

# Model 3000 / Access 4000

## LAN Power Supply Module.

**Standard: P/N: 995050**

**Enhanced: P/N: 995050ENH**

### INSTALLATION MANUAL

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#### Overview

The LAN Power Supply Module connects to the Model 3000/Access 4000 LAN & can be used wherever Battery-backed 12V supplies are required to power other Modules, Detectors, Readers and Auxiliary Devices such as Strobes, Sounders, Locks, etc. By communicating with the Control Module via the system LAN, the LAN Power Supply Module provides immediate status reporting of Fault, Tamper, Input and Output conditions without the need for additional hard-wired Power Supply monitoring connections. In addition to this, two Zone Inputs are provided and a general purpose Auxiliary can be controlled.

The Enhanced LAN Power Supply Module also offers:

- A monitored Satellite Siren output (Auxiliary 2)
- Provision for connection of additional Enhanced LAN Power Supply Modules as Slave units to provide additional current capability. E.g. To provide a faster re-charge time for larger batteries. Up to 3 Slaves can be connected to a Master Enhanced LAN Power Supply.

Note: The Zone Inputs and Auxiliary Outputs cannot be utilized on Slave units, and the status reporting does not identify individual units. i.e. The System Inputs on Slave units are reported as Master unit System Inputs.

Both versions feature the high reliability design utilised in all Inner Range Power Supplies. This design offers unconditional stability and has been designed and tested for compatibility with Proximity type reader heads. The LAN Power Supply Module is housed in a metal enclosure that includes the Mains Transformer and space for a 7AH Sealed Lead Acid battery.

### **System Requirements**

Control Module Firmware must be V4.50 or later.

Programming of the LAN Power Supply Module is accessed via <MENU>, 7, 2, 0, 1. (Note the additional sub-menu level)

### **Reporting**

Reporting of LAN Power Supply Module Zone Inputs and System Inputs will depend on the Communications format. Some formats will only report LAN Power Supply Module alarms as General Area Alarms.

Check the Reporting format details in the Tables section of the Programming Applications and Reference Manual. Refer to Tables with a Revision of V4.5 or later.

## **Installing the LAN Power Supply Module.**

### **LAN Power Supply Parts List**

- LAN Power Supply PCB assembly mounted in Metal Enclosure with Mains Transformer and Fused Terminal block.
- Installation Kit containing:
  - 1 x 8 Way Plug on Screw Terminal.
  - 8 x 2 Way Plug on Screw Terminals. (10 in 995050ENH)
  - 2 x 4.8mm Quick Connect Tab. (Battery connections)
  - 2 x 6.3mm Quick Connect Tab. (Tamper switch connections)
  - Tamper Switch and Tamper Switch Bracket.
  - 5 x 2k2 End-of-line Resistors. (red-red-black-brown-brown)
  - 5 x 6k8 End-of-line Resistors. (blue-grey-black-brown-brown)
  - 3 x Spare M205 (20mm) 5A Fast-blow Fuse. (4 in 995050ENH)
  - 4 x Plastic "D" Bungs. (One "D" Bung has cut-out for AC Mains cable entry)
- Installation Manual. (This document)

In countries where the Mains input cable is not pre-fitted, the following parts are also supplied:

- 1 x Plastic Cable grommet.
- Sufficient mounting screws to assemble all parts to the housing.

