

Concept 4000/5000

Intelligent 2/4 Door Access Module

with Plugon Door & Reader Expander options

P/No: 995035	2-Door Configuration in Medium Enclosure
P/No: 994012ITV	4-Door Configuration in Extra Large Enclosure
P/No: 995014ITV	4-Door Configuration in Extra Large Enclosure (EU)

INSTALLATION MANUAL

OVERVIEW

The Intelligent Two Door Access Module (ITDAM) provides an interface for 1 to 4 Doors using up to 8 Readers.

- The 4-Door configuration (P/N: 994012ITV & 995014ITV) consists of a power supply and:
 - The ITDAM board which provides 2 Reader Ports and all connections required for the control and monitoring of 2 Doors.
 - The 2-Door Expander board (P/N: 995036) which connects to the ITDAM board providing another 2 Reader Ports and all connections required for the control and monitoring of 2 additional Doors.
- The 2-Door configuration (P/N: 995035) simply consists of the ITDAM board and power supply. If space permits, this configuration can also be expanded to 4 Doors by connecting the 2-Door Expander board.
- A Plugon Reader Expander option (P/N: 995037) can be fitted to the ITDAM and/or the 2-Door Expander board to provide additional Reader ports allowing control of Doors with Reader In / Reader Out operation.

This module incorporates an Off-line operation feature. Relevant data from the Control Module is downloaded in order to maintain door access control in the event of LAN communication failure or damage to the Control Module, etc.

- When used in Concept 4000 systems, the Module also maintains Card+PIN, Dual Card and Anti-Passback features when offline. Card+PIN is maintained in off-line mode by supporting a local network of up to 8 LCD Terminals. While physically isolated from the rest of the LAN, these LCD Terminals can still be utilized as normal Terminals when the IFDAM is online.
- When used with an Integrity Security Controller, the Module supports a 2000 Card Cache for offline operations. *See Intelligent 4 Door Access Module Installation Manual V2.0 and Integrity Programming Manual V2 or later for details.*

IMPORTANT NOTES.

- 1) **Firmware.** For use in a Concept 4000 System: **ITDAM Firmware “IFDAM_V5_00_B1”** or later must be used.
For use in an Integrity System: **ITDAM Firmware “INTEG_V5_00_B1”** or later must be used.
Integrity Security Controller Firmware must be V2.0 or later.

The Firmware flash files are available from the Inner Range support Portal.

These firmware files are not mutually compatible and if the wrong firmware is used with the wrong Controller type, the Module will give a 'MODULE TYPE UNKNOWN' error on the FAULT LEDs. *See Page 11.*

- 2) **When first powering up the Module, or when changing to Integrity mode firmware always clear the Card cache.**
See Page 9 under the heading “DIPswitch S1”.

- 3) **If the product is not supplied with built-in 4A Transformer. (e.g. Supplied as a PCB only version)**

AC Power Transformer. In order to maintain the maximum output current values specified in the Product Catalogue and Installation Manual, the Intelligent Door Access Module PCB must be powered by a transformer with the following minimum specifications:

Transformer Primary (Input) Voltage:	As per local AC Mains supply voltage.
Transformer Secondary (Output) Voltage and Current:	16 to 18V AC. 4 Amps.

Use of a transformer with a lower current rating may result in damage to the Transformer &/or the Module.

A Transformer with a lower output current rating (2.5A or 3A) may be used, but Link LK3 must be removed and the total Power Supply current will be limited to 2A.

See information relating to LK3 on pages 8 and 16 or contact Inner Range Technical Support for advice.

- 4) **Plug Packs.** Common 16VAC 1A or 1.5A Plug packs must never be used with this product. The current output from these plug-packs is totally inadequate for the Intelligent 2/4-Door Access Module.

Contents

PARTS LIST	2
INSTALLATION INSTRUCTIONS	3 - 5
Module numbering	4
Hardware Configurations and Applications	5
INPUT AND OUTPUT WIRING DIAGRAMS	6 - 10
Motherboard PCB layout and connection summary	8 & 9
Link settings	10
Status and Fault LED indications	11
Lock Open Time Mode settings	11
AC Fail Delay time setting	11
LAN CONNECTIONS	12
LAN Termination Details	12
Cable Types	12
LAN wiring diagram	13
Earthing	14
LAN Voltage Testing	14
Input and Output ID Table	15
SPECIFICATIONS	16

Parts List

- Low Profile Metal Enclosure and mounting plate. (Not provided if supplied as PCB and Kit)
 - Intelligent Door Access Module Motherboard fitted to the mounting plate.
 - Installation Manual. (This document)
 - Tamper switch wiring diagram. (EU model only)
 - Installation Kit containing:
 - 4 x 8 Way plug-on screw terminals.
 - 4 x 6 Way plug-on screw terminals.
 - 2 x 3 Way plug-on screw terminals.
 - 14 x 2 Way plug-on screw terminals.
 - 16 x 2k2 End-of-line resistors.
(red-red-black-brown-brown)
 - 16 x 6k8 End-of-line resistors.
(blue-grey-black-brown-brown)
 - 1 x Red/Black Battery Cable 70 cm
 - 2 x 1N4004 Diode.
(Connect in reverse polarity across lock coils)
 - 4 x Jumper Links. (Spare)
 - Tamper switch. (2 in EU model)
 - Tamper switch bracket. (2 in EU model)
 - 2 x 6.3mm QC Tamper switch connectors. (4 in EU model)
 - 1 x 1 Amp Slow Blow AC mains input Fuse. M205 (Spare)
 - 1 x 0.5 Amp Fast Blow Reader Power Fuse. M205 (Spare)
 - 1 x 1 Amp Fast Blow Lock Power Fuse. M205 (Spare)
 - 1 x 2 Amp Fast Blow LAN/DET+ Fuse. M205 (Spare)
 - 1 x 5 Amp Fast Blow Battery Input Fuse. M205 (Spare)
- In countries where the Mains input cable is not pre-fitted, sufficient mounting screws to assemble all parts to the housing are also supplied.
- 4-Door Configurations only.
- 2-Door Expander board fitted to the mounting plate.
 - 2-Door Expander board Installation Manual.
 - 2-Door Expander board Installation Kit containing:
 - 5 x PCB Mounting Clip M3.
 - 5 x M3 x 10 Pan head screw.
 - 1 x 26 way 100mm Ribbon cable.
 - 4 x 6 Way plug-on screw terminals.
 - 2 x 4 Way plug-on screw terminals.
 - 2 x 3 Way plug-on screw terminals.
 - 2 x 2 Way plug-on screw terminals.
 - 2 x Jumper Links. (Spare)
 - 6 x 2k2 End-of-line resistors.
(red-red-black-brown-brown)
 - 6 x 6k8 End-of-line resistors.
(blue-grey-black-brown-brown)
 - 2 x 1N4004 Diode.
(Connect in reverse polarity across lock coils)
 - 1 x 0.5 Amp Fast Blow Reader Power Fuse. M205 (Spare)
 - 1 x 1 Amp Fast Blow Lock Power Fuse. M205 (Spare)

