

# Concept 4000/5000

## 2 Door Expander Board

### for Intelligent 2-Door Access Module

### P/No: 995036

## INSTALLATION MANUAL

### OVERVIEW

The 2-Door Expander Board allows the Intelligent 2-Door Access Module to be expanded to support up to 4 Doors. This board will also support a Plugon Reader Expander option to provide Reader In / Reader Out operation for the additional Doors.

#### Parts List

- 2 Door Expander Board PCB assembly.
- Installation Manual. (This document)
- 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)

#### Electrical Specifications

Power Supply Input: From host Intelligent 2 Door Access Module.

Reader Head Supply O/P: 5V or 13.75V DC. 300mA maximum per Reader.

Current Consumption: 30mA standby. Lock Auxiliaries: 45mA per Relay for Unlocked state.

(Does **NOT** include current drawn by peripheral devices. e.g. Readers, Locks, Sounders, Detectors, etc.)

NOTE: Small Prox Reader (~5-10cm range): Allow 50-120mA. Standard Prox Reader (~15cm range): Allow 120-180mA. These values are general approximations. *See information supplied with Reader for actual current consumption.*

Lock Relay. Contact rating: 30 V DC. 1 Amp maximum.

Fuse Protection. Lock Power: 1A. Slow Blow M205 (20mm)  
 Reader Power: 0.5A. Fast Blow M205 (20mm)  
**ALWAYS REPLACE FUSES WITH SAME FUSE TYPE AND VALUE!**

Maximum cable length. Europe Only. To meet EN standard 50130-4, cables connected to this device must be less than 30 metres in length.

