OpenTech Alliance

INSTALLATION MANUAL

INSOMNIAC® CIA

INDIVIDUAL UNIT ALARM

P/N CIA-A96
Revision 1.4
Date Code: 05-01-2025

Contents

INSTALLATION SPECIFICATIONS

Item	DESCRIPTION	FEATURES
1	Enclosure	Indoor / Outdoor, Aluminum, Power Coated
2	Communications	RS485 OR WIRELESS (900 MHZ)
3	Form-C Relay Outputs	1
4	Secure Communications	Yes
5	Tamper	Yes
6	Max Operating Voltage	24VDC
7	Min Operating Voltage	12VDC
8	Max Input Current	250 mA @ 12 VDC, 125 mA @ 24VDC
9	Operating Temp Range	-31 TO 150 DEG. °F
10	Humidity	0-95% Non-Condensing
11	Ingress Rating	Outdoor Equipment

IMPORTANT

- All installations must conform to local building and electrical codes and shall be in accordance with the **National Electric Code, ANSI/NFPA 70**. Ref: The National Electrical Code (NEC) - Electrical Safety Foundation International
- When discrepancies exist between local codes and this manual, local code takes precedence.

WARNINGS

Disregarding any warning in this document may void any warranty in place at the time of installation.

WARNING: Do not pull power from RS485 Channels; Mux Boards require external power supplies (exception: a Unit Alarm may be powered by the CIA Gateway ***only*** if it does not exceed the power output of the Gateway.)

WARNING: Incorrect installation of electrical components can result in damage to the electronics as well as cause personal injury.

WARNING: Cross wiring the AC power with DC power will damage the electronics.

WARNING: Connecting power wires to data wires will damage the electronics.

WARNING: Cross wiring or shorting positive and negative power wires will damage the electronics.

WARNING: Do not run low voltage wires in the same conduit as high voltage wires.

WARNING: Never mount the individual Unit Alarm in a rentable space or other location that is not always inaccessible for maintenance or servicing.

OVERVIEW

This installation guide is for the **INSOMNIAC® CIA Hardwired Individual Unit Alarm** system. Please read the entire document before proceeding with the installation. It is recommended that installation be performed by a certified, licensed, authorized installation company.

The wired alarm system connects a sensor on each unit's door to the Individual Unit Alarm Board. This allows the CIA system to monitor when the door is opened or closed. When a visitor enters the property via a keypad or the Storage Genie app, the alarm is disarmed. When the visitor exits the property, the alarm is re-armed. If a unit is armed and the door is opened without the visitor entering the property, an alarm will be activated.

This installation document applies to:

- CIA-A96-01 CIA Hardwired Unit Alarm – Circuit Board Only
- CIA-A96-02 CIA Hardwired Unit Alarm Enclosure

The CIA Hardwired Individual Unit Alarm may be used in new construction or to upgrade older individual unit alarms. Instructions for upgrading from PTI or UniMux alarms, see those sections at the end of this document.

Also refer to related guides and manuals in OpenTech's Resource Library and Help Center.

HOW TO CONTACT US

OpenTech Alliance, Inc. Tech Support
(US-based, available 24/6)

Phone	**602-773-1700** (option 2, then option 1)
Website	Support - OpenTech Alliance, Inc.
Email	support@opentechalliance.com

Looking for a local installer?

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MOUNTING THE SYSTEM

The INSOMNIAC® CIA Individual Alarm System enclosure.

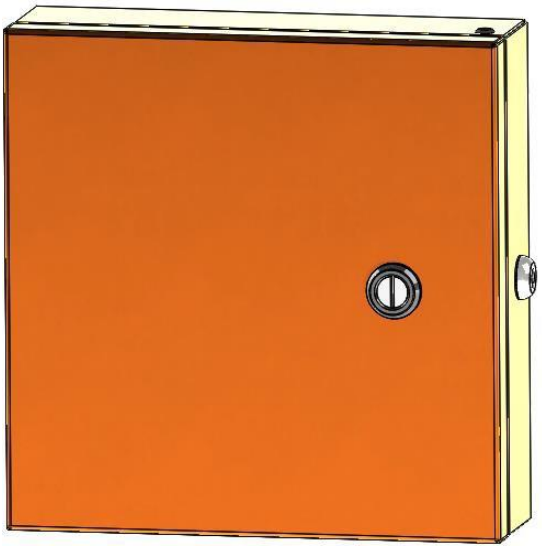

Figure 1

Mount the back plate to the desired location using the 4 holes as shown in Figure 2.

If the enclosure is being mounted on a wall: Before mounting, run a bead of outdoor silicone sealant in a square around the back of the enclosure about ½ inch from the edge.