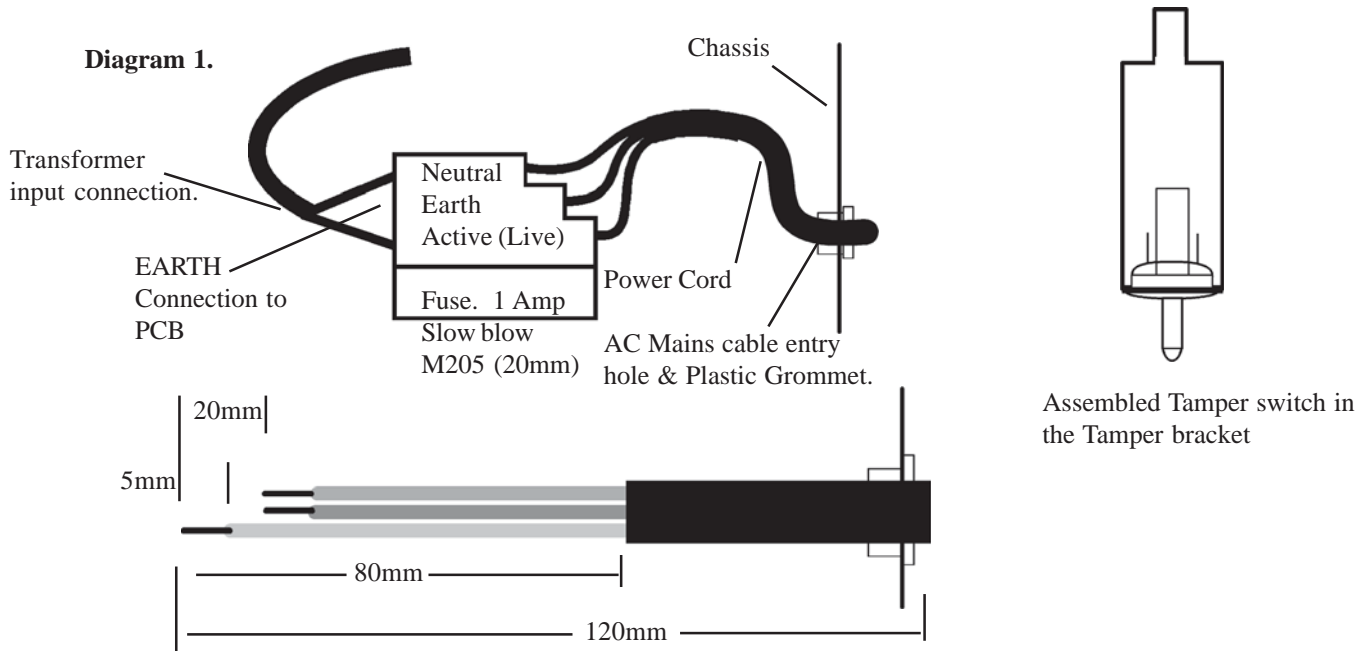
INSTALLATION AND SAFETY INSTRUCTIONS

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 80mm of the sheath from the end of the power cord. Trim 20mm 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.
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. 120mm) 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.

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.



Mounting the Unit. See Diagrams 2 and 4.

1. Installation environment should be maintained at 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. We recommend mounting the enclosure with the Mains Cable entry and Transformer at the bottom as shown in Diagrams 2 and 4.
3. When mounting this product onto flammable surfaces, a fire protection backplate MUST BE INSTALLED. (See Diagram 3) Any Conduit entry points that have had the knockout removed but are not used, must also be resealed using 25mm Conduit Plugs.
4. Fit the tamper switch into the tamper switch bracket. Install this assembly by placing the tamper switch plunger in the hole provided in the base, and the tongue on the bracket through the slot provided in the lip in the top of the chassis.
5. The Battery is normally installed in the bottom of the enclosure. (See Diagram 2) The optional Battery retaining bracket (Part Number: 926005) can be used if the enclosure is not mounted as recommended in Step 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.

Diagram 2. 2-Door Configuration

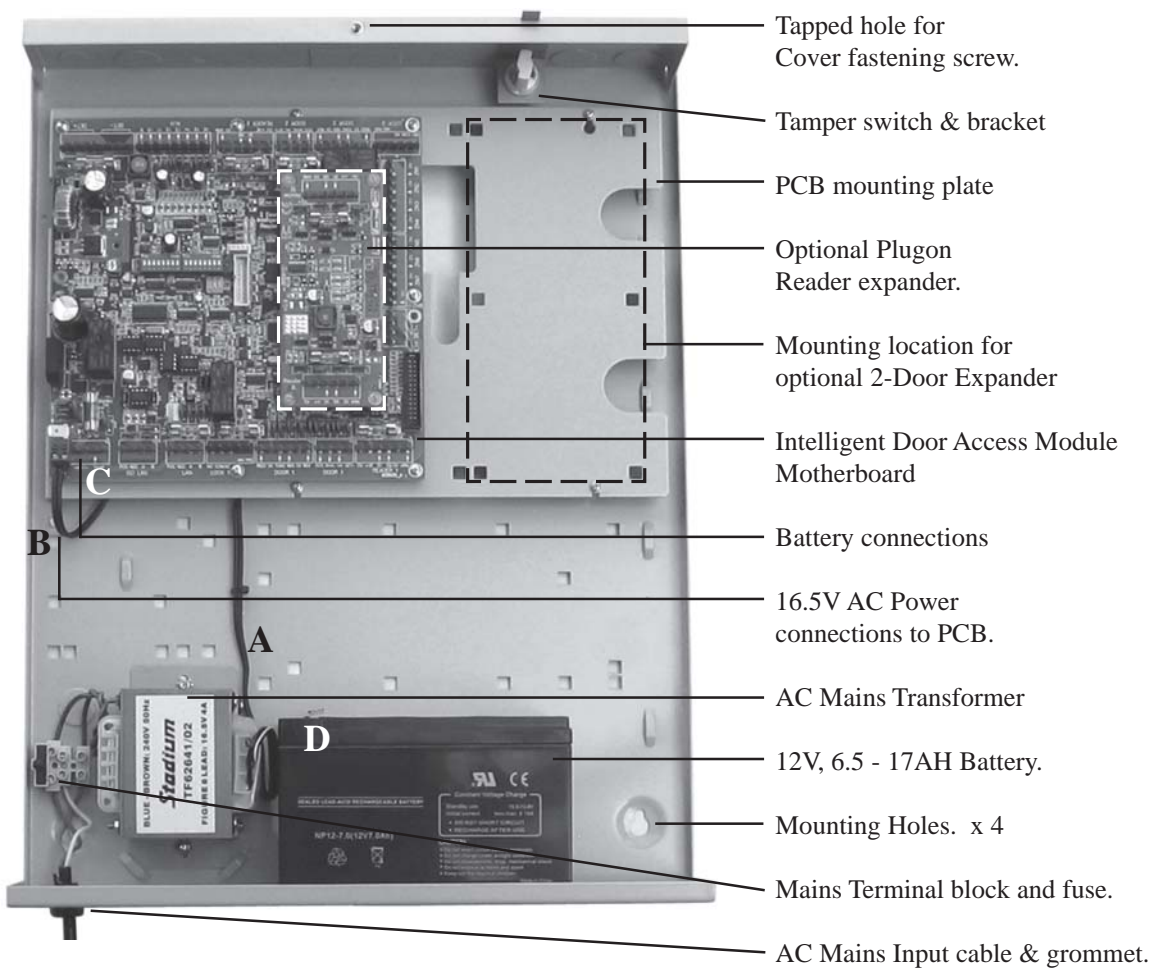
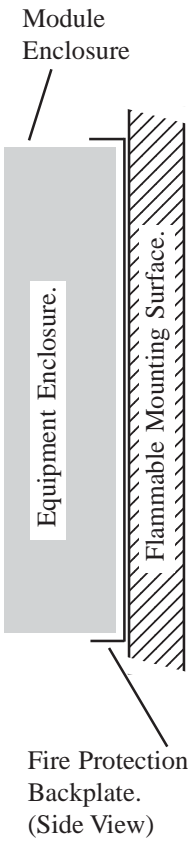


Diagram 3.



Connecting the AC Input and Battery to the PCB. See Diagram 2 above.

- 1. The Mains Transformer Figure 8 output cable (A) is connected to the AC Input on the PCB (B).
- 2. Connect the Red Battery cable between the “+B” connection on the PCB (C) and the Positive (+) Battery terminal (D).
- 3. Connect the Black Battery cable between the “-B” connection on the PCB (C) and the Negative (-) Battery terminal (D).

