

# CONCEPT

## Powered Equipment Box. P/N: 994052

### INSTALLATION MANUAL

#### Overview

The Powered Equipment Box can be used wherever Battery-backed 12V supplies are required to power Concept Modules and associated devices such as Detectors, Readers and Auxiliary Devices such as Strobes, Sounders, Locks, etc.

The Box is specifically designed to house the Transformer, Power Supply PCB, 7AH Battery and a single B1, B2 or C size Concept Module such as a 1 Door Access Module, 2 Door Access Module, Mini Expander, Analogue Module or LAN Isolator. The Power Supply features a high reliability design that offers unconditional stability, and has been designed and tested for compatibility with Proximity type reader heads.

When used with a 2 Door Access Module or Mini Expander, a single Ribbon cable may be used (P/No: 605050 or 605049) to connect the Power Supply to the Module. When this option is used with the Mini Expander, Zones 7 and 8 are connected to the AC Fail and Low Battery alarm outputs of the Power Supply.

#### Electrical Specifications

Input:	16V AC @ 2.5A. (From Transformer provided)
Output Voltage:	13.8V DC +/-2%, up to 2A.
Maximum Output Current:	2 Amps.
Output Ripple:	100mV RMS max. @ Iout = 2A.
Switching Frequency:	50 kHz. approx.
Load Regulation:	+/- 100mV @ Iout = 0.1A to 2.0A.
Conversion Efficiency:	80%. approx.
Battery capacity:	12V 7 AH Sealed Lead Acid Battery.
"Low Battery" alarm trigger voltage:	11V DC.

#### Mechanical Specifications

Dimensions:	Length: 325 mm.	Width: 250 mm.	Depth: 112 mm.
Weight:	7.5 kg. (Includes mains transformer, battery and cover)		
PCB Module dimensions:	95mm X 80mm X 50mm high.		
Operating Temperature:	0° to 40° Celsius (Ambient)		
Humidity:	15% to 85% Relative humidity (non-condensing)		

#### Powered Equipment Box Parts List

- 2A Power Supply PCB assembly and Mains Transformer mounted in Metal enclosure.
- Installation Manual. (This document)
- Installation Kit containing:
  - 2 x 2 Way Plug on Screw Terminals.
  - 1 x 8 Way Plug on Screw Terminal.
  - Tamper Switch and Metal bracket.
  - 2 x 6.3mm Tamper switch connectors.
  - Battery connection cable. (P/No: 605051)
  - 1 x 10 way Ribbon cable -20cm. (P/No: 605050)
  - 4 x Plastic "D" Bungs.
  - 2 x 4A Fast Blow fuse. (Spare)
  - 1 x 500mA Mains fuse. (Spare)

**Designed & manufactured in Australia.**

Due to on-going product development this manual is subject to change without notice.

## Installing the Powered Equipment Box.

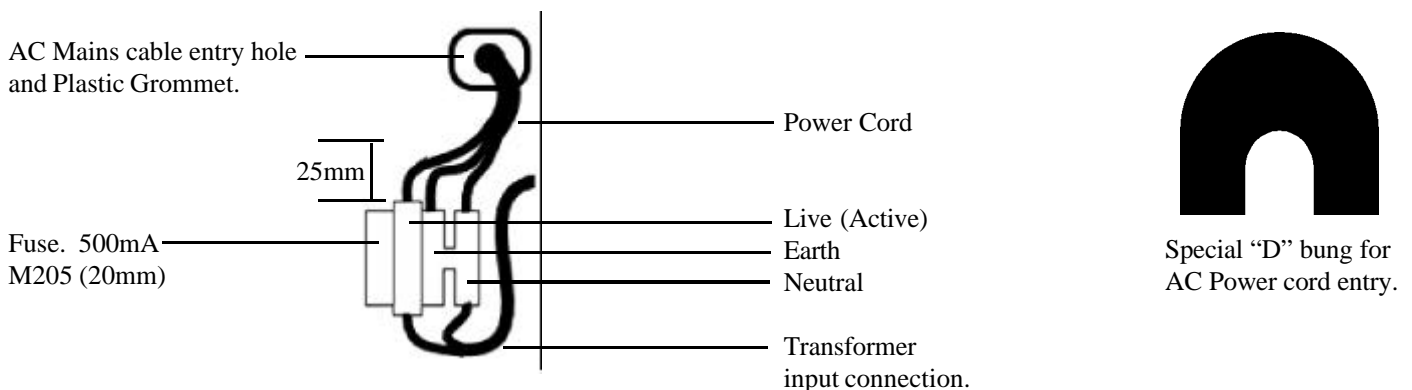
### Electrical AC Mains Power connection.

