x5,1A rating).

- 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.

Timer Disable (remove link LK1 on pcb)

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

Current Limit (snip out resistors R13, R14, R15 on pcb).

- Reduces current limit (also charger current rating) if required by battery manufacturer's ratings. See specifications for details.

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

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 fuse is fitted.

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 load is required on either the +V or VNB outputs of:
  - 20mA for the 12V supplies;
  - 30mA for the 24V supplies.
- 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 Test:

- 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 the automatic battery checks and tests, and the latched Battery Fault are reset by:
  - Removing the Timer Disable link (LK1), or
  - Activating the Charger Disable Input (J7), or
  - 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	FP0765	FP0766, FP0852
<b>Electrical</b>		
Mains Voltage	230/240Vac (50 Hz) (+6%, -10%)	230/240Vac (50 Hz) (+6%, -10%)
Mains Fuse	1A, 20 x 5mm	2A, 20 x 5mm
Nominal Output Voltage (+V)	13.7V	27.3V
Nominal +VNB Voltage	14.4V	28.0V
Current Rating	2.0A	2.0A
Nominal Current Limit	2.15A	2.3A
	1.9A (Snip R13)	2.0A (Snip R15)
	1.75A (Snip R14)	1.7A (Snip R14 & R15)
	1.6A (Snip R14 & R13)	1.4A (Snip R13, R14 & R15)
Battery Protection Device RT2 (Mounted on pcb)	30V, 6A PTC (non-trip at 25°C)	30V, 6A PTC (non-trip at 25°C)
Input Fuse F1 (In transformer secondary cct)	3A slow blow, 20 x 5mm	3A slow blow, 20 x 5mm
Heat Loss	25W	45W
<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	20mA	30mA
<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>Compatible Batteries</b>	12V Sealed lead acid with self-limiting charge current. Some small capacity batteries may require reduced current limit (refer Battery details).	
<b>Mechanical</b>		
	<u>FP0765 &amp; FP0766</u>	<u>FP0852</u>
Cabinet Material	1.2mm mild steel	
Finish (Powdercoat)	Cream wrinkle BFF-998-CW	Oyster Matt
Dimensions	240mm W x 295mm H x 80mm D (Space for up to 2 12V 6.5Ahr batteries)	360mm W x 230mm H x 130mm D (Space for up to 2 12V 12Ahr batteries)
Lock	L&F cam lock keyed 003	L&F cam lock keyed 003
Weight (unpackaged)	3.95kg (12V), 4.20kg (24V)	5.5kg
<b>Environmental Operating Conditions</b>	-5°C to 45°C max. 95% humidity max (non-condensing)	
<b>Approvals</b>		
AS4428.5:1998	ActiveFire Certificate afp 1341	
NZS4512:1997	FPANZ Listing VF/629	