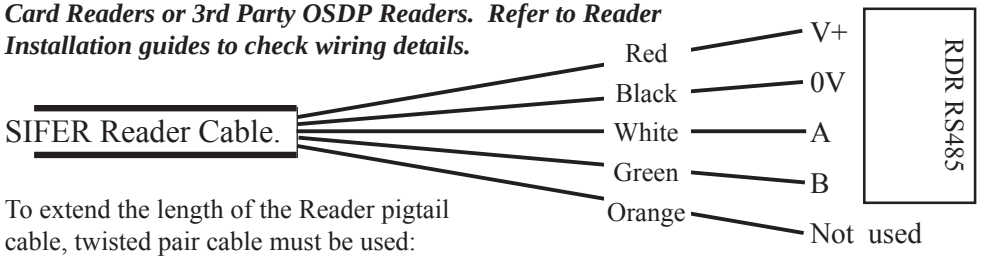
READER WIRING. T1. (RS485)

T7 is provided for connecting Inner Range SIFER Smart Card Readers or 3rd Party OSDP Readers. Refer to Reader Installation guides to check wiring details.



To extend the length of the Reader pigtail cable, twisted pair cable must be used:
Pair 1: Data A/B Pair 2: V+/0V. *See Reader manual for details.*

Reader Power Link Settings. (Check Reader Installation Manual)

READER	LK2/LK3
Inner Range Secure40 Prox Reader	12V
Omron Mag Swipe / HID Swipe / Insertion / Turnstile Wiegand Card Readers	5V
HID ProxPoint / MiniProx / ThinLine / iClass R10 / R15 / R30 / R40	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.

Specifications

PCB dimensions: L: 200mm. W: 94mm H: Allow 45mm.
Installation environment: 0º to 50ºC. 15-90% relative humidity (non-condensing)
Power Supply Input: 11V to 14V DC
Current Consumption. 110mA idle. 175mA with both lock relays On (Unlock).
Note. These figures do NOT include the current required by Readers or peripherals such as Lamps or Warning devices connected to the Lock, Valid, Invalid or DOTL outputs.
Relay Contact rating. Lock: 5 Amps @30VDC. DOTL: 1 Amp @30VDC.
Overcurrent Protection: (T4 +VR1 and T7 +VR2") 250mA. Self-resetting. +VR1/+VR2 are only used to supply power to the Reader and associated LEDs and Piezo beeper.

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.
 Part No: 636018

Integriti
Intelligent LAN Access Module (ILAM)
P/N: 996018PCB&K

Installation Manual.

Overview

The ILAM supports up to 2 Doors, 2 Wiegand Readers, 8 Serial Readers (e.g. Salto, Aperio, etc.) or 16 Inner Range SIFER/OSDP compatible Readers via an RS485 Port. Up to 3 UniBus 2-Door/2-Reader Expanders may be connected to support a total of up to 8 Doors and 8 Wiegand Readers. SIFER/OSDP Readers allow Entry & Exit Readers on all 8 Doors. Using Wiegand/Serial Readers, up to 8 Doors can be used with single Readers but for each Door requiring Entry & Exit Readers, one less Door can be used. Heavy duty relays are provided for lock switching, along with a "DOTL Warning" relay and Open Collector outputs for "Valid" & "Invalid" to control LEDs and/or Sounders. The Module is supplied as a PCB and installation kit. An appropriate Integriti enclosure and power supply/s are chosen according to expansion and power requirements. *See "Installation" on p2 for compatible enclosures.* The Module may be powered from the LAN if adequate current is available from the power source, but a separate battery-backed power supply should still be used for lock power.
Readers can be configured independently and integrated with Areas where required. Door Contacts and/or Tongue Sense inputs provide "Door Forced" and "DOTL" alarms.

IMPORTANT NOTES:

1) The Integriti Intelligent LAN Door Access Module is identified on the Integriti Controller LAN as an 8-Door Reader Module (I).
2) External battery-backed Power Supply is recommended and must be used if UniBus boards are connected. Choice of Power Supply will depend on Reader and Lock power requirements. The following suggestions are a guideline:
   Module + 1 UniBus Board: Integriti 3A Smart Power Supply
   Module + 2 or more UniBus boards: Integriti 3A or 8A Smart Power Supply
   Ensure that the current required by UniBus Boards and their peripherals does not cause the power supply current limit to be exceeded.
3) A separate battery-backed power supply is also recommended for Lock power. The Switched DC Power Hub (P/N:995916) can also be used to provided dedicated fuse protection for each Lock or each 'Lock +/-' input if required.
4) Integriti Software/ISC Controller Firmware Compatability: V3.0 or later.
5) UniBus: A maximum of 6 UniBus Boards in total can be connected consisting of:
   - Up to 3 UniBus 2-Door Expanders. - Up to 2 UniBus 8-Relay Expanders.
   - Up to 6 UniBus 16-Floor Lift Interface Boards.