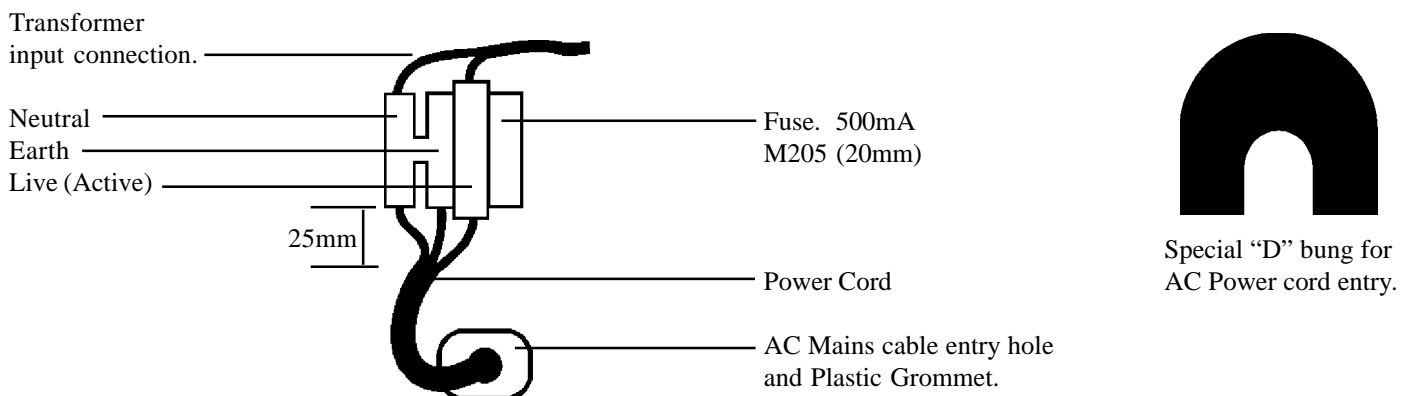
## **Electrical AC Mains Power connection.**

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. 100mm) 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 Diagrams 2 & 3 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. LAN Power Supply Modules are supplied in metal boxes which 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 one of the two slots 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 (See Diagram 2), or horizontally (See Diagram 3) with the Battery at the Right-hand side supported by the Battery retaining bracket.
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. The cable is routed underneath the chassis to avoid contact with the Circuit Board and interference with other cables.

### **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 “+B” and “-B” connections 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.

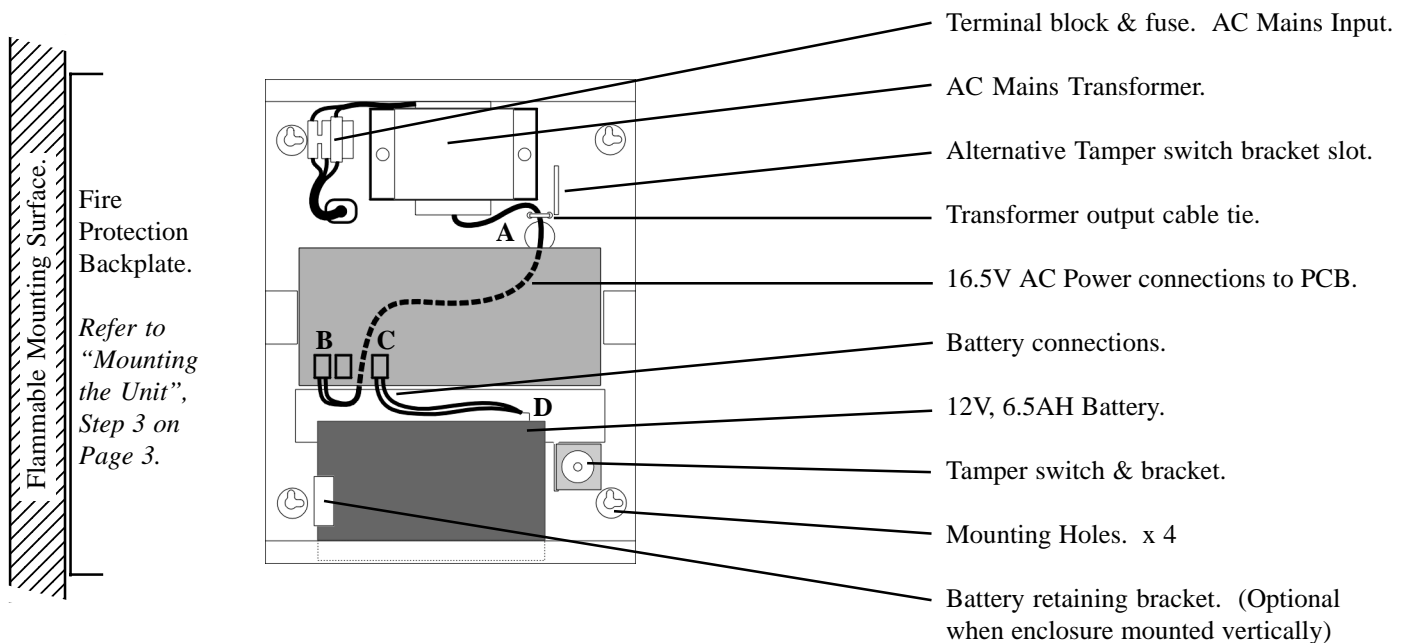
See “Cable Ratings” on Page 9.