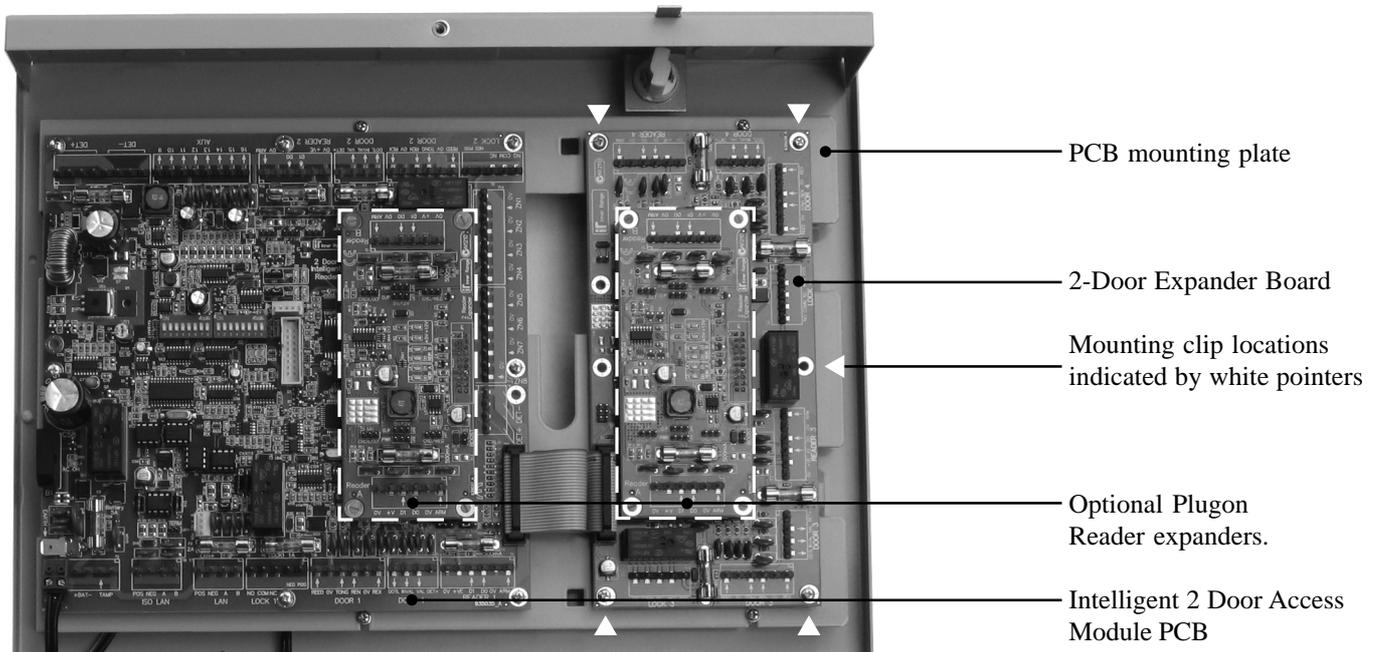
#### Physical Specifications

PCB size: 200mm x 94mm

Operating Environment: 0° to 40° Celsius and 15% to 80% Relative humidity (non-condensing)

## Installation.

1. Power down the Intelligent 2 Door Access Module.  
i.e. Disconnect the AC input and the Battery from the Intelligent 2 Door Access Module motherboard.
2. Fit the 5 PCB mounting clips to the appropriate locations on the PCB mounting plate as indicated by the white pointers on the diagram below.
3. Position the 2-Door Expander Board on the mounting clips and secure with the 5 M3 x 10mm screws provided in the installation kit.
4. Connect the 26 way 100mm Ribbon cable between JP1 on the Expander Board and JP4 on the Intelligent 2 Door Access Module as shown below.
5. Configure Links LK1 to LK9 to suit the Reader/s that will be connected to the READER 3 and READER 4 Ports.  
NOTE: If a Plugon Reader Expander is to be fitted to the 2-Door Expander Board, the Links must be configured beforehand.
6. If a Plugon Reader Expander is to be fitted, this can be done now.
7. Connect the Readers, Locks and other Input/Output devices. Note that the metal chassis is electrically earthed and the Circuit Board Assemblies are electrically isolated from the chassis. When mounting and wiring the Module, the Installer must ensure that this isolation is maintained.  
NOTE (EUROPE ONLY): To meet EN standard 50130-4, it is not permitted to connect cables greater than 30 metres long to this device.
8. When wiring is complete and checked, re-connect the power and battery to the Intelligent 2-Door Access Module.



## Status & Fault LEDs

<b>L1 (D1) / L2 (D0)</b>	<b>READER 3 DATA LEDs.</b>	Indicates data being received from Reader 3.
<b>L3 (D1) / L4 (D0)</b>	<b>READER 4 DATA LEDs.</b>	Indicates data being received from Reader 4.
<b>L5 / L6</b>	<b>Reader 3 / Reader 4 Fuse.</b>	Indicates Reader Fuse Blown.
<b>L8 / L9</b>	<b>Lock 3 / Lock 4 Fuse.</b>	Indicates Lock Fuse Blown.
<b>L 10</b>	<b>+5V.</b>	Indicates Power Supply +5V is present.
<b>L 11</b>	<b>+12V.</b>	Indicates Power Supply +13.75V is present.

**Wiring Diagrams**

**IMPORTANT NOTE (EUROPE ONLY):**

To meet EN standard 50130-4, it is not permitted to connect cables greater than 30 metres long to this device.