Installation.

Parts List.

- Intelligent LAN Access Module PCB assembly.
- Installation Manual. (This document)
- **Installation Kit containing:**
  - 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)
  - 2 x 8 Way Plug on Screw Terminals.
  - 2 x 4 Way Plug on Screw Terminals.
  - 6 x Metal M3 Mounting Clips.
  - 6 x M3 x 10mm screws.
  - 4 x 3 Way Plug on Screw Terminals.
  - 8 x 2 Way Plug on Screw Terminals.
  - 1 x 0.1" Jumper Link.
  - 1 x Earth Cable, Chassis to PCB.
  - 1 x 4.8mm QC connector.

Installation

1. Install the Module in a suitable Integriti enclosure using the PCB mounting clips.
   995200PEI Small Encl. 2A Std. PS. 995201PEI Medium Encl. 3A Smart PS.
   995203PEI XLarge Encl. 3A Smart PS. 995203PE8 XLarge Encl. 8A Smart PS.
   995204PE8 Widebody Encl. 8A Smart PS.

2. Mount the enclosure in an appropriate location using fasteners through the four or six mounting holes in the base.

3. Insert the "Normally Closed" Tamper Switch into the hole provided in the Tamper switch bracket. The Tamper Switch bracket must then be positioned in either of the two slots provided in the chassis before the chassis is mounted on the wall.
   The Tamper switch is wired between the "TAMP" and "0V" terminals on T9.
   (Switch is Open circuit when plunger depressed)

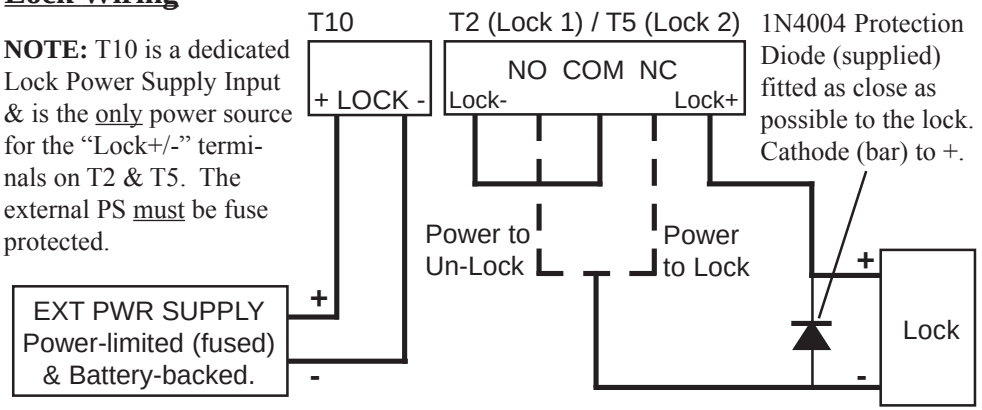
4. Using the Earth cable provided, connect the Earth LUG on the ILAM PCB to either:
   - The Earth terminal on the Power Supply. e.g. Integriti 2A Std PS or 3A Smart PS.
   - The earth stud (if provided) or another suitable point on the metal chassis.

5. Set the Module Number using DIPswitches 1 to 7. *See table on page 3.*

6. 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 6.

Lock Wiring

NOTE: T10 is a dedicated Lock Power Supply Input & 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.

LOCK/DOTL Relay Auxiliary ID Numbers.

ILAM Board	**Door 1.**	Lock:	Ixx:X01	DOTL: Ixx:X09	
	Door 2.	Lock:	Ixx:X02	DOTL: Ixx:X10	
UniBus Door Exp 1	**Door 3.**	Lock:	Ixx:X03	DOTL: Ixx:X11	
	Door 4.	Lock:	Ixx:X04	DOTL: Ixx:X12	etc.

Reader Wiring. T4 & T6. (Wiegand / Clock & Data)

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!

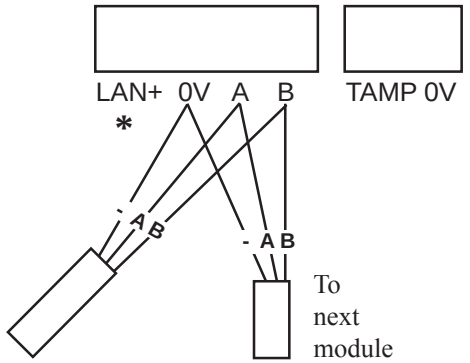
Reader power and data connections are wired according to the following table.

READER	D0 R#	D1 R#	+VE	GND
Omron Swipe	Brown (Data)	Red (Clock)	Yellow	Green
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

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.