2. Strip 5mm of insulation from both ends of the cables and terminate into the “+B” and “-B” connections on the PCB & then into the 4.8mm Battery Terminal connectors supplied in the installation kit.

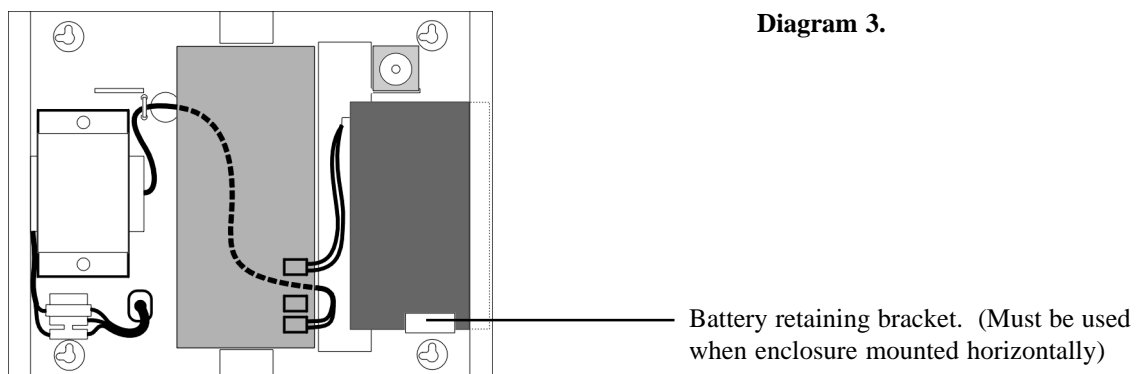
### **Fitting the Cover.**

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.**



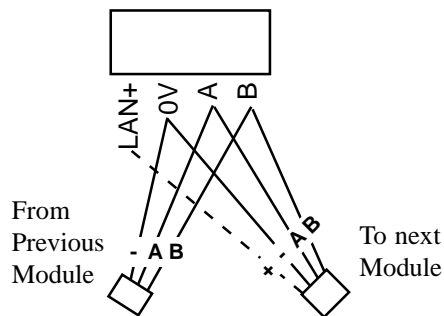
**Diagram 3.**





### **LAN Wiring - 3000 / Access 4000**      *See Diagram below.*

- The LAN is connected using twisted pair cable. One pair is used for Data A & B, and the other pair is used for LAN+ & 0V.
- The “LAN+” terminal may be used to provide power to LCD Terminals, Mini Expanders, 1/2 Door Reader Modules, etc. in the vicinity of the LAN Power Supply Module.
- Note that the “LAN+” terminal must not be connected to the “LAN+” or “LAN POS” terminal on Universal Expanders, the Control module, or any other Module that has it’s own on-board Power Supply or another Power Supply source.  
i.e. Do not connect the +ve of two different LAN Power Supply sources together.
- Current drawn from “DET+”, “LAN+”, “Battery+” and the Auxiliary terminals must not exceed 4 Amps.



### **LAN Termination Link:**

JP1 is fitted if the Module is one of the two furthest modules from the Control Module or a LAN Isolator.  
(See “Model 3000/4000 Control Module Installation manual” or “Installation & Troubleshooting” in the Programmers Manual for more details.)

### **Module Number:**

The Module Number, or Address is set using DIPswitches 1 to 7 on SW1.  
*See Page 10 for details of DIPswitch settings for Module Numbering.*

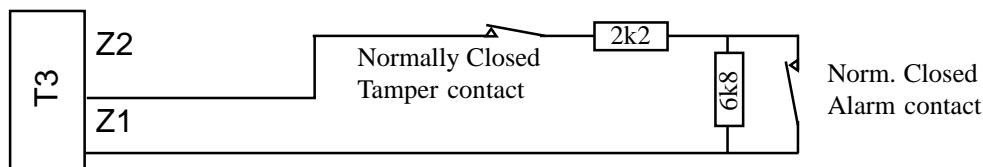
### **LAN Power Supply Module Fault LEDs**

During normal operation, the RX & TX LEDs indicate LAN activity. At power-up, they also aid with the diagnosis of possible faults. The table below describes fault LED conditions and the suggested course of action to remedy any fault which may occur.