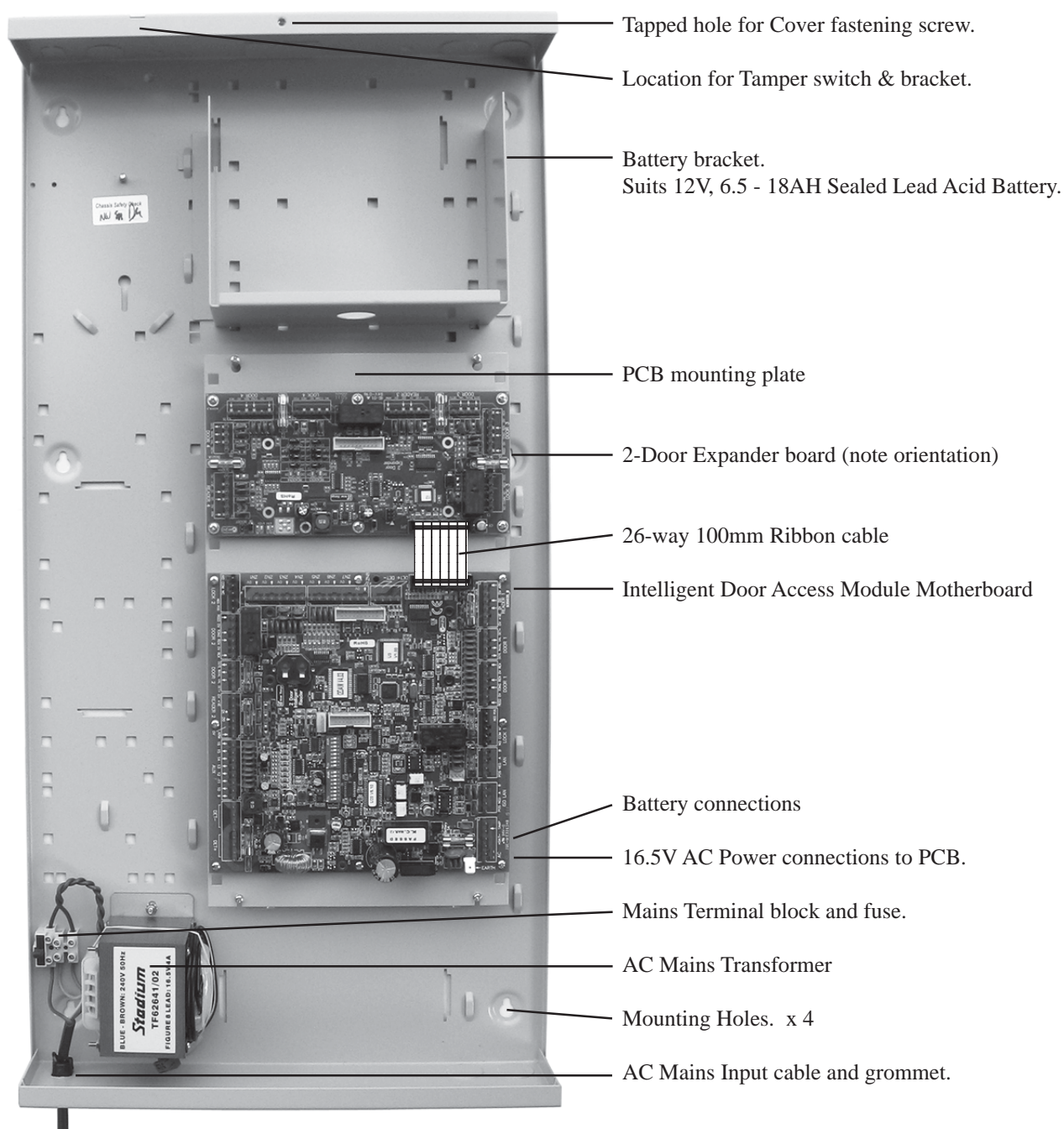
IMPORTANT NOTES:

- 1. Diagrams 2 and 4 show the recommended orientation for installing the enclosure with the Battery located on the bottom lip (6.5 to 9 AH Batteries only) or in the Battery bracket. If the enclosure is mounted at 90 degrees in either direction to the orientation shown, the Battery must be installed in the Battery bracket.
- 2. The Transformer and Battery locations vary in some versions of the product.

Module Numbering

The Module number is set using DIPswitches 1 to 7. The Module number equals $n + 1$, where n is the binary number set on DIPswitches 1 to 7.

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
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
through to							
64	ON	ON	ON	ON	ON	ON	off

Diagram 4. 4-Door Configuration

Hardware Configurations and Applications.

The following table shows all the hardware configurations of the Intelligent Door Access Module and the typical application for each configuration.

Motherboard	2-Door Exp.	Plugon Rdr Exp.	Typical Application.
1	0	0	1 or 2 Doors with an Entry Reader for each Door.
1	0	1	1 or 2 Doors with Entry and Exit Readers for each Door.
1	1	0	Up to 4 Doors with an Entry Reader for each Door.
1	1	1	Up to 4 Doors with Entry Readers on all Doors and Exit Readers on 2 Doors.
1	1	2	Up to 4 Doors with Entry and Exit Readers for each Door

Wiring Diagrams

ZONE INPUT WIRING.

Typical Detection devices with *Normally Closed* Alarm contacts and *Normally Closed* Tamper Contacts are wired using End-of-line (EOL) resistors. e.g. Door Reeds, Tongue Sense contacts, PIRs etc.

NOTE: Detection devices with *Normally Open* Alarm contacts are wired in exactly the same manner as shown below. When programming the Zone Input Options, however, the option to “Swap Seal and Alarm” must be set to [Y]es. e.g.

Insight (Concept 4000)

Options	
Summary Zone	<input checked="" type="checkbox"/>
Ignore Physical Input	<input type="checkbox"/>
Swap Alarm and Seal	<input type="checkbox"/>
No test on exit	<input type="checkbox"/>
Auto-Isolate on exit	<input type="checkbox"/>
Zone Self Test Enabled	<input checked="" type="checkbox"/>
No Review	<input type="checkbox"/>
Isolate All Only	<input type="checkbox"/>

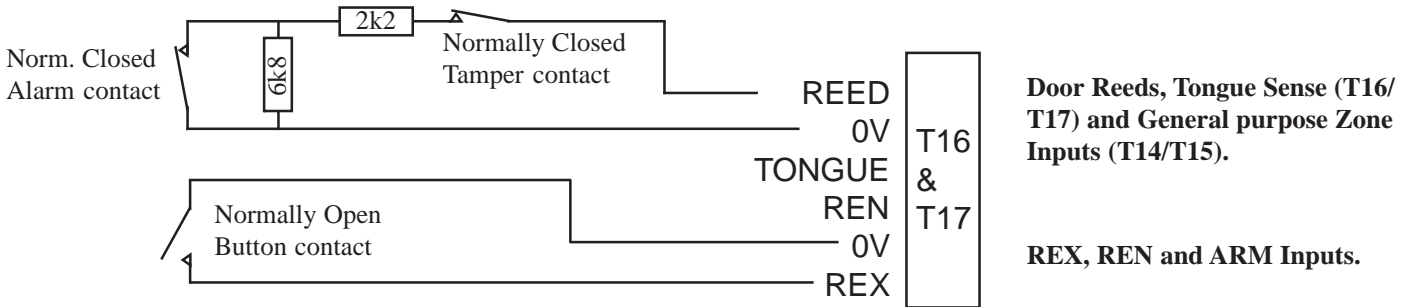
Integriti

Options	
<input type="checkbox"/> Summary	<input type="checkbox"/> No Review
<input type="checkbox"/> Ignore Physical Input	<input type="checkbox"/> Auto-isolate on Exit
<input type="checkbox"/> C01:X01 On = Review	<input type="checkbox"/> No Test on Exit
<input type="checkbox"/> swap Seal and Alarm	<input type="checkbox"/> Self-Test Input

INPUT STATES:

2k2	= Sealed
9k (2k2 + 6k8)	= Unsealed/Alarm
Open/Short Cct	= Tamper

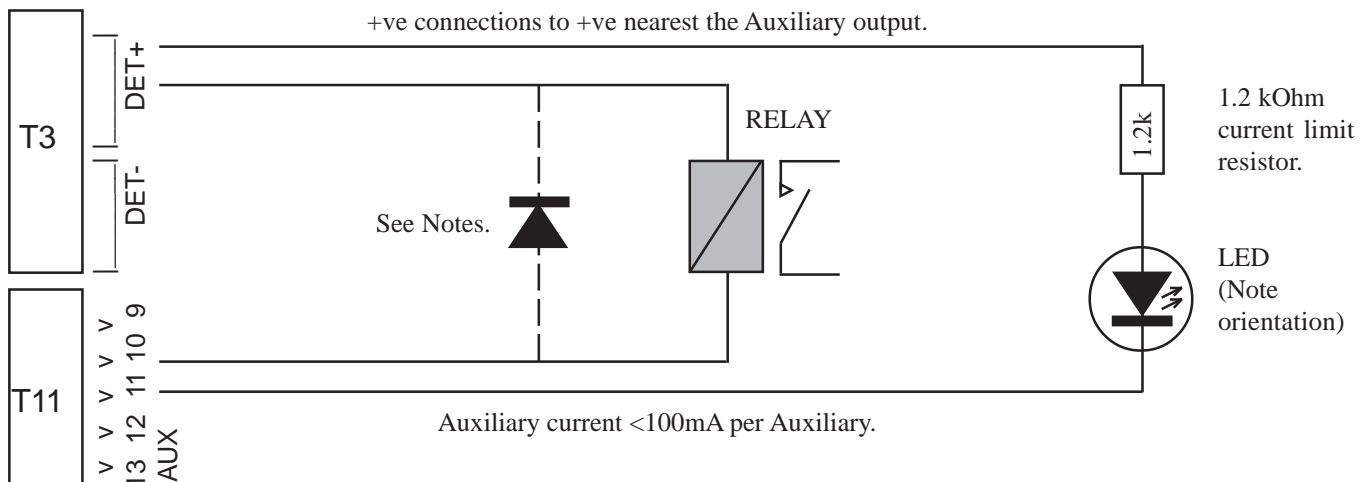
REX (Request to Exit), REN (Request to Enter) and ARM inputs are wired as Normally Open contacts with no EOL resistors.



