Specifications

Mechanical

PCB dimensions:	L: 200mm. W: 94mm H: Allow 45mm.
Installation environment:	0º to 40ºC. 15-85% relative humidity (non-condensing)

Electrical

Power Supply Input:	11V to 14V DC
Current Consumption.	40mA idle. Both Lock relays On (Unlock): 110mA (35mA per Relay) Both Lock & DOTL relays On: 135mA

Note. These figures do NOT include current required by Readers, Locks or peripherals such as Lamps or Warning devices connected to the Lock, Valid, Invalid or DOTL O/Ps.

Relay Contact rating:	5 Amps @ 30VDC.
Overcurrent Protection.	
T4 "+VR1" output:	250mA. Self-resetting. +VR1 only used to supply power to the Reader and associated LEDs and Piezo beeper.
T7 "+VR2" output:	As above.

Status and Fault LEDs

L1	OFF	OK
"UNIBUS"	Flashing	Getting Address
	ON	Address Clash or Too High. Choose another address.
L2	OFF	OK
"Fault"	ON	If On during normal operation, a fault has been detected. OK if On during bootup or firmware download.
L3		Lock 1 "ON".
L4 "SYS"	Flashing	OK. Module is powered and firmware running OK.
L5 & L6	**D0 / D1**	Data Receive indication for onboard Reader Inputs.
L7		Lock 2 "ON".
L12		Reader 1 "+VR1" Fault indication. e.g. Over current.
L13		Reader 2 "+VR2" Fault indication. e.g. Over current.

 Part No: 636535

Integriti

UniBus 2-Door Expander Rev. B

P/N: 996535PCB&K

Installation Manual.

Overview

The Integriti UniBus 2-Door Expander may be used to provide control and monitoring of 2 addtional Doors on a compatible host Module. e.g. An Intelligent LAN Access Module (ILAM) or an Integriti Access Controller (IAC). A maximum of 3 UniBus 2-Door Expanders and a maximum of 6 UniBus Boards in total can be connected to the host Module.
The host Module must be powered by an Integriti Battery-backed Power Supply.
Heavy duty relays provide lock switching, along with a "DOTL Warning" relay and Open Collector Auxiliary outputs for "Valid" & "Invalid" to control LEDs and/or Buzzers.
Readers can be configured independently and integrated with Areas if required. Door Contacts and/or Tongue Sense inputs provide "Door Forced" and "Door Open Too Long" alarms.

IMPORTANT NOTES:

1) **The host Module must have an External Power Supply connected. e.g.**
   Module + 1 UniBus Board: Integriti 3A Smart Power Supply.
   Module + 2 or more UniBus boards: Integriti 3A or 8A Smart Pwr Supply.
   If 2A or 3A supplies are used, a separate battery-backed power supply is recommended for Lock power.

2) **The Switched DC Power Hub (P/N:995916) can be used to provided dedicated fuse protection for each Lock circuit or each 'Lock +/-' input if required.**

3) **Ensure that the current required by UniBus Boards does not cause the Host Module Power Supply's ancillary current limit to be exceeded.**

4) **Firmware / Software Compatability.**
   - **Integriti Controller Firmware V3.0 or later is required.**
   - **Integriti Software Version 3.0 or later is required.**

This product uses components of FreeRTOS (see www.freertos.org).
Source code for free RTOS can be obtained by download from www.freertos.org or by e-mail request to publications@innerrange.com.
Due to on-going product development this manual is subject to change without notice.

Installation.

Parts List

- UniBus 2-Door Expander Board.
- Installation Manual. (This document)
- Installation Kit containing:
  - 1 x UniBus Cable. 270mm.
  - 10 x 2k2 End-of-line resistors. (red-red-black-brown-brown)
  - 10 x 6k8 End-of-line resistors. (blue-grey-black-brown-brown)
  - 2 x 1N4004 protection diodes. (For connecting across lock strike)
  - 6 x Metal M3 Mounting Clips.
  - 6 x M3x10mm screws.
  - 2 x 8 Way Plug on Screw Terminals.
  - 4 x 3 Way Plug on Screw Terminals.
  - 4 x 4 Way Plug on Screw Terminals.
  - 4 x 2 Way Plug on Screw Terminals.

UniBus Cable options

Supplied:		Purchased separately:	
996791L	270mm	996791SS	150mm
		996791LL	475mm
		996791XL	675mm

Installing the UniBus board

Installation environment should be maintained at a temperature of 0º to 40º Celsius and 15% to 85% Relative humidity (non-condensing).

1) Remove the power, LAN and battery connections from the Host Module.