<u>L1 (RX)</u>	<u>L2 (TX)</u>	<u>EXPLANATION / REMEDY</u>
ON	ON	Module is un-addressed.
OFF	ON	Module type unknown. Control Module Firmware upgrade required.
Flash	ON	Duplicate Module. This module number already in use by a module of the same type.
Flash	Flash	Module number selected is too big for Control Module RAM size. Select a lower Module number.
ON	OFF	Too many modules on Network for Control Module RAM size. (32k=16, 128k=128 & 512k=250.)
OFF	Fast Flash	Fuse Problem. Check all fuses.

## Zone Input Wiring

### ZONE INPUT WIRING. NORMALLY CLOSED ALARM CONTACTS.



### NORMALLY OPEN ALARM CONTACTS.

Wired in exactly the same manner as above. When programming the Zone Input, however, the option to “Swap Seal and Alarm conditions” must be set to [Y]es. [MENU], 7, 0. e.g.

E01:Z01	S	I	X	S	R	A	N	T
Options ->	n	n	n	Y	n	n	n	n

## Satellite Siren Output (ENH only)

A Satellite Siren unit or other controlled device may be connected to the “AUX2” and 0V terminals on connector T8.

### PROGRAMMING NOTES. (V4.5 or later Control Module firmware required)

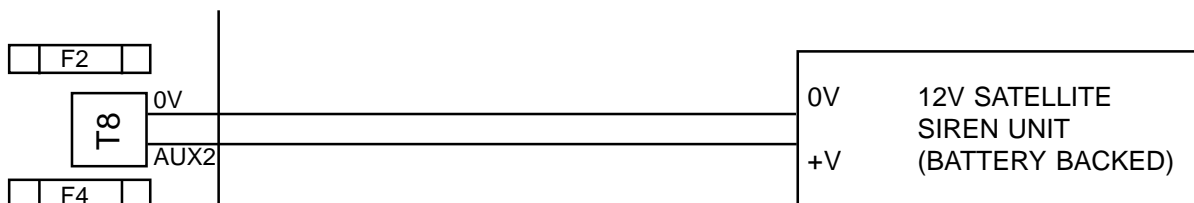
See the *Programming Applications and Reference Manual V4.5 or later* for additional details.

- The system must be programmed to turn On Auxiliary 2 (Pxx:X02) whenever the Satellite Siren is required to sound. e.g. Assign Pxx:X02 as the “Siren Auxiliary” in the Area Database.
- Pxx:X02 must also be inverted by setting the “2” option to Yes in the Power Module Options, MENU, 7, 2, 0, 1. (This means that while the Aux is Off, power is available to the Satellite Siren to charge the battery. When the Aux is turned On, power is removed from the Satellite Siren output to activate the Siren)
- If Satellite Siren monitoring is required, the “Aux2 Tamper Current” must be set to a value of between 20 to 50 mA in Power Module Programming, MENU, 7, 2, 0, 1. The Satellite Siren, or other controlled device, must then draw at least the nominated current value at all times in order to maintain a “Seal” condition on the “Aux2 Tamper” System Input (Pxx:S09). A setting of less than 20 (e.g. 00) will disable Satellite Siren monitoring.
- The Siren Tamper System Input (Pxx:S09) must also be assigned to an appropriate Area with a Process Group that provides the type of alarm annunciation required.