AUXILIARY WIRING

Rules for Auxiliary wiring on an Intelligent Door Access Module.

- Max current on any individual Auxiliary must be less than 100mA.
- Locks + Readers + Auxiliaries + LAN current + Detectors must be less than 2A, or an external power supply must be used.
- The Positive connection of the device being controlled by the Auxiliary must be wired back to the Positive connection nearest the Auxiliary. i.e. On the same module.
- If an external power supply is used to power the device, a good common Negative connection MUST exist between the power supply and the module.
- Clamp diode should be fitted across inductive loads. Cathode (bar) to +ve.



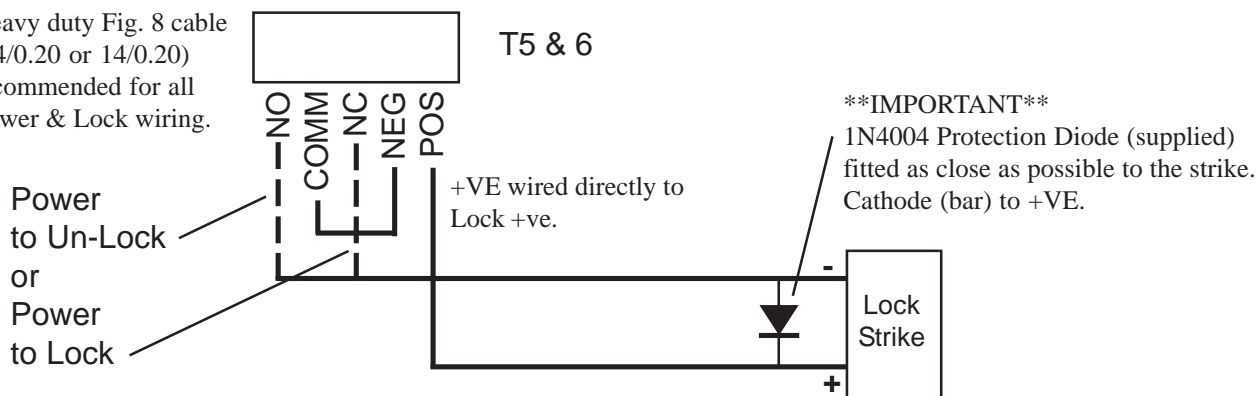
LOCK WIRING

Using On-board Power Supply.

CAUTION: Lock power can only be provided by the lock “POS” connection if the total current required by all Locks, Readers, Detectors, Auxiliaries and the LAN does not exceed 2.0 Amps. Check lock current before using this lock wiring method.

Locks are activated via an on-board relay. Each lock “POS” terminal is separately protected by a 1A fuse. This fuse should only be replaced with a fuse of the same value.

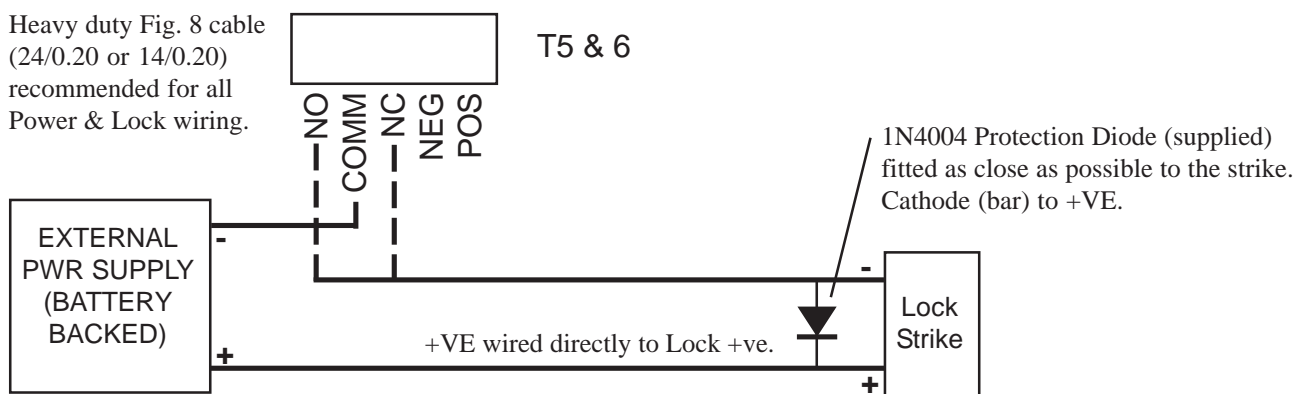
Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) recommended for all Power & Lock wiring.



Using a separate external Power Supply.

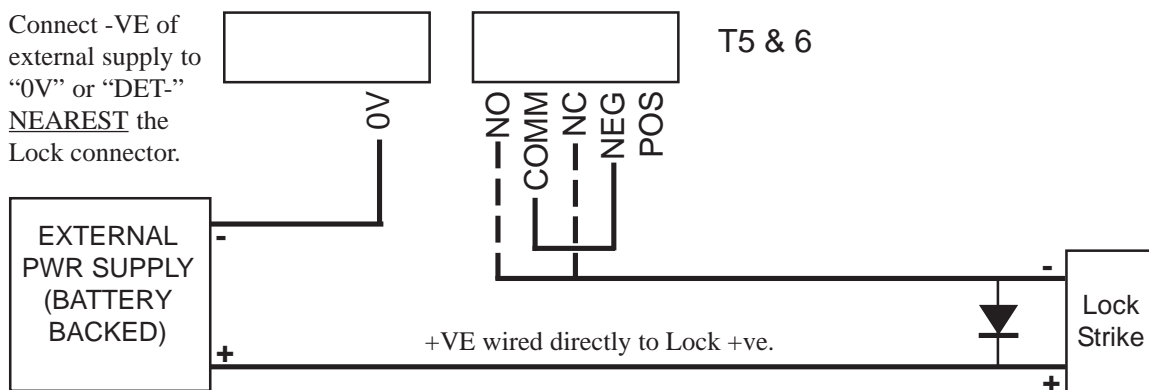
If the lock current requirement will cause the total combined ancillary current limit (2.0A) to be exceeded, and/or longer battery backup times are required, a separate battery-backed power supply should be used for lock power and wired as shown below.

Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) recommended for all Power & Lock wiring.



If **Lock fault monitoring** is required when using an external supply, connect the lock as shown below.

Connect -VE of external supply to “0V” or “DET-” NEAREST the Lock connector.



INTELLIGENT 2/4 DOOR

S2. DIPswitch S2. Module address and Lock time increment option.

LK4. BOOST for 12V Readers. Fit if DC Volts at either Reader Head is <11.5V.

T11. Auxiliary 9 to 16 Output connections.

F5/L27. Reader 2 Fuse and Fuse Blown indicator lamp. 500mA Fast Blow.

T10. Reader 2 and ARM button connections.

T13. Door 2 Status outputs.

T3. Detector/Auxiliary Power connections.

F1/L66. Detector Fuse and Fuse Blown indicator Lamp.

LK3. PS Current limit.
OFF = 2A
ON = 3A
See p16 for details.

L12/L13. +5V / +13.75V Power indication.

S1. DIPswitch S1.
AC Fail delay and Factory default.

L21. Main LAN Power indication.

L4. AC On lamp.

F3/L18. Detector Fuse and Fuse Blown indicator Lamp.

EARTH.

LK11. TERM Main LAN Termination.