In countries where the module is supplied without a mains power cord, a suitable mains power cord for connection to the 240V AC Mains supply must be installed by a suitably qualified electrician or technician.

1. Strip 30mm of the sheath from the end of the power cord. Trim 5mm from the ends of the Active and Neutral conductors so that the Earth conductor remains slightly longer.
2. Strip 5mm of insulation from each of the conductors.
3. Feed at least 150mm of the power cord through the AC mains cable entry hole from the rear (underside) of the chassis.
4. Terminate the power cord in the terminal and fuse block as illustrated in Diagram 1 below. (Note that the Active wire is always connected into the termination nearest to the fuse)
5. Determine the appropriate length of power cord between the terminal block and the cable entry hole. (Approx. 75mm)  
Working from the rear of the chassis, fit the plastic grommet (supplied) around the power cord and apply pressure to both sides of the grommet to clamp the cable. The grommet can now be inserted into the AC mains cable entry hole.
6. When fitting the cover, ensure that the special AC Powercord “D” bung is fitted to the cable entry cutout in the cover where the AC Powercord enters the enclosure. Standard “D” bungs must be fitted to all other unused cable entry cutouts.

**IMPORTANT NOTE:** An AC Mains socket-outlet shall be installed near the equipment and shall be easily accessible for connection of the mains power cord.

**Diagram 1.**



### Mounting the Unit. See Diagram 2 on the following page.

1. Installation environment should be maintained at a temperature of 0° to 40° Celsius and 15% to 85% Relative humidity (non-condensing)
2. The enclosure must be secured to a flat, vertical surface using fasteners through the four “keyhole” mounting holes in the chassis.
3. When mounting this product onto flammable surfaces, a fire protection backplate MUST BE INSTALLED.  
Standard “D” bungs must be fitted to all unused cable entry cutouts.
4. The tamper switch bracket must be positioned through the slot provided in the chassis and under the base of the chassis, before the chassis is secured to the wall.
5. Orientation of the enclosure must be vertically or horizontally with the Battery at the Right-hand side supported by the Battery retaining bracket. (See Diagram 2)
6. The metal chassis is electrically earthed and the Circuit Board Assembly is electrically isolated from the chassis. When mounting and wiring the Module, the Installer must ensure that this isolation is maintained.

### **Connecting Power to the PCB. See Diagram 2.**

1. The connection between the AC mains transformer output (A) and the “AC” Input connections on the PCB (B) is pre-wired in the factory.