LAN Wiring

MODULE POWERED FROM INTEGRITI EXTERNAL SUPPLY (Recommended)

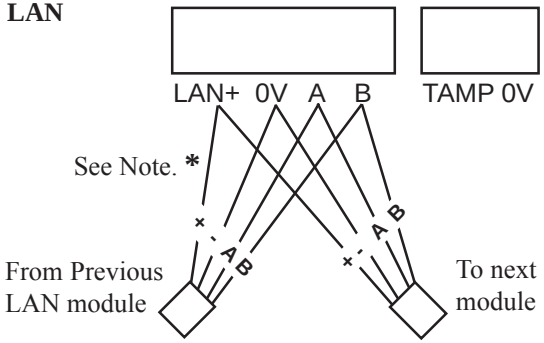


* Note: If required, the LAN to subsequent Modules may derive +12V from "LAN+" or the incoming LAN cable.

If Module is powered from a 3rd Party External 12V Supply, connect PS +ve to "LAN+" and PS -ve to "0V" using heavy duty Fig. 8 cable (14/0.20 minimum).

MODULE POWERED FROM THE LAN

* Note: If both "LAN +VE" wires provide a Power supply source, the one that is not required to power the Module must not be connected.

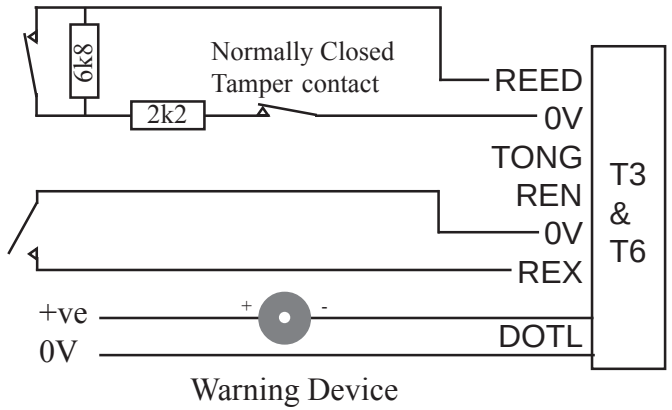


Zone Input, Button & DOTL wiring

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.



Module Numbering

The Reader 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
through to								
99		off	ON	off	off	off	ON	ON

Status and Fault LEDs

L1	**RX.**	Valid LAN packet received or LAN Fault indication.	*See table below.*
L2	**TX.**	LAN packet sent or LAN Fault indication.	*See table below.*
L3	**FAULT.**	On = LAN Fault. Refer to L1/L2 for fault details.	
L4	**SYS.**	Flashing = Module is powered and firmware running OK.	
L5/L6	**Reader D0/D1**	Data Receive indication for onboard Reader Inputs.	
L10/L11	**RX / TX**	Data Tx/Rx indication for RDR RS485 connection.	
L12/L13		"+VR1" / "+VR2" Fault indication. e.g. Over current.	
L14	**UniBus**	Flashing	Idle. No UniBus cards connected.
		Off	OK. UniBus Card/s communicating correctly.
		On	Fault. Problem with one or more UniBus Cards. e.g. Address conflict.
L16/L17		Lock 1 / Lock 2 Relay On indication.	

L1	**L2**	**EXPLANATION / REMEDY**
ON	ON	Module is un-addressed. (Not communicating with the Controller)
ON	OFF	Too many Modules on the Network. Check limits and licencing.
OFF	ON	Module type unknown. Controller firmware upgrade required.
Flash	ON	Duplicate Module. Number already in use by module of the same type.
Flash	Flash	Module number selected is too big. Select a lower Module number that is not already in use or check limits and licencing.
OFF	Flash	Module disabled.

Note: If a firmware update is performed, the internal memory may need to be erased. This will be indicated by L1/L2/L3=Off, L5/L6=On and it may take up to 1 minute for the Module to resume normal operation.

T11. Earth Lug.
Refer to "Installing the Module" on p2.

T1. RDR RS485.
Connection for Readers with RS485 output format. *Refer to page 8 & RS485 Reader installation guide.*

P1. External Power.
(Does not provide Lock Power) Connects to:
- An Integriti Power Supply using the cable provided with the PS.
- A 3rd Party Power Supply using cable P/No: 996794 (500mm)

T10. Lock +/-.
Power input for "Lock+/-" on T2 & T5.