### OPERATION. (When programmed for Satellite Siren control as described above)

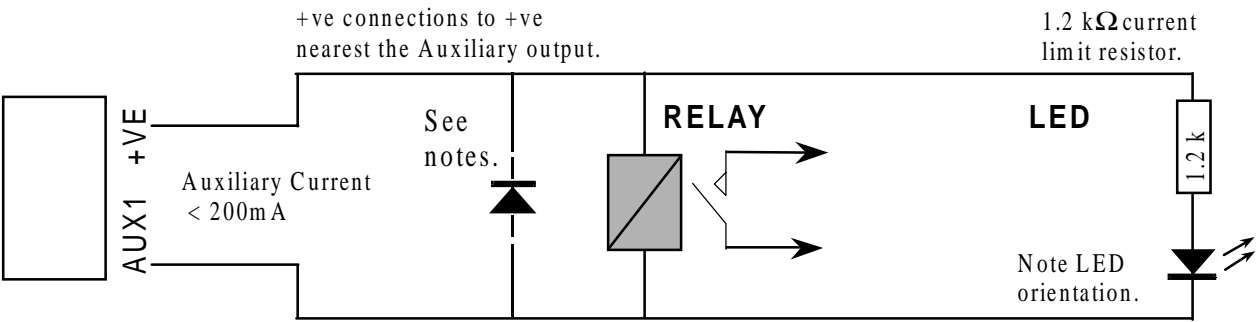
- While the Auxiliary is Off, this output provides +13.75V to the “AUX2” output terminal to maintain Battery charge in the Satellite Siren unit.
- When the Auxiliary is turned On, the +13.75V is switched off by an on-board relay, causing the Satellite Siren to activate.
- If the Satellite Siren is disconnected from the LAN Power Supply Module at any time, the Module will detect the loss and activate the Siren Tamper System Input, Pxx:S09. (Note that the System Input must be assigned to an Area, and the Area must be turned On in order to generate an Alarm)

### WIRING.



Auxiliary 1 Output Wiring

- Auxiliary 1 can switch up to 200mA continuous, and is suitable for inductive loads provided that a clamp diode is fitted across the load as shown below. (Cathode [bar] to +ve)
- Total current drawn by Auxiliaries + LAN + Detectors + Battery must be less than 4 Amps.
- When an external power supply such as this Module is used to power auxiliary devices, a good common Negative connection MUST exist between this power supply (DET 0V) and 0V on the other Module.
- Clamp diode should be fitted across inductive loads. Cathode (bar) to +ve.



Master / Slave Module Installation (Enhanced version only)

CONFIGURATION.

Up to 3 “Slave” Modules can be connected in parallel to a “Master” Module via the Slave Bus connector T9. BATT+ and/or DET+ outputs from the Slave/s are then connected to the BATT+ and/or DET+ terminals on the Master to provide extra current capacity.

This is primarily designed to allow Batteries of a larger capacity to be connected for longer Battery Backup times and/or heavier loads to be supported. Each Slave can provide up to 4A of additional current to allow for acceptable Battery re-charge times to be maintained and to increase the load current available.

To determine the number of Slaves that you require, the following parameters must be defined:

- **The total Load Current required.** This is the current needed for the “DET+”, “LAN+” and “AUX +ve” outputs. (Do NOT include Battery charger current)
  - **The Battery Backup time required.** This will determine the capacity of the Battery/s to be connected. (Backup time x Load current = Battery capacity required)
- NOTE: Battery backup time reduces with increasing load current. The table below provides approximations of the reduction in capacity for 7AH and 17AH batteries. Check battery manufacturers data for further details.

Battery	Load	Backup Time	Effective capacity	Load	Backup Time	Effective capacity
7.0 AH	350mA	20 Hours	7.0 AH	1.2 Amp	5 Hours	5.5 AH
17.0 AH	850mA	20 Hours	17.0 AH	2.5 Amp	5 Hours	13 AH

- **The Battery Recharge time required.** This will determine the Battery charger current to be supplied. (AmpHour rating / Re-charge time = Charger Current required)
- NOTE: The Battery Charger current available from the Master/Slave configuration must not exceed the Battery’s Charge Current limit. The following figures are given for cycled batteries and are approximate only. Check battery manufacturers data.
- |        |       |       |       |       |       |
|--------|-------|-------|-------|-------|-------|
| 6.5 AH | 2.5 A | 17 AH | 6.5 A | 25 AH | 9.0 A |
|--------|-------|-------|-------|-------|-------|

IMPORTANT NOTES:

- **The sum of the Load Current and Battery Charger Current must not exceed 16A (3 Slaves connected).** It is recommended that the Load Current should not be greater than the Battery Charger Current.
- **An Over-current condition can be reported separately for the Load (DET) and Battery Charger, but programming is limited to values from 0.1A to 9.9A.**
- **Ensure that all cables used are rated for the anticipated Current.**



**PROGRAMMING NOTES. (V4.5 or later Control Module firmware required)**

<MENU>, 7, 2, 0, 1 provides access to “Power Module” programming.