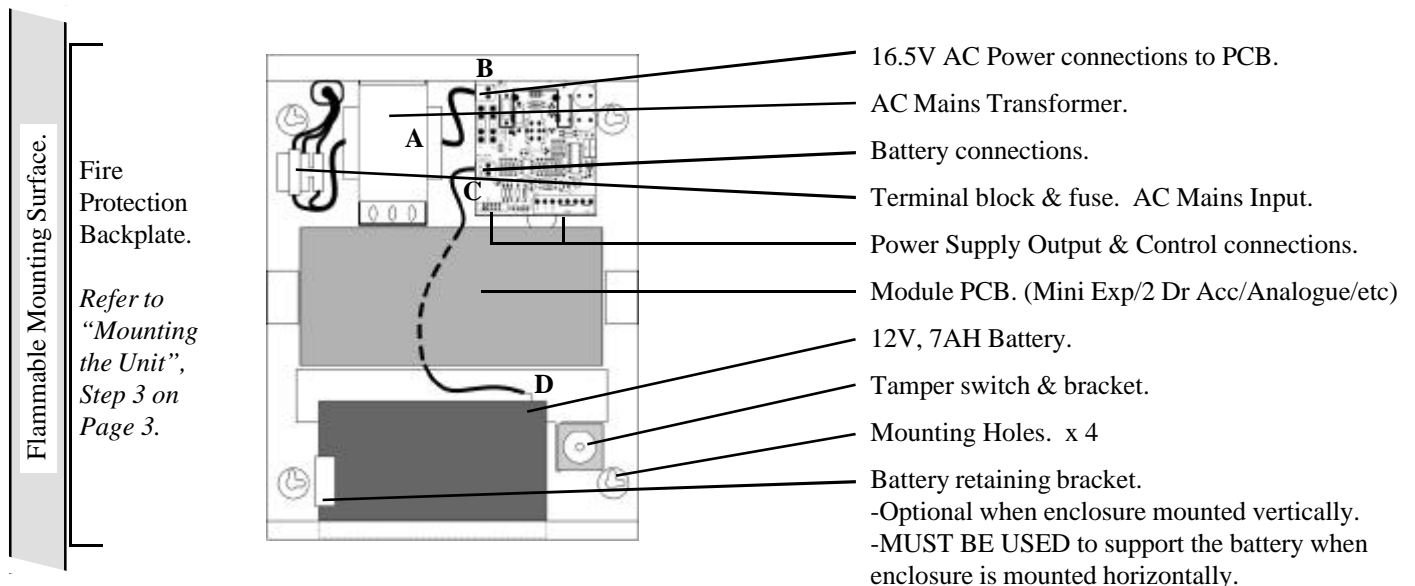
### **Connecting the Battery to the PCB. See Diagram 2.**

1. Measure and cut two appropriate lengths of insulated multi-strand cable to connect between the “+” and “0V” connections of “TB3” on the PCB (C) and the Battery terminals (D), observing correct polarity.  
NOTE: Ensure that the Cable current rating is adequate for the maximum Battery Charger current and load expected.
2. Strip 5mm of insulation from both ends of the cables and terminate into the “+” and “0V” connections on the PCB & then into the 4.8mm Battery Terminal connectors supplied in the installation kit.

### **Fitting the Cover.**

In order to comply with regulations, all four (4) of the screws provided to fix the cover to the chassis must be tightly secured.

**Diagram 2.**



### **Power Supply connection details. (Refer to diagrams on page 4)**

#### **Links:**

- JP2 "PSDOWN" function. Only fitted if Power Supply is to be externally controlled. *See page 4 for more details.*  
R20 R20 can be cut out of the PCB to reduce the current limit to 1.0 Amp.

#### **Connectors:**

- TB1 16.5V 2.5A AC Transformer input connections.  
TB2 13.8V DC Output, alarm outputs and control input. *See page 4 for details..*  
TB3 12V 7AH Battery connection.  
X3 Direct ribbon cable connection to certain Modules. e.g. Mini Expander or 2 Door Access Module (Type 2 or later)  
-Duplicates all connections on TB2. ( Part Number: 605049 [40cm] or 605050 [20cm] )

#### **Fuses:**

- F1 AC Input Protection Fuse (4 Amp Fast Blow)  
F4 Battery Protection Fuse (4 Amp Fast Blow)  
**Note:** Blown Fuses must always be replaced with a fuse of the same type and rating.