T2 / L16.
Lock 1 Relay & indicator LED.
See Page 7 (Lock Wiring) & Page 8 (Electrical Specs)

LK1. TERM.
Reader RS485 Termination. *Refer to Reader installation guide.*

RS485 RX (L10) *See Page 3.*
RS485 TX (L11) *See Page 3.*

DIPswitch SW1: Switch 1-7.
Module number. *See table on p3.*

L1 LAN Data Receive / Fault indication.
L2 LAN Data Transmit / Fault indication.
FAULT LAN Comms Problem. *See table on p3.*

P2 / L14. UniBus.
Connector & Status LED for UniBus boards. e.g. 2-Door Exp., 8 Relay Exp. or Lift Exp.
NOTE: An External Power Supply must be connected to P1 if any UniBus boards are connected. *See notes on pages 1 and 3.*

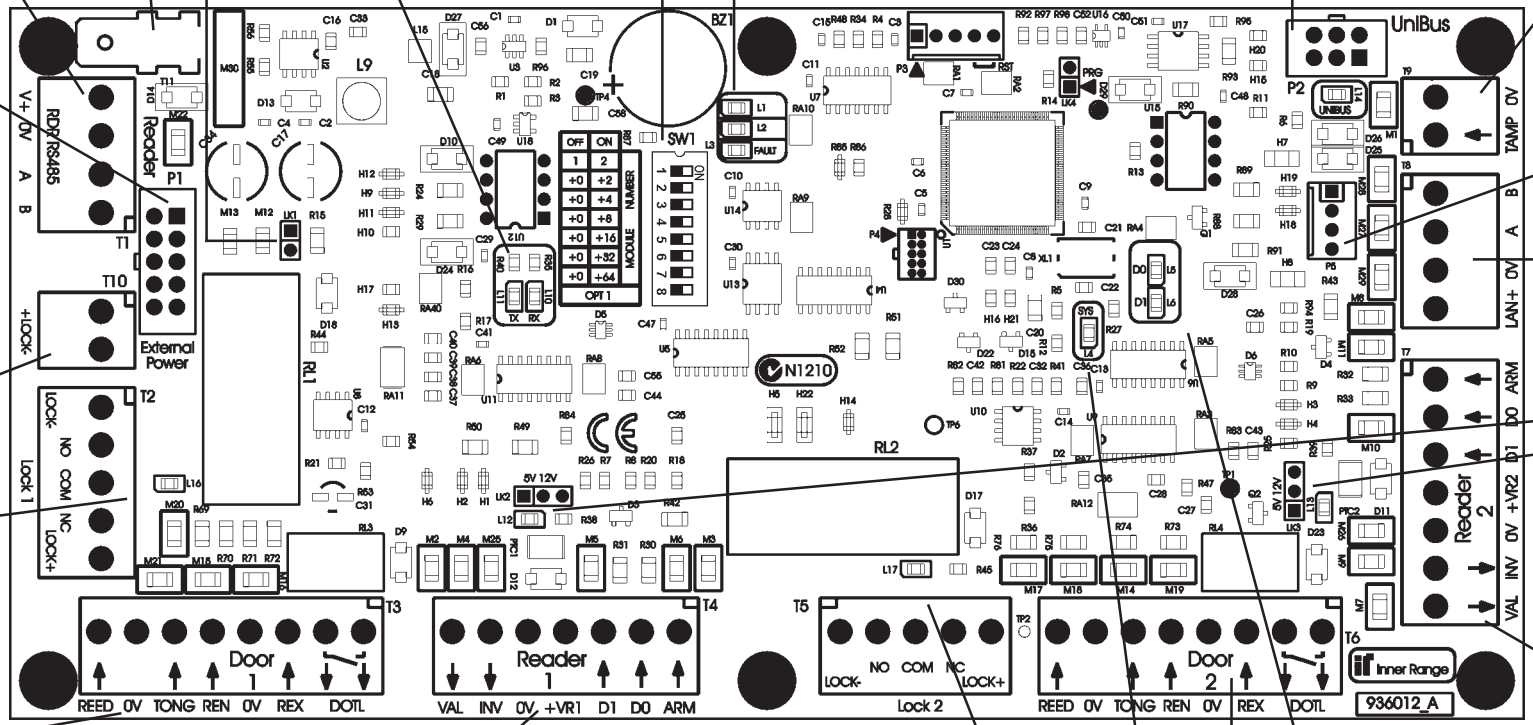
T9. Tamper Switch Connection
See "Installing the Module" on page 2.

P5. Ancillary LAN connection.

T8. Integriti LAN connection.
See "LAN Wiring" on page 6.

LK2 / L12
LK3 / L13.
Reader Supply voltage; 5V / 12V and Fault LED.
See details on page 3 and page 8.

T7.
Reader 2 connection
See T4 for details.



T3.
Door 1 Input / Output connections.
See "Zone Input, Button & DOTL wiring" on p6.

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 wire, connect other contact to 0V.

T4.
Reader 1 connections. *See "Reader Wiring" on p7.*

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.

T5 / L17.
Lock 2 Relay & indicator LED. *See p6 (Lock Wiring) & p8 (Specs)*

SYS. L4.
Flashing = OK. *See Page 8 for details.*

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.*