The number of Slave Modules must be programmed.

The Maximum Battery Current and Maximum Detector Current may also be specified if Over-current monitoring is required.

**INSTALLATION AND WIRING.**

- The 2-wire Slave Bus connects from the Master Module to the Slave Modules and must be no more than 2 metres total length.

- DIPswitch (SW1) settings. -Slaves must have Switch 8 set to ON, and the Slave Mode set using Switches 5 and 6.

-The Slave number must be set using Switches 1 and 2.

*See Page 10 for details of DIPswitch settings for Slave Numbering and Slave Mode.*

- 0V must be connected from the Master to all Slaves using heavy guage, multi-strand cable via “0V” on T7.

Ensure that the current rating is adequate for the maximum Charger and load current expected. *See “Cable Ratings” below.*

- +B and -B outputs from each Master & Slave Module are connected directly to the Battery (recommended). Alternatively, the Slave +B / -B outputs and the Battery can be connected to the Master +B / -B output. Heavy guage, multi-strand cable must be used to provide the required Charger current capacity. *See “Cable Ratings” below.*

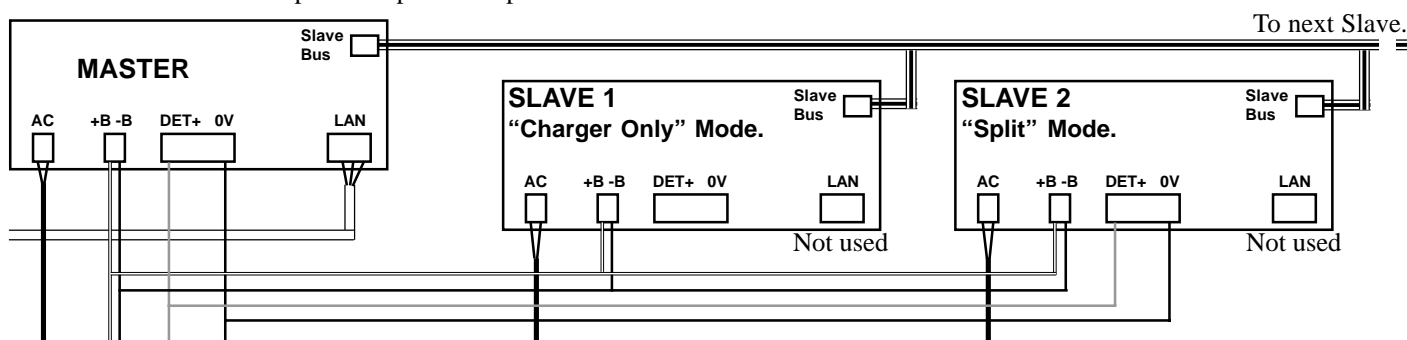
- DET + / 0V outputs from the Slave Module/s are connected to the Master DET + / 0V output using heavy guage, multi-strand cable, to provide the required Load current capacity. *See “Cable Ratings” below.*