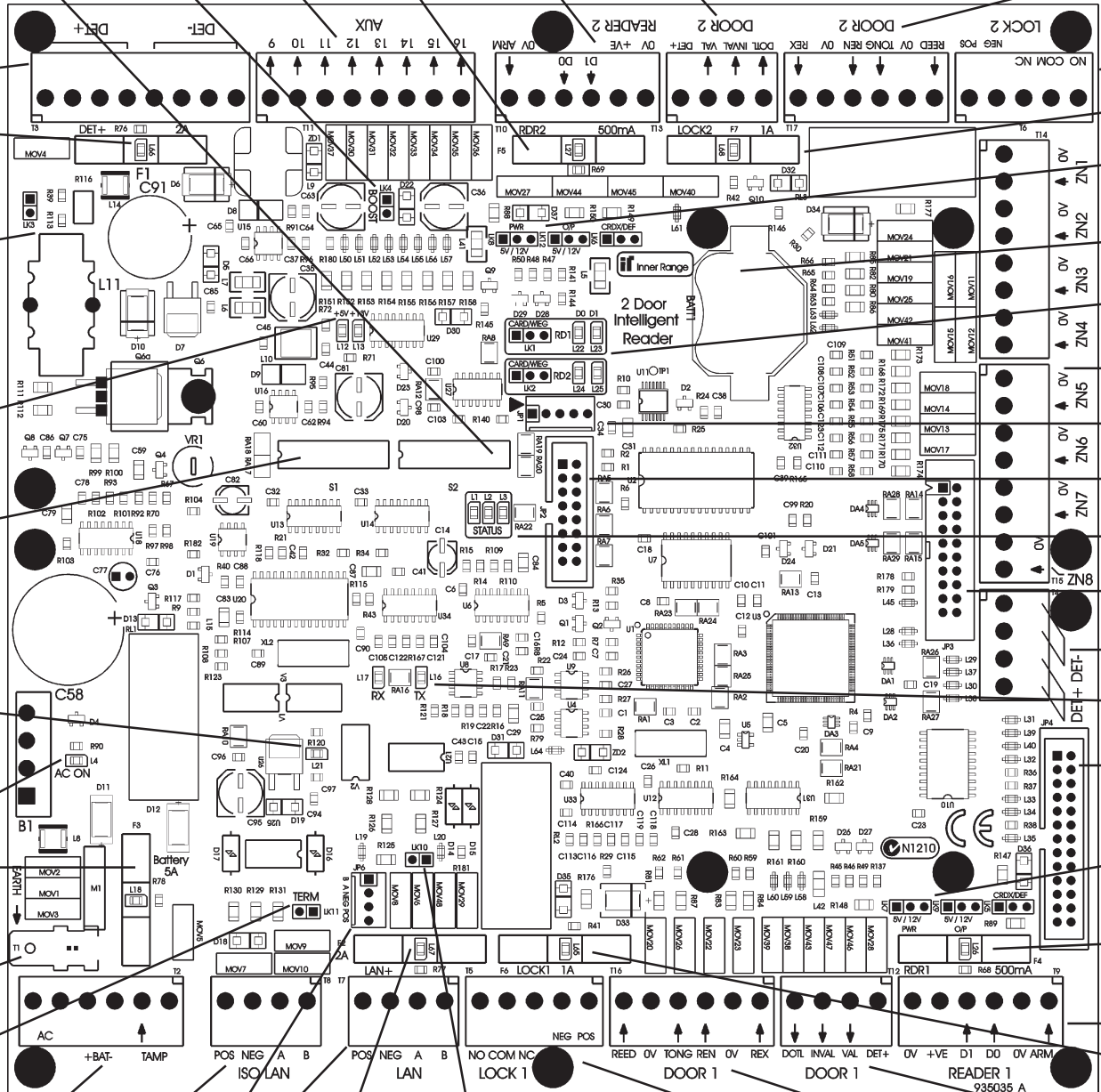
LK10. Local LAN Termination.

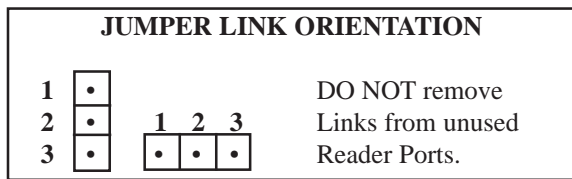
F2/L67. LAN Fuse and Fuse Blown indicator lamp.

T7/JP6. Local/Ancillary LAN. For LCD Terminals associated with Doors on this Module.

T8. Main LAN Connection. Isolated LAN Port to Control Module. MUST remain isolated from all other wiring.

T2. AC: 16-18VAC Input. **+BAT-**: 12V 6.5AH to 18AH Battery. **TAMP**: Cabinet Tamper switch connections.



ACCESS MODULE MOTHERBOARD

T17. Door 2 Inputs: Reed, Tongue Sense, REN & REX.

T6. Door 2 Lock Relay connections.

F7/L68. Door 2 Lock Fuse & Fuse Blown indicator lamp.

LK8/LK12. Reader 2 Power & Output voltage options.
See table on page 10.

BATT1. RAM Backup battery.

LK1/LK2 & L22-25. Reader1/Reader2 Data format (Mag Swipe or Wiegand) & Reader1/Reader2 data input indication.

T14/T15. Zone Inputs. Zone 1 to 8.

JP1. Port 0 cable connection for Flash Firmware Upgrades.

JP2.

L1/L2/L3. Microprocessor and Status lamps.

JP3. Plugon Reader Expander connection.

T4. Detector Power connections.

L16/L17. LAN Comms Tx & Rx indicator lamps.

JP4. 2 Door Expansion board connection.

LK7/LK9. Reader 1 Power & Output voltage options.
See table on page 10.

F4/L26. Reader 1 Fuse and Fuse Blown indicator lamp.

T9. Reader 1 and ARM button connections.

F6/L65. Door 1 Lock Fuse and Fuse Blown indicator lamp.

T12. Door 1 Status outputs.

T16. Door 2 Inputs: Reed, Tongue Sense, REN & REX.

T5. Door 1 Lock Relay connections.

DIPswitch S2

Sw1-7: Module Address. *See details on p4.*

Sw8: Lock Open Time Mode.
Off = 1 Sec increments.
On = 100 mS increments.
See details on p11.

DIPswitch S1.

Sw 1, 4, 5 & 6: Factory Only.

Sw 2. OFF = AC Fail Delay 20 Sec.
ON = AC Fail Delay 255 Sec.
(see details on Page 11)

Sw 3. ON = DOTL is Disabled for any Door/s that are in Free Access.
(ITDAM firmware V4.06 or later only)

Sw 7 & 8. Reset to Factory default.

(Use only if instructed by Tech support)

- 1) Disconnect Power and Battery.
- 2) Set Switch 7 & 8 to ON & Switch 2 to OFF.
- 3) Reconnect Power & Battery & wait 2 sec.
- 4) Disconnect Power and Battery again.
- 5) Set Switch 7 & 8 to OFF & Switch 2 to the desired setting. *See above.*
- 6) Reconnect Power and Battery.

Sw 8. Clear Card Cache. *Integrity Mode only.*

- 1) Set Switch 8 to ON.
- 2) Disconnect Power and Battery.
- 3) Reconnect Power and Battery.
- 4) Set Switch 8 to OFF.

STATUS LEDs.

LED 1. Database.

LED 2 / 3. Fault LEDs.

See Status LED table for details.

FUSE RATINGS.

F1	DET+	2A Fast Blow
F2	Local LAN	2A Fast Blow
F3	Battery	5A Fast Blow
F4	Reader 1	500mA Fast Blow
F5	Reader 2	500mA Fast Blow
F6	Lock 1	1A Slow Blow
F7	Lock 2	1A Slow Blow

Always replace fuses with a fuse of the same type and rating.

TERMINATION LINKS

No Link Unterminated.
Link IN Terminated.

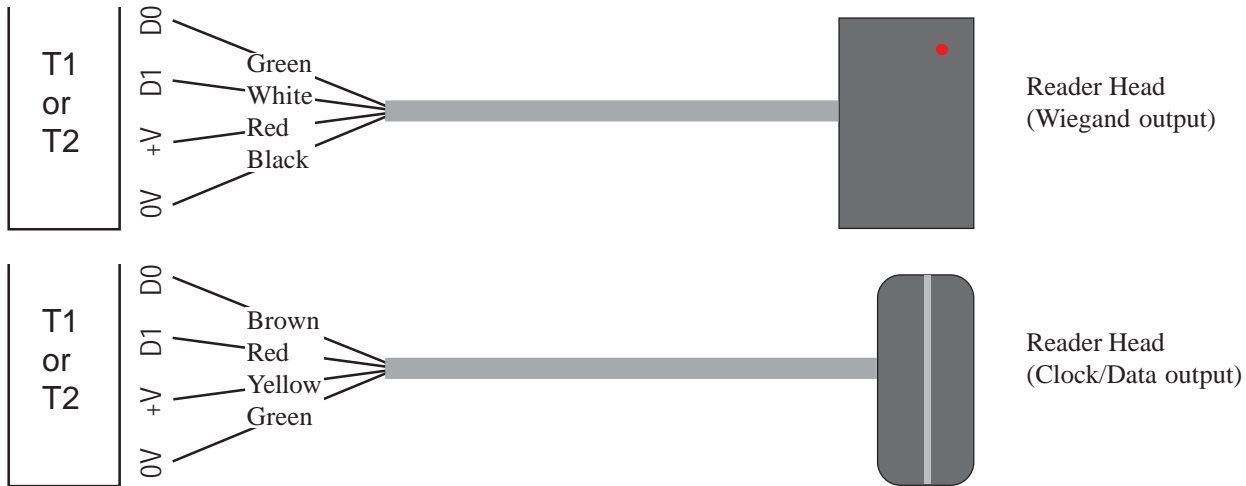
See details on pages 12-14.