**ZONE INPUT WIRING.**

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

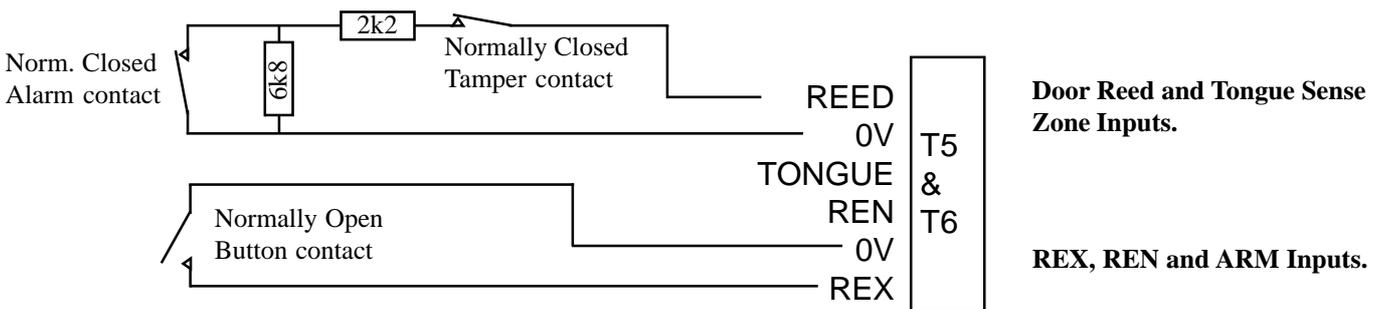
NOTE: Detection devices with *Normally Open* Alarm contacts are wired in exactly the same manner as shown below. When programming the Zone Input, however, the option to “Swap Seal and Alarm conditions” must be set to [Y]es.

e.g.

```
I01:Z01  S I X S R A N T
Options -> n n n Y n n n n
```

INPUT STATES:		
2k2	=	Sealed
9k (2k2 + 6k8)	=	Unsealed (or Alarm)
Open Circuit	=	Tamper
Short Circuit	=	Tamper

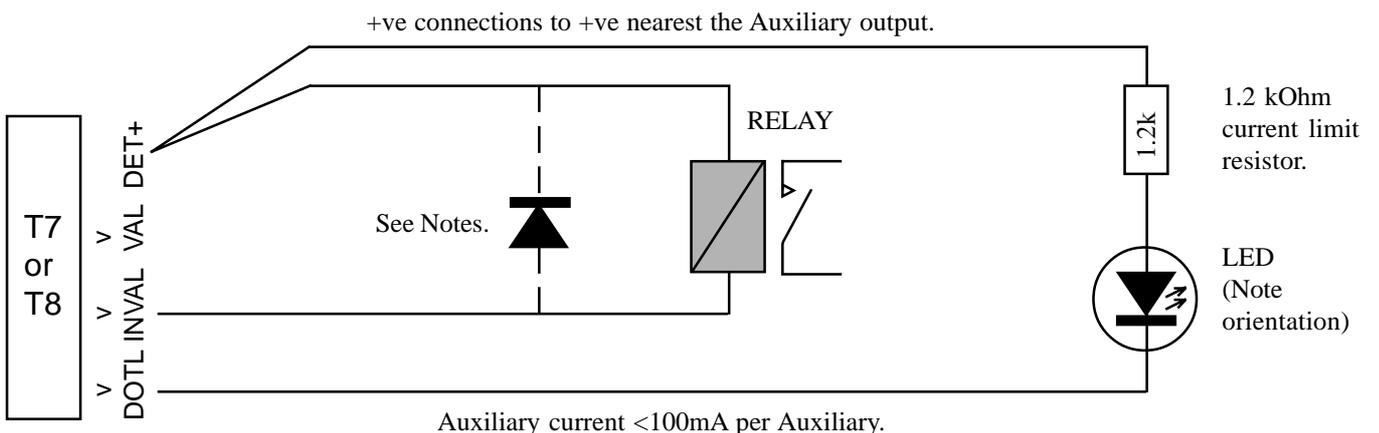
REX (Request to Exit), REN (Request to Enter) and ARM inputs are wired as normally Open contacts with no End-of-line resistors.



**AUXILIARY WIRING**

Rules for Auxiliary wiring on an Intelligent 2 Door Access Module and expansion boards.

- 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.