**Cable Ratings: (“Figure 8” or “Hook-up” Cable)**

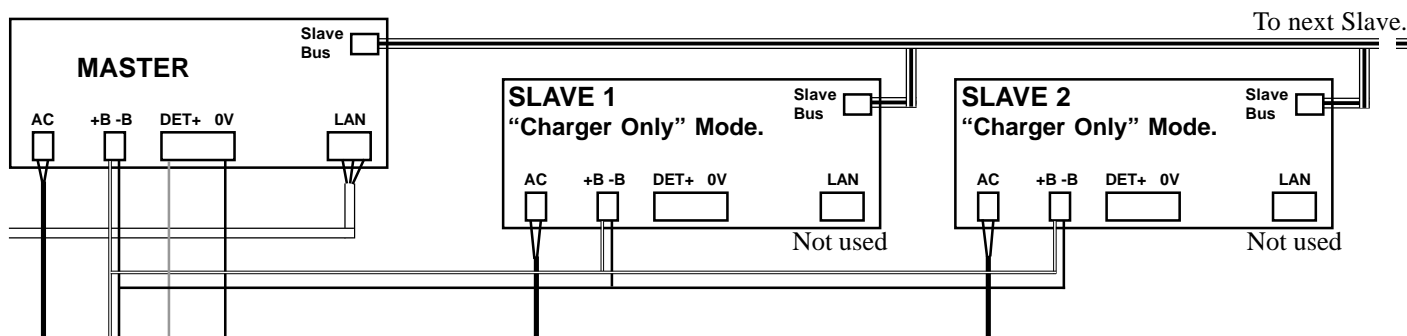
Conductor No. & Diameter (mm <sup>2</sup> ):	14/0.20	24/0.20	32/0.20 or 16/0.3	7/0.50 or 30/0.25
A.W.G.	21 AWG	19 AWG	17 AWG	16 AWG
Maximum Current:	2.5 A	4.5 A	6 A	9 A

*Note that these figures are a general guide only. Refer to individual cable manufacturers specifications.*

**Example 1:** +B from Slave 1 (in “Charger Only” Mode), and +B from Slave 2 (in “Split” Mode) are connected to +B on the Master to provide up to 8 Amps of Battery Charger current. (e.g. To support a 25AH Battery) DET+ from Slave 2 is connected to DET+ on the Master to provide up to 4 Amps of Detector current.



**Example 2:** +B from Slave 1 and Slave 2 (Both in “Charger Only” Mode), are connected to +B on the Master to provide up to 10 Amps of Battery Charger current. (e.g. To support a 38AH Battery) DET+ on the Master still provides up to 2 Amps of Detector current.



## DIPswitch Settings

### Module Numbering and Slave Numbering

#### **Module Numbering.**

The LAN Power Supply Module number is set using DIPswitches 1 to 7 on SW1.

The Module number equals  $n + 1$ , where  $n$  is the binary number set on the DIPswitches.

#### **Slave Numbering. (Enhanced version only)**

The Slave number is set using DIPswitches 1 and 2 on SW1. Only 3 Slaves can be connected.

The Slave number equals  $n + 1$ , where  $n$  is the binary number set on the DIPswitches.

#### **IMPORTANT NOTE:**

Although memory structure will allow for 99 of any Module type, the number of LAN Power Supply Modules that can be installed on a particular system will depend on Memory size fitted and the Memory configuration selected.

Module No:	DIPswitch: 1	2	3	4	5	6	7
	Binary value: 1	2	4	8	16	32	64
1	off	off	off	off	off	off	off
2	ON	off	off	off	off	off	off
3	off	ON	off	off	off	off	off
Limit of Slave Numbers.							
4	ON	ON	off	off	off	off	off
5	off	off	ON	off	off	off	off
6	ON	off	ON	off	off	off	off
7	off	ON	ON	off	off	off	off
8	ON	ON	ON	off	off	off	off
9	off	off	off	ON	off	off	off
10	ON	off	off	ON	off	off	off
11	off	ON	off	ON	off	off	off
12	ON	ON	off	ON	off	off	off
13	off	off	ON	ON	off	off	off
14	ON	off	ON	ON	off	off	off
15	off	ON	ON	ON	off	off	off
16	ON	ON	ON	ON	off	off	off
through to							
64	ON	ON	ON	ON	ON	ON	off
...99	off	ON	off	off	off	ON	ON

### Slave Mode

DIPswitches 5 and 6 on SW1 are used to set the Mode of operation on Units designated as Slaves.

Mode:	DIPswitch: 5	6
Split Mode	off	off
Charger Only	ON	off
Power Only	off	ON
Spare	ON	ON

#### **Split Mode.**

TheSlave will be used to supply both Power (DET+) and Battery Charger current.

#### **Charger Only Mode.**

TheSlave will only be used to supply Battery Charger current.

#### **Power Only Mode.**

TheSlave will only be used to supply Power (DET+).