READER WIRING

Before connecting the Reader, refer to the information provided with the Reader for wiring details.

Reader Head +V (Positive supply), 0V (Negative supply), D1 (or Clock) and D0 (or Data) are connected to Terminal T9 or T10 as shown below. CAUTION: Wire colors shown are typical but may vary depending on the Reader manufacturer.

LEDs & Beeper. Reader LED and/or Beeper wires may be connected to the “VAL”, INVAL, DOTL or Auxiliary outputs (T12 & T13) as required. These outputs are Open Collector. Consult the Reader installation instructions for connection details.



READER WIRING EXAMPLES	0V	+VE	D1 CLK	D0 DATA	Earth (If available)
Omron Swipe	green	yellow	red	brown	
HID Proximity/iClass/Sensorkey / Indala Proximity / Inner Range Secure40	black	red	white	green	Shield. Connect shield to 0V if no earth connection available.
HID Classic Swipe/Insertion/Epic Wiegand Card Reader (May have flying leads OR screw terminals)	black GND	red +VE	white Data 1	green Data 0	

READER OPTION LINK SETTINGS

Before setting the Link options, refer to the information provided with the Reader for details of the supply voltage, output voltage and data format. See diagrams on pages 8 & 9 for Jumper Link locations and pin numbering.

NOTE: DO NOT remove Links from unused Reader Ports.

LINK	DESCRIPTION	SETTING 1-2	SETTING 2-3
LK1/LK2	Reader 1 / 2 Data Format	Magnetic Swipe (CLOCK/DATA)	Wiegand (D1 / D0)
LK5/LK6	Reader 1 / 2 Mode	CRDX (Not supported at present)	DEFAULT
LK9/LK12	Reader 1 / 2 Data O/P	+5V	+12V
LK7/LK8	Reader 1 / 2 Power supply	+5V	+12V
LK4	BOOST. For +12V Reader supply only. Fit if DC Volts at either Reader Head is less than 11.5V.		

EXAMPLES OF READER LINK SETTINGS	LK1 / LK2 Format	LK7 / LK8 Pwr	LK9 / LK12 Data	LK5 / LK6 Mode
	1-2 Swipe CRD 2-3 WIEG	1-2 +5V 2-3 +12V	1-2 +5V 2-3 +12V	1-2 CRDX 2-3 DEFAULT
Omron Swipe / Cardlock Swipe	1-2	1-2	1-2	2-3
HID ProxPoint/MiniProx/ThinLine/Sensorkey/ Swipe/Insertion/Turnstile Wiegand Readers Indala SlimLine/WallSwitch/PinProx/ ValueProx/SecureProx/MasterProx	2-3	1-2	1-2	2-3
HID ProxPro / Inner Range Secure40 / Indala Standard/ Medium Range/ MasterProx (for 30cm range)	2-3	2-3	2-3	2-3

INTELLIGENT READER MODULE STATUS & FAULT LEDs

L 1	DATABASE LED. EXPLANATION / REMEDY	
Flash	Directory problem. May flash for around 1 minute when first connected or if Control Module memory is defaulted. If LED 1 continues to flash for longer than 90 seconds: -Check the FAULT LEDs for LAN Comms problems. -Check that the Memory configuration chosen for this installation has Intelligent Reader Modules available. See “Memory Configurations” in the Programming Applications & Reference Manual. If flashing continues, default the Intelligent Reader Module (see “DIPswitch S1” details on pages 8 & 9) and allow database to update again. (Note that this may take up to 14 minutes for a 512k Memory configuration.)	
ON	Updating Database. Access disabled. Only relevant when Module or Door programming changes made. (Not relevant for other database changes such as Users, TimeZones, Lists, etc.)	
L 2	L 3	FAULT LEDs. EXPLANATION / REMEDY
ON	ON	Module is Offline.
OFF	ON	Module Type Unknown. Firmware upgrade required to Control Module.
Flash	ON	Duplicate Module. This module number is 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.
L 4	AC ON. Indicates AC Supply is present.	
L 12	+5V. Indicates Power Supply +5V is present.	
L 13	+13V. Indicates Power Supply +13.75V is present.	
L 16 (TX) / 17 (RX)	LAN COMMS LEDs. Indicates LAN communications on the main “ISO LAN” connection.	
L 18	Battery Fuse. Indicates Battery Fuse Blown.	
L 21	LAN +ve present. Indicates Power present on the “ISO LAN” port.	
L 22 (D0) / 23 (D1)	READER 1 DATA LEDs. Indicates data being received from Reader 1.	
L 24 (D0) / 25 (D1)	READER 2 DATA LEDs. Indicates data being received from Reader 2.	
L 26 / L27	Reader 1 / Reader 2 Fuse. Indicates Reader Fuse Blown.	
L 65 / L68	Lock 1 / Lock 2 Fuse. Indicates Lock Fuse Blown.	
L 66	DET+ Fuse. Indicates DET+ Fuse Blown.	
L 67	Local LAN Fuse. Indicates Local LAN POS Fuse Blown.	

LOCK OPEN TIME MODE SETTINGS

The “Lock Open Time” defined in Door programming is normally specified in Seconds.

e.g. A Lock Open Time of “5”, will activate the Lock Auxiliary for 5 Seconds.

In some installations, the Lock Open Time needs to be shorter than 1 second.

e.g. When providing a short pulse output to trigger a special access device such as a turnstile system.

An option is available to allow an Intelligent 4 Door Access Module to process the “Lock Open Time” as 100 milli-Second increments instead of 1 Second increments.

- e.g.
- A Lock Open Time of “5”, will then activate the Lock Auxiliary for 500 milli-Seconds. (5 x 100mS)
 - A Lock Open Time of “50”, will then activate the Lock Auxiliary for 5 Seconds. (50 x 100mS)

This is done by setting Switch 8 on DIPswitch 2 to the ON position. When set, the Lock Open Time will then be processed as 100 milli-Second increments for all 4 Doors on that particular Module. (*See page 8 for location of the DIPswitch*)

Only Modules with the DIPswitch set to ON will process the Lock Open Time in this way. Any other Modules with the DIPswitch left in the OFF position, will process the Lock Open Time in the normal manner as 1 second increments.

AC FAIL DELAY TIME SETTINGS

NOTE: Requires Power-Up Reset after changing the DIP switch settings

DIP Switch 1; Sw 2. OFF = AC Fail Delay 20 Seconds. ON = AC Fail Delay 255 Seconds.

LAN CONNECTIONS. *Refer to diagram opposite.*

- “A” & “B” signal connections are wired in parallel across the system using twisted pair cable. ❶
See “Cable Types” details. The “NEG” connection (0V reference) must also be wired to every module. ❷
- An optional + 12 V connection (LAN +ve) may be used to provide power to modules that do not have their own on-board power supply. e.g. LCD Terminals or the “Isolated LAN” connection on the Intelligent Reader Module. ❸
- **The Intelligent 2 Door Access Module connects into the LAN System via the “Isolated LAN” connection, X1.** This is to ensure that any LAN faults will not effect any LCD Terminals that have been connected to the Local LAN connection for the purposes of Card+PIN operation. ❹ The Power for the Isolated LAN (POS & NEG) must be derived from the Control Module or an Expander Module connected to this section of the LAN, or an external power supply. ❺
- CONCEPT 4000/5000 ONLY. Any LCD Terminals to be used for Card+PIN / Card or PIN operation in conjunction with Readers on an Intelligent 2 Door Access Module must be connected to the Local LAN connection, X2, and must be T3/4K “Enhanced” V1.00 or later, or “Multi Language” (ML) Terminal V8.1 or later. These Terminals have the special firmware fitted to allow Off-line operation. ❻ No other Modules are allowed to be connected to this LAN Port.
- Avoid installing the LAN cable with mains power cables & any other cables likely to cause interference wherever possible.
- No module is to be more than 1.5km (1500 metres) cable length from the Control Module OR Intelligent 4 Door Access Module Local LAN Port OR from a LAN Isolator “LAN 2” or “LAN 3” Port. (LAN Isolator/s can be used to extend the maximum cabling distance)
- TOTAL LAN CABLING in any one section of the LAN should not exceed 2000 metres, and/or 64 Modules.
- CONCEPT 4000/5000 ONLY. The LAN **MUST** be Terminated for optimum performance, by ensuring that the Termination Resistor (470 Ohm*) is “IN” on the first and last modules in the LAN network.
(Termination is put “IN” with a jumper link or a DIPswitch, depending on the module type)
- MULTIPLE CABLE RUNS. In systems where there are multiple cabling runs going out from the Control Module or LAN Isolator (i.e. “star” configuration), Termination is fitted on the Modules at the end of the two longest runs.