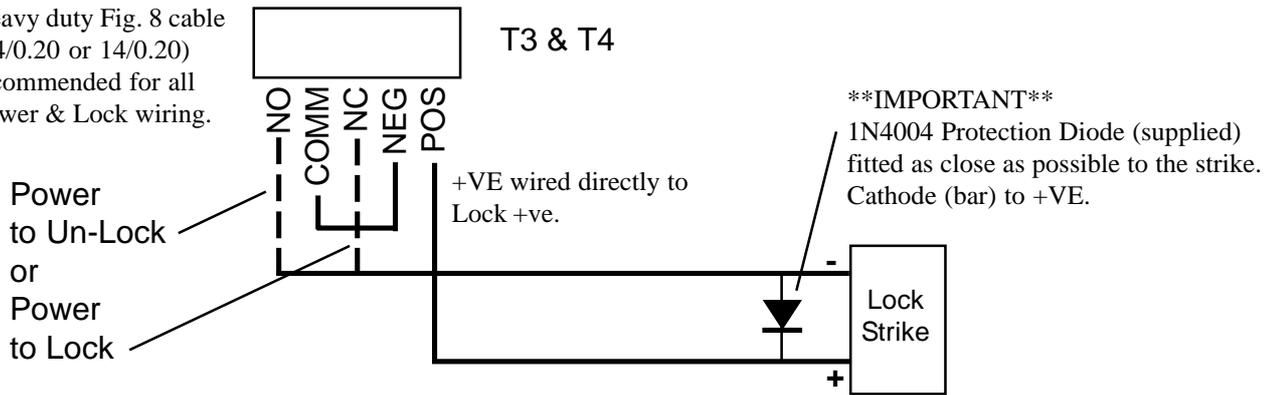
**LOCK WIRING**

**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 type and value.

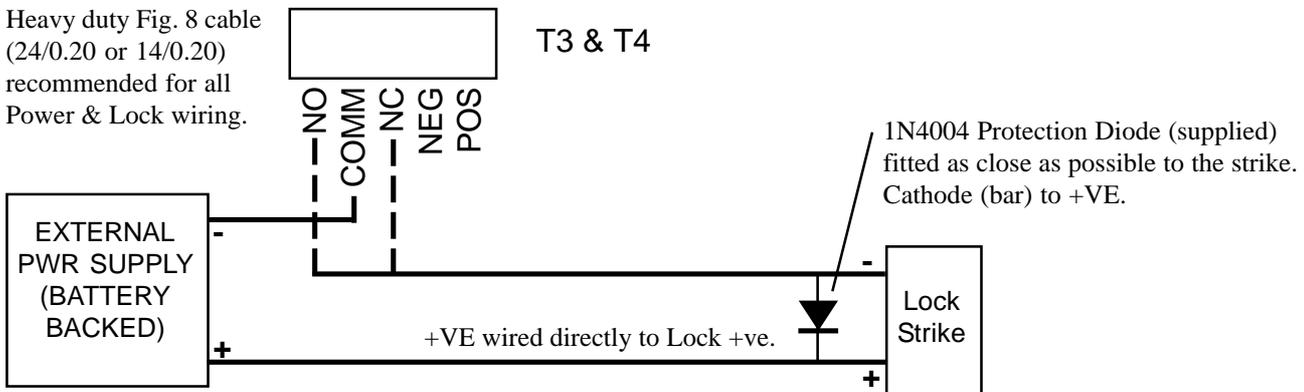
Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) recommended for all Power & Lock wiring.



**Using a separate external Power Supply.**

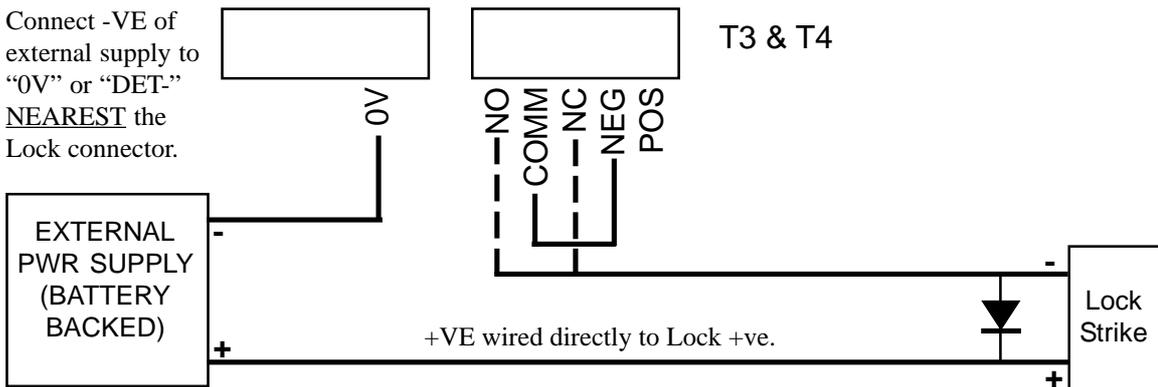
If the lock current requirement will cause the total combined ancillary current limit (2.0A) to be exceeded, and/or longer battery backup times are required, a separate battery-backed power supply should be used for lock power and wired as shown below.