2) Choose a mounting location that will allow a 6-way UniBus cable to be connected between the Door Expander connector P1 or P1a, and the Host Module or an existing UniBus Board, without strain, then install the appropriate Standoffs. The Door Expander Board should be installed by mounting on the enclosure chassis using the 6 PCB mounting clips provided.

3) Secure the Board to the standoffs using the M3 screws provided.

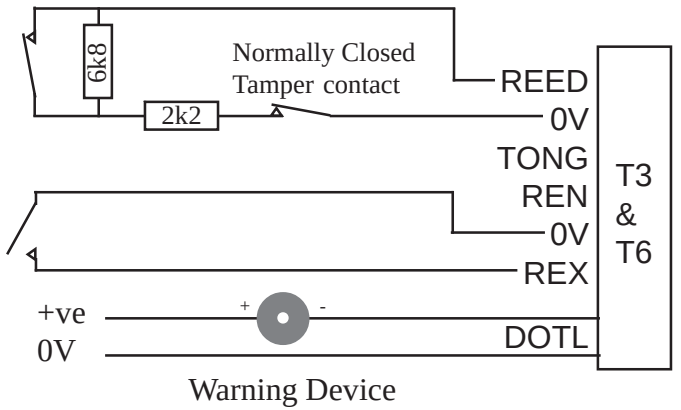
4) Using an Integriti 6-way UniBus cable, connect P1 or P1a to the UniBus connector on the Host Module or the spare UniBus connector on an existing UniBus Board. *See Notes on Page 3.*

Zone Input, Button & DOTL wiring

Normally Closed contact.
- REED & TONGUE.
- REX & REN if "Override EOL" Disabled (default).

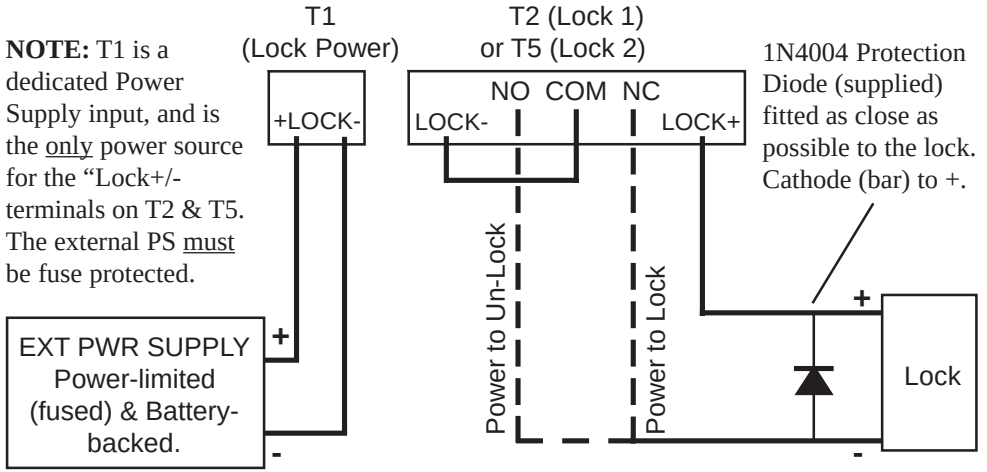
Normally Open Button contact. - ARM button.
- REX & REN if "Override EOL" Enabled)

Normally Open DOTL Relay output.



Lock Wiring

NOTE: T1 is a dedicated Power Supply input, and is the only power source for the "Lock+/- terminals on T2 & T5. The external PS must be fuse protected.



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

CAUTION: Ensure that the current required by locks connected to all Unibus Expanders does not exceed the current available from the power supply.
If locks are powered from the same supply as the Host Module, remember to include current required by the Module, Unibus boards, Readers, Battery Charging, Locks and any other peripherals when calculating total power supply load.
See 'Important Note 2' on Page 1.

Link Settings

READER	LK3/LK4
Omron Magnetic Swipe	5V
Inner Range Secure40 Prox Reader	12V
HID ProxPoint / MiniProx / ThinLine / iClass R10 / R15 / R30 / R40	5V
HID Swipe / Insertion / Turnstile Wiegand Card Readers	5V
HID ProxPro. HID iClass R90 / RKL55	12V
Indala. SlimLine(Mullion) / WallSwitch / PinProx / ValueProx	5V
Indala. Standard / Mid Range 610 / MasterProx / Long Range 620	12V

NOTE: It is recommended that Readers with wide supply voltage ranges (e.g. 4V to 14V, 5V to 16V, etc.) are powered with 5V unless 12V is required for a longer read range.