**Zones and System Inputs:**

	Description	Alarm when:	Restores when:
Pxx:Z01	General purpose Zone Input		
Pxx:Z02	General purpose Zone Input		
Pxx:S01	Cabinet Tamper	Tamper I/P in Alarm (Tamper switch Closed)	Tamper I/P Seals (Open)
Pxx:S02	AC Fail	AC I/P drops below 5VAC	Voltage above 5VAC
Pxx:S03	Low Battery	Battery volts below 11.0V	Battery volts >12.0V
Pxx:S04	Battery Fail	Deep discharge protection is activated. (Battery volts below 10.5V)	Battery volts >11.6V
Pxx:S05	Detector Fuse Fail	Detector Fuse blown.	Fuse replaced.
Pxx:S06	LAN Fuse Fail	LAN Fuse blown.	Fuse replaced.
Pxx:S07	Battery Fuse Fail	Battery Fuse blown.	Fuse replaced.
Pxx:S08	Aux 2 Fuse Fail	Aux 2 (Satellite Siren) Fuse blown.	Fuse replaced.
Pxx:S09	Aux 2 Tamper	Load disconnected from Aux 2 (Satellite Siren)	Load reconnected.
Pxx:S10	Detector Over-current	Detector current exceeds the programmed value.	Current below prog val
Pxx:S11	Battery Over-current	Battery current exceeds the programmed value.	Current below prog val
Pxx:S12	Over-volts	Detector, Battery or LAN +ve volts exceeds 15.5V.	Voltage below 15.5V.
Pxx:S13	Low Volts	Detector, Battery or LAN +ve volts drops below 12.5V.	Voltage above 12.5V.
Pxx:S14	Slave Fail	Master Unit is unable to communicate with one or more Slaves.	Comms restored
Pxx:S15	Battery Test Fail	Battery volts below 11.0V during Dynamic Battery Test.	
Pxx:S16	LAN Comms Problem		

## **Electrical Specifications**

Power Supply Input:	Transformer Input Voltage:	240V AC -10% / +10%. 50 Hertz.
	Transformer Output Voltage:	16.5V AC. 50 Hertz.
	Current Consumption:	Maximum 500mA from 240V AC Source.
	Fuse Protection:	Separate AC mains input fuse. 500 milliAmps. M205 (20mm). Slow Blow.
	PCB AC Input:	16V AC 50Hz @ 4.5A. (From built-in Transformer)
Power Supply Output:	Output Voltage:	13.75V DC +/-2%, up to 4A.
	Maximum Output Current:	4 A. (Combined current from DET+, LAN+, Batt+ & Auxiliaries) NOTE: Additional current capacity available when Slave Modules connected. See “Master/Slave Module Installation”; Pages 8 & 9.
	Output Ripple:	100mV RMS max. @ Iout = 2A.
	Switching Frequency:	50 kHz. approx.
	Load Regulation:	+/- 100mV @ Iout = 0.1A to 4.0A.
	Conversion Efficiency:	80%. approx.
Battery:	Battery capacity:	12V 6.5 AH Sealed Lead Acid Battery. NOTE: Additional Battery capacity available when Slave Modules connected. See “Master/Slave Module Installation”; Pages 8 & 9.
	Battery Input Fuse:	5 Amperes.
Output Protection:	“DET+” Fuse:	5 Amperes.
	“LAN+” Fuse:	5 Amperes.
	Satellite Siren Fuse:	5 Amperes. (ENH only)

ALWAYS REPLACE FUSES WITH THE SAME FUSE TYPE AND VALUE!

NOTE: See data supplied with detectors and output devices for actual current consumption of items connected to the module.

## **Mechanical Specifications**

Dimensions:	Length: 325 mm.	Width: 250 mm.	Depth: 112 mm.
Weight:	8.0 kg. (Includes mains transformer, battery and cover)		
PCB Module dimensions:	200mm X 95mm X 40mm high.		
Operating Temperature:	0° to 40° Celsius (Ambient)		
Humidity:	15% to 85% Relative humidity (non-condensing)		

### **Disclaimer:**

1. The manufacturer &/or it's agents take no responsibility for any damage, financial loss or injury caused to any equipment, property or persons resulting from the correct or incorrect use of the system or it's peripherals. The purchaser assumes all responsibility in the use of the system and it's peripherals.
2. While every effort has been made to ensure the accuracy of this manual, the manufacturer assumes no responsibility or liability for any errors or omissions. Due to ongoing development, this manual is subject to change without notice.