CABLE TYPES

- TWISTED PAIR Cable MUST be used to connect the LAN.

Two pair Telephone or LAN cable is suitable as it provides all 4 conductors required. One twisted pair for “A” & “B”, and the other for “POS” & “NEG”. Unshielded cable is quite acceptable, however, in situations where electrical storms or high levels of electrical interference are a problem, shielded 2 pair cable may be used. Examples of suitable 2 pair cables:

Unshielded.

Olex TJC590AA002
Tycab TIC6105 †
MM MegaTwistpatch ‡
Category 5.

Shielded (All Multistrand)

Olex JEIP87AA002
Tycab DPF4702
MM B2002CS
Electra EAS7202P / 7302P

Belden 8723 *
Tycab DQQ47025 *
Garland MCP-2S
Electra EAS16202P

† 3 Pair. ‡ Multistrand (7/0.2). * Individually screened pairs.

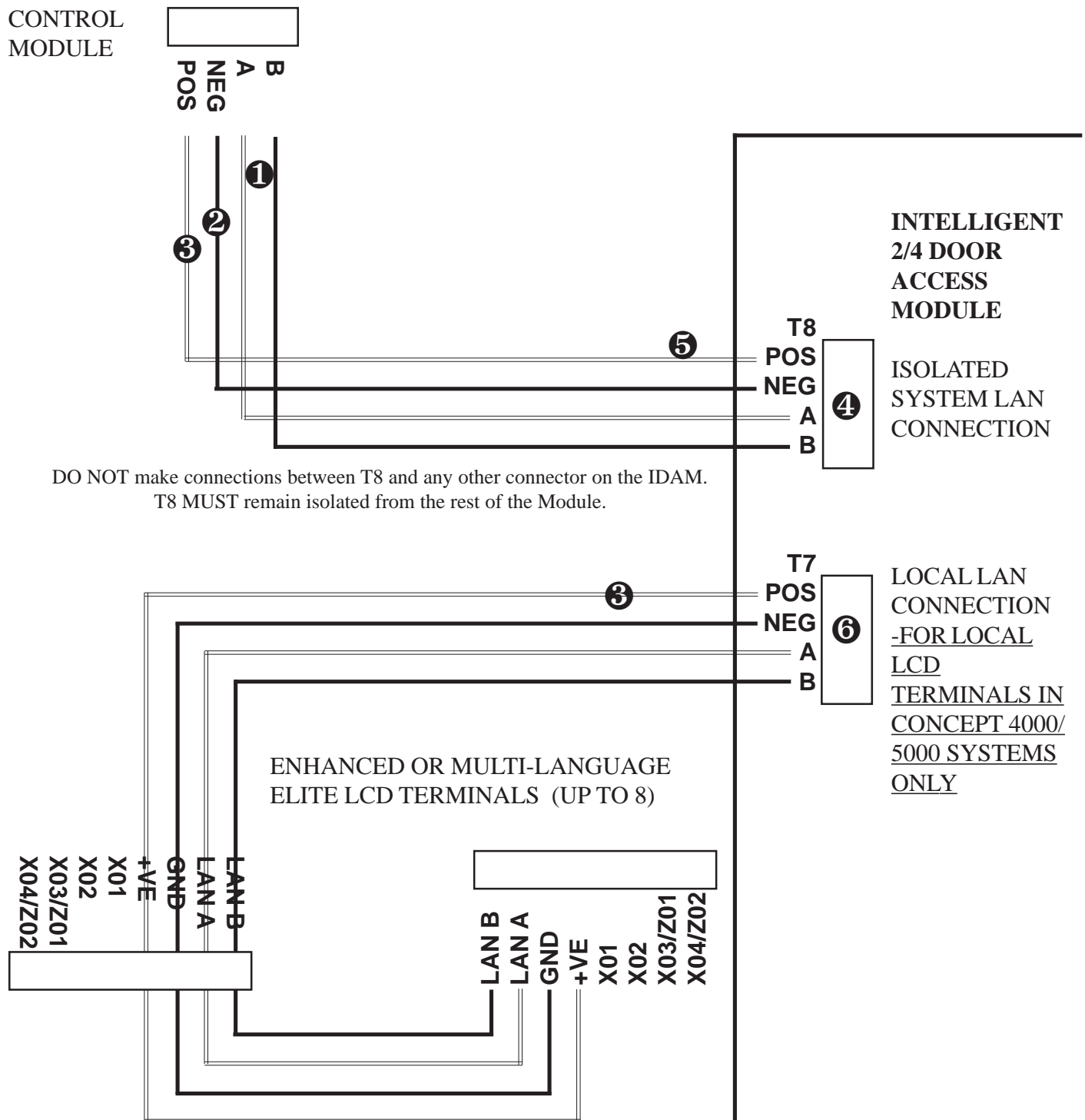
- If SHIELDED CABLE is used, DO NOT use the shield as a negative connection & do not allow the shield to make contact with Negative, Ground, or any other wiring or metalwork within the system. Shields should only be terminated to a Protective Earth at ONE END of the cable.
- LAN POWER CABLING. Separate heavy duty Figure 8 cable (24 / 0.20 recommended) should also be run for “POS” & “NEG” over longer distances if used for powering modules. e.g. LCD Terminals.

LAN “POS” current required:

60mA (e.g. 1 LCD Terminal)
120mA (e.g. 2 LCD Terminals)
250mA (e.g. 4 LCD Terminals)
500mA (e.g. 8 LCD Terminals)

Max. Cabling Length for LAN +ve (POS) & GND (NEG)

Twisted pair	Fig 8. 14 / 0.20	Fig 8. 24 / 0.20
200 metres	400m	640m
100 metres	200m	320m
50 metres	100m	160m
25 metres	50m	76m



Important Notes:

- 1) Elite LCD Terminals connected to the Local LAN must be T3/4K “Enhanced” V1.00 or later (obsolete), or “Multi Language” (ML) Terminal V8.1 or later (P/N: 995000ML / 995000MLWH). These Terminals have the special firmware to enable off-line operation of the Card+PIN/Card or PIN functions.
- 2) Only LCD Terminals directly associated with the Intelligent Door Access Module should be connected to the Local LAN. Other Module types must not be connected.
- 3) Never connect any wiring between the Isolated LAN and Local LAN.

SYSTEM EARTHING

- The System Ground is connected to Mains Earth via the Power cord at the Control Module.
- The Intelligent Door Access Module also has local Ground connected to Mains Earth via it's Power cord, however, the System LAN connection (X1 "ISO LAN") is isolated to eliminate Earth loops. **Ensure that there are no other 0V or Ground connections between the Control Module and Intelligent Door Access Modules.**

LAN VOLTAGE TESTING.

(Concept only. Refer to Integrati Controller Installation Manual when used in an Integrati system)

LAN problems can often be quickly diagnosed by using a Multimeter on the DC Volts range as detailed in the table below.

1. These Voltage checks should be done with no (or minimal) communications traffic on the LAN. To ensure this:
 - a) Check that poll times for all addressed modules in the system are set to the default 60 / 120 seconds or greater.
 - b) Disconnect LAN A and LAN B from any unaddressed modules on the LAN, as these modules will be constantly attempting to send messages to the Control Module.
 - c) Ensure that Terminals, Readers, etc. are not being used while performing tests.
 Before proceeding with Voltage tests, check the "RX" LED on the Control Module to confirm that there is minimal LAN activity.
2. To determine if a problem exists on the module under test, or elsewhere on the LAN, these voltage tests can be performed:
 - a) With the module connected to the LAN.
 - b) On the cable connections with the module disconnected from the LAN.