Reader Wiring. T4 & T7. (Wiegand / Clock & Data)

The table below is a general guide only. Always refer to Reader Installation guides to check wiring details. Readers connected to T4 or T6 must be wired with Shielded Data cable. DO NOT use twisted pairs!

Reader power and data connections are wired according to the following table.

READER	D0 / Data R#	D1 / Clk R#	+VE	GND
Wiegand				
IR Secure40 Prox Reader	Green	White	Red	Black/Shield
HID/Indala with flying leads	Green	White	Red	Black/Shield
HID with screw terminals	Data 0	Data 1	+VE	GND
Magnetic Swipe				
Omron Magnetic Swipe	Brown (Data)	Red (Clock)	Yellow	Green
HID Magnetic Swipe	White	Green	Red	Black

The LED control wires provided on many Readers can normally be wired directly to the VALID / INVALID outputs on the Reader Module if required. (The dropping resistor is usually built in to the reader) Check information supplied with the Reader for LED control details before connecting.

If “+VR” is used to power external LEDs or dropping resistors are not provided in the Reader, connect a 1.2kOhm resistor between “+VR” & the LED Anode.

NOTES:
i) Only use Inner Range UniBus cables.
A 270mm UniBus cable is provided. Other lengths are listed on Page 2.
ii) A maximum of 3 UniBus 2-Door Expanders can be connected.
iii) A maximum of 6 UniBus Boards can be connected to a single Host Module.
iv) All UniBus Boards must be in the same enclosure as the Host Module.
v) Total combined length of UniBus cables must not exceed 1620mm.

5) Determine the Door numbers that will be assigned to this 2-Door Expander board and adjust the settings of Switches 1 and 2 on DIPswitch SW1 accordingly.

Assign Doors	Sw1	Sw2	
1 & 2	OFF	OFF	This setting not used with ILAM or IAC.
3 & 4	ON	OFF	
5 & 6	OFF	ON	
7 & 8	ON	ON	

6) Re-apply power and re-connect the LAN and Battery to the host Module.

7) Wait about 45 seconds, then check the Status LEDs; L1, L2 and L4.
See the table on page 8.

8) Door Reed, Tongue, REN and REX Inputs are wired using End-of-Line (EOL) Resistors (default option). ARM button Inputs are wired to the Normally Open contact of the button, while the COMMON contact is connected to GND and no EOL Resistors are used. An “Override EOL” option is provided in Module programming in the Integriti Software to allow REX and REN Inputs to be wired in the same manner as the ARM button (no EOL) for compatability with existing installations. *See wiring diagram on page 7.*

Lock Relay Auxiliary Numbers when connected to Intelligent LAN Access Module.
2-Door Expander 1 (Doors 3 & 4): Lock 1 Ixx:X03 Lock 2 Ixx:X04
2-Door Expander 2 (Doors 5 & 6): Lock 1 Ixx:X05 Lock 2 Ixx:X06
2-Door Expander 3 (Doors 7 & 8): Lock 1 Ixx:X07 Lock 2 Ixx:X08