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.

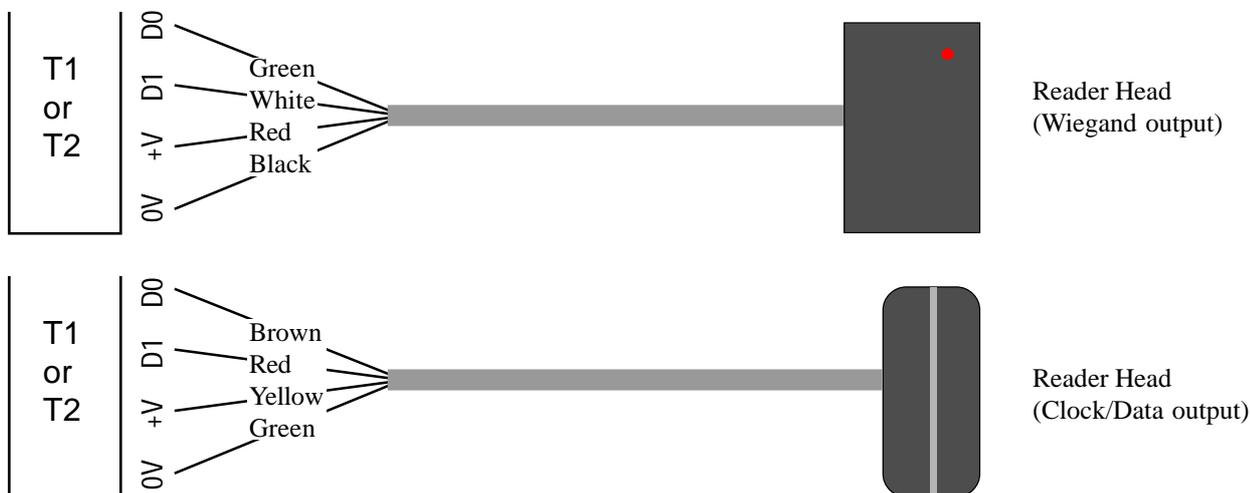


**READER WIRING**

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 T1 or T2 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 (T7 & T8) 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 diagram on page 6 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/LK3	Reader 3 / 4 Data O/P	+5V	+12V
LK2/LK4	Reader 3 / 4 Mode	CRDX (Not supported at present)	DEFAULT
LK5/LK6	Reader 3 / 4 Power supply	+5V	+12V
LK8/LK9	Reader 3 / 4 Data Format	Mag Swipe Card (CLOCK/DATA)	Wiegand (D1 / D0)
LK7	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 / LK3 Data	LK2 / LK4 Mode	LK5 / LK6 Pwr	LK8 / LK9 Format
	1-2 +5V 2-3 +12V	1-2 CRDX 2-3 DEFAULT	1-2 +5V 2-3 +12V	1-2 Swipe CARD 2-3 WIEG
Omron Swipe / Cardlock Swipe	1-2	2-3	1-2	1-2
HID ProxPoint/MiniProx/ThinLine/Sensorkey/ Swipe/Insertion/Turnstile Wiegand Readers Indala SlimLine/WallSwitch/PinProx/ ValueProx/SecureProx/MasterProx	1-2	2-3	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