Test Point + PROBE	Test Point - PROBE	EXPECTED RESULT	PROBLEM/ REMEDY
LAN +ve	LAN -ve or GND	11V to 14V DC	0V. Open circuit LAN +ve connection, or short cct between LAN +ve and LAN -ve. <11V. Too many modules powered from the LAN power supply source. Length (or guage) of LAN cabling causing excessive Voltage drop on the cable.
LAN B	LAN A	200 to 600mV DC	<200mV. Short cct between LAN A & B. More than 2 modules terminated in this section of LAN. >600mV. LAN A &/or LAN B Open circuit. Less than 2 modules terminated in this section of LAN <0V (Negative reading). LAN A & LAN B connections reversed.
LAN A	LAN -ve or GND	200mV to 3.2V DC	<200mV / >3.2V DC. System may have more than one module connected to an earth point, causing earth loop/s. Ensure that no more than one module in the system is connected to earth. Remember that a module may be connected to earth via a peripheral device or it's cabling. e.g. PC, Printer, External power supply, Detector, Output device, etc. If installation methods &/or system configuration makes multiple earth points unavoidable, install LAN Isolator/s at suitable points in the LAN system to isolate the earthed section/s
LAN B	LAN -ve or GND	200mV to 3.2V DC	As above.

Intelligent Reader Input / Output Table

NOTE: In the Input or Auxiliary ID columns, ("nn" = Module number)

Input / Output	Concept 4000/5000	Integriti
General Purpose Zone 1	Inn : Z01	Inn : Z05
General Purpose Zone 2	Inn : Z02	Inn : Z06
General Purpose Zone 3	Inn : Z03	Inn : Z07
General Purpose Zone 4	Inn : Z04	Inn : Z08
General Purpose Zone 5	Inn : Z05	Inn : Z13
General Purpose Zone 6	Inn : Z06	Inn : Z14
General Purpose Zone 7	Inn : Z07	Inn : Z15
General Purpose Zone 8	Inn : Z08	Inn : Z16
Door #1 Reed Zone Input	Inn : Z09	Inn : Z01
Door #2 Reed Zone Input	Inn : Z10	Inn : Z02
Door #3 Reed Zone Input	Inn : Z11	Inn : Z09
Door #4 Reed Zone Input	Inn : Z12	Inn : Z10
Door #1 Tongue Sense Zone Input	Inn : Z13	Inn : Z03
Door #2 Tongue Sense Zone Input	Inn : Z14	Inn : Z04
Door #3 Tongue Sense Zone Input	Inn : Z15	Inn : Z11
Door #4 Tongue Sense Zone Input	Inn : Z16	Inn : Z12
Door #1 Lock Tamper System Input	Inn : S01	Inn : S13
Door #2 Lock Tamper System Input	Inn : S02	Inn : S14
Door #3 Lock Tamper System Input	Inn : S03	Inn : S15
Door #4 Lock Tamper System Input	Inn : S04	Inn : S16
Door #1 Forced System Input	Inn : S05	Inn : S21
Door #2 Forced System Input	Inn : S06	Inn : S22
Door #3 Forced System Input	Inn : S07	Inn : S23
Door #4 Forced System Input	Inn : S08	Inn : S24
Door #1 Door Open Too Long (DOTL) System Input	Inn : S09	Inn : S29
Door #2 Door Open Too Long (DOTL) System Input	Inn : S10	Inn : S30
Door #3 Door Open Too Long (DOTL) System Input	Inn : S11	Inn : S31
Door #4 Door Open Too Long (DOTL) System Input	Inn : S12	Inn : S32
Door #1 Invalid Card System Input (In or Out)	Inn : S13	Inn : S37
Door #2 Invalid Card System Input (In or Out)	Inn : S14	Inn : S38
Door #3 Invalid Card System Input (In or Out)	Inn : S15	Inn : S39
Door #4 Invalid Card System Input (In or Out)	Inn : S16	Inn : S40
Cabinet tamper	Inn : S17	Inn : S01
General Lock Fault	Inn : S18	Not available
Battery Test Fail	Inn : S19	Inn : S08
AC Fail	Inn : S20	Inn : S02
Low battery	Inn : S21	Inn : S03
LAN Fuse	Inn : S22	Inn : S04
Detector Fuse	Inn : S23	Inn : S05
LAN Comms Status	Inn : S24	Inn : S12
Door #1 Lock Relay	Inn : X01	Inn : X01
Door #2 Lock Relay	Inn : X02	Inn : X02
Door #3 Lock Relay	Inn : X03	Inn : X03
Door #4 Lock Relay	Inn : X04	Inn : X04
Spare (Phantom)	Inn : X05	Not available
Spare (Phantom)	Inn : X06	Not available
Spare (Phantom)	Inn : X07	Not available
Spare (Phantom)	Inn : X08	Not available
General Purpose Auxiliaries 9 to 12.	Inn : X09 to X12	Inn : X05 to X08
General Purpose Auxiliaries 13 to 16.	Inn : X13 to X16	Inn : X13 to X16
Door #1 DOTL	Not mapped to an Aux	Inn : X09
Door #2 DOTL	Not mapped to an Aux	Inn : X10
Door #3 DOTL	Not mapped to an Aux	Inn : X11
Door #4 DOTL	Not mapped to an Aux	Inn : X12

Electrical Specifications

Power Supply Input:	Transformer Input Voltage:	240V AC -10% / +10%. 50 Hertz.
	Current Consumption:	Maximum 500 milliAmps from 240V AC Source.
	Fuse Protection:	Separate AC mains input fuse. 1 Amp Slow blow. M205 (20mm).
	Transformer Output Voltage:	16.5V AC. 50 Hertz.
	PCB AC Input Voltage:	16 to 18V AC. 50 Hertz.
	Battery Capacity:	12V 6.5 to 17 AH. Sealed Lead Acid Battery.
Power Supply Output:	13.75 V DC.	
PS Current limit.	LK 3 Fitted:	3 Amps total (4A Transformer required).
	LK 3 NOT Fitted:	2 Amps total (Minimum 2.5A or 3A Transformer required).
Detector Supply Output:	13.75 V DC. 1 Amp.	
Reader Head Supply O/P:	5V or 13.75V DC. 300mA maximum per Reader.	
Current Consumption:	360mA max. (Motherboard + 2-Door Expander + 2 x 2-Reader Expander + All 4 Lock Relays On)	
	Motherboard:	145mA standby. With both Lock Auxiliaries On: 240mA
	Plugon Reader Expander:	Add 20mA.
	2-Door Expander:	Add 30mA standby.
	Lock Auxiliaries:	Add 45mA per Relay for Unlocked state.

- NOTES: 1) Does NOT include current drawn by peripheral devices such as Readers, Locks, Sounders, Detectors, etc.
e.g. Small Prox Reader (~5-10cm range): Allow 50-120mA. Standard Prox Reader (~15cm range): Allow 120-180mA. (General approximations only. *See information supplied with Reader for actual current consumption*)
- 2) Total combined ancillary current required by all devices connected to the Intelligent Reader Module must not exceed:
- 2 A. If 4A Transformer is used and LK3 is fitted.
 - 1A. If 2.5A, 3A or 4A Transformer is used and LK3 is NOT fitted.

Battery.	Maximum capacity:	17 Amp/Hour.		
	Deep discharge cutoff:	10 Volts.		
	Low Battery indication:	11 Volts.		
Lock Relay.	Contact rating:	30 V DC. 1 Amp maximum.		
Fuse Protection.	ALWAYS REPLACE FUSES WITH SAME FUSE TYPE AND VALUE!			
-All Fuses are	Battery Input:	5A. Fast Blow	LAN Power:	2A. Fast Blow
M205 type (20mm)	Lock Power:	1A. Slow Blow	Detector Power	2A. Fast Blow
	Reader Power:	0.5A. Fast Blow		

Physical Specifications

Cabinet size (Not including mains cable and grommet).

Medium Enclosure: 463mm High x 358mm Wide x 86mm Deep

Extra Large Enclosure: 700mm High x 358mm Wide x 83mm Deep

Weight.

Medium Enclosure:	Product as supplied. Transformer version, NOT including battery:	7.2Kg
	Fitted with 1 x 2-Door Expander board & 2 x Plugon Reader Expanders:	7.6Kg
	With 7AH Sealed Lead Acid Battery:	Add approx. 2.4Kg
	With 17AH Sealed Lead Acid Battery:	Add approx. 6.4Kg
Extra Large Enclosure:	Including 7AH battery and lid.	12 Kg
Operating Environment:	0° to 40° Celsius and 15% to 80% 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.