#### **LEDs:**

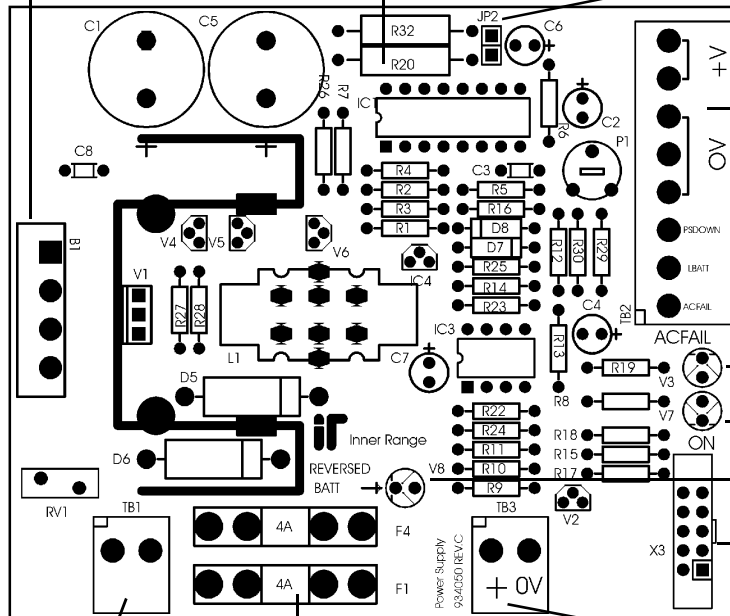
- ACFAIL Indicates AC Fail condition.  
ON Indicates Power Supply output is present.  
REV BATT Indicates Connections to Battery are wrong polarity and Fuse F4 is blown.

## THE 2A POWER SUPPLY PCB

**B1 Rectifier. CAUTION!**  
Rectifier can become hot.  
Please exercise care.

**R20 Current Limit select.** Cut R20 out to reduce current limit to 1.0 Amp.  
e.g. If using 16V 1.5A Plug pack. (P/N:560001)

**JP2 “PSDOWN” function.**  
To be fitted only if external control of Power Supply is required. *See below for details.*



**TB2.**  
**Power Supply output, Alarm outputs and Control input.** *See below for details.*

### INDICATOR LEDS.

Provide visual indication of:

- AC Fail
- Output Present
- Reverse Batt. connection. (Fuse 4 Blown)

**X3** Direct Ribbon Cable connection to Concept Modules where facility exists.  
e.g. Mini Expanders & 2 Door Access Modules.

**TB1. AC Input.**  
16V AC. 2.5A.

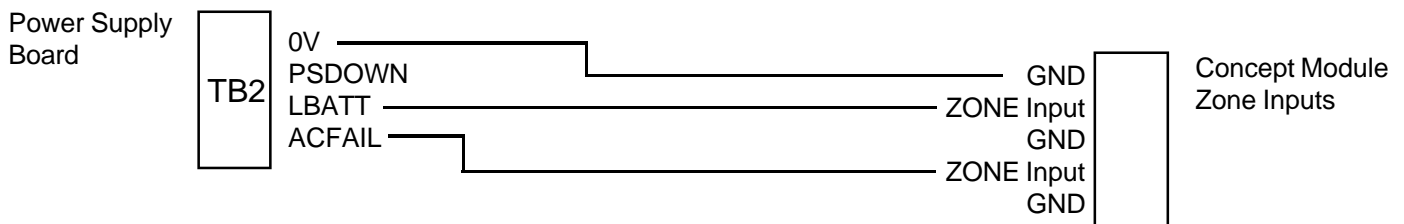
**Fuses. F1** AC Input Protection. 4A.  
**F4** Battery Protection. 4A.

**TB3. Battery**  
12V. 7AH. SLA Battery connection.

## Alarm Output Wiring.

**LOW BATTERY & AC FAIL ALARMS.** Outputs are provided on the Power Supply for indication of Low Battery (i.e. Below 11 Volts) & AC Fail conditions. End-of-Line Resistors are already fitted on the Power Supply PCB. The outputs are wired directly to Zone Inputs on Concept Modules as shown, and programmed appropriately.

(This wiring not required if Power Supply connected to Mini Expander via Ribbon cable, P/No: 605049 or 605050)



## Power Supply Control Wiring

The Power Supply can be configured to allow external control facilities. With Link “JP2” fitted, a LOW state on the “PSDOWN” input will enable the Power Supply. When the LOW state is removed, the Power Supply Regulator will be disabled.

NOTE: If a battery is connected, battery power will still be present at the output.

This allows a Concept Auxiliary output to be wired directly to the “PSDOWN” input on the Power Supply as shown below. If the Auxiliary is On, the Power Supply is enabled. When the Auxiliary is turned Off, the Power Supply is disabled for battery testing, etc. (This wiring not required if Power Supply connected to Mini Expander via Ribbon cable, P/No: 605049 or 605050)