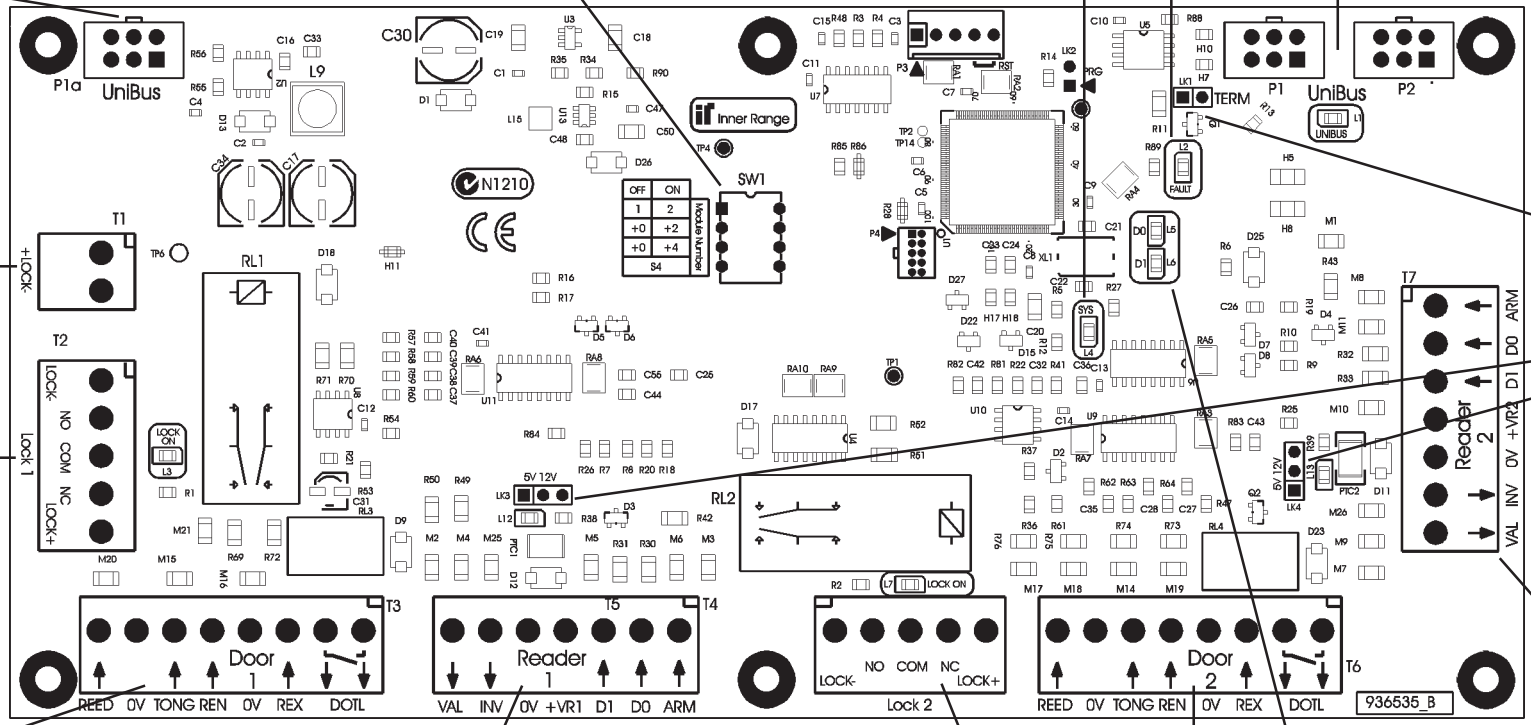
Lock Relay Auxiliary Numbers when connected to Integriti Access Controller.
2-Door Expander 1 (Doors 3 & 4): Lock 1 Cxx:X03 Lock 2 Cxx:X04
2-Door Expander 2 (Doors 5 & 6): Lock 1 Cxx:X05 Lock 2 Cxx:X06
2-Door Expander 3 (Doors 7 & 8): Lock 1 Cxx:X07 Lock 2 Cxx:X08

DIPswitch SW1: Switch 1-4.
UniBus Address number.
See table on p 3.

L2 FAULT.
L4 SYS.
See table on page 8.

P1/P2 / L1. UniBus.
Connectors & Status LED for UniBus.
See pages 2, 3 & 7 for details.

P1a. UniBus.
Alternate connector for UniBus. *See pages 2, 3 & 7 for details.*



T1. +Lock
Lock power input.
(From external, power-limited (fused) power supply)

T2 / L3.
Lock 1 Relay & indicator LED.
See Page 7 ("Lock Wiring") & Page 8.

LK1. TERM
Not Used.

LK3 / L12
LK4 / L13.
Reader Supply voltage; 5V / 12V and Fault LED.
See details on page 6 and page 8.

T7.
Reader 2 connection
See T4 for details.

T3.
Door 1 Input / Output connections.
See "Zone Input, Button & DOTL wiring" on p7.

REED	Reed Switch Input. EOL resistors required.
0V	0 Volt return for Input connections.
TONG	Optional Tongue Sense I/P. EOL resistors required.
REN	Entry Button I/P. EOL Resistors Optional.
REX	Exit Button Input. EOL Resistors Optional.
DOTL	"DOTL Warning" Relay output. If connecting to Reader Beeper, connect other contact to 0V.

T4.
Reader 1 connections. *See "Reader Wiring" on p6.*

VAL	Reader "Valid" LED output.
INV	Reader "Invalid" LED output.
0V	Reader 0 Volt (-ve) connection.
+VR	Reader power supply.
D1 (CLK)	Reader Data or Clock input.
D0 (Data)	Reader Data input.
ARM	Button Input for optional Area ON control. EOL resistors NOT required.

D0 (L5). Data 0's I/P. Either Reader
D1 (L6). Data 1's I/P. Either Reader

T6.
Door 2 Input / Output connections.
See T3 for details.

T5 / L7.
Lock 2 Relay & indicator LED. *See p7 ("Lock Wiring") & p8.*