Also run a bead of silicone from the inside seal around each screw hole and the wire entry hole after pulling the wires through.

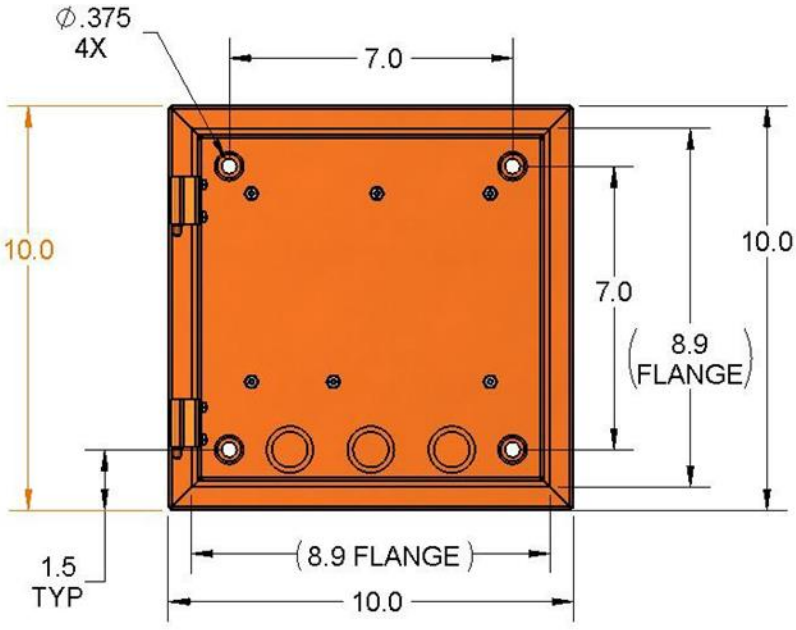

Figure 2

Pull the necessary wires through the wire hole on the back of the housing as shown on Figure 3.

Allow ample wire to remain inside the housing.

After the wire connections are complete, excess wire can be pushed back into the wall or it can be carefully positioned inside the housing for future maintenance and service.

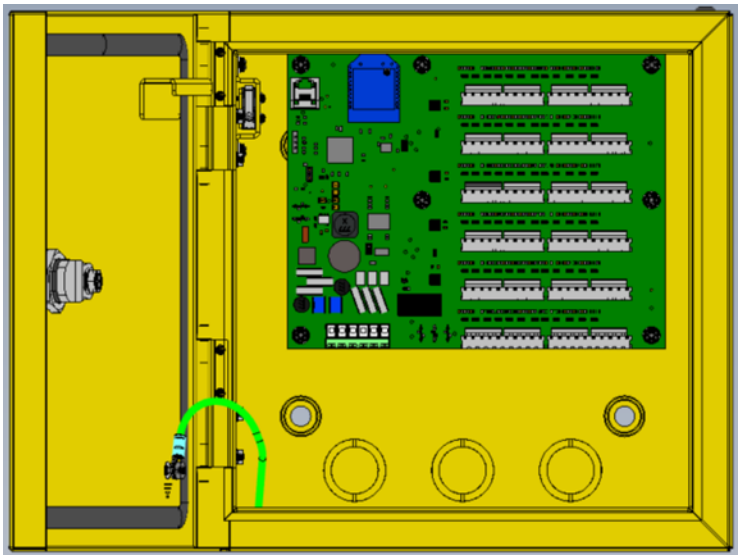

Figure 3

⚠ WARNING

All wiring voltage, including pre-existing, must be measured prior to wiring it into the RS485 Terminal block. Incoming voltage will damage the board and void any warranty currently in place.

- We recommend that power and RS485 data communications be via a single 18 AWG, 6-conductor shielded cable.
- The shield drain wire may be used as the RS485-common (RS-CMN) wire.
- Do not connect more than two (2) RS485 cables to one PCB.
- All PCBs shall be connected as an inline chain beginning with the controller and ending with the last device.
- The last device on the chain – and only this device – must have a 'termination' jumper installed.

⚠ **5 Pin terminal blocks are not compatible with OpenTech's 6 Pin RS485**

IMPORTANT: If you use additional power supplies, ensure that the additional power is not back-fed into the Gateway Controller, as this will damage the board.

WIRING DIAGRAM

All installations must conform to local building and electrical codes and shall be in accordance with the Nation Electric Code, ANSI/NFPA 70. Local codes takes precedence over instructions in this manual.

Figure 4 is a connection diagram for the Unit Alarm Printed Circuit Board (PCB). RS485 communication cables entering the enclosure should be insulated and shielded, with drain wires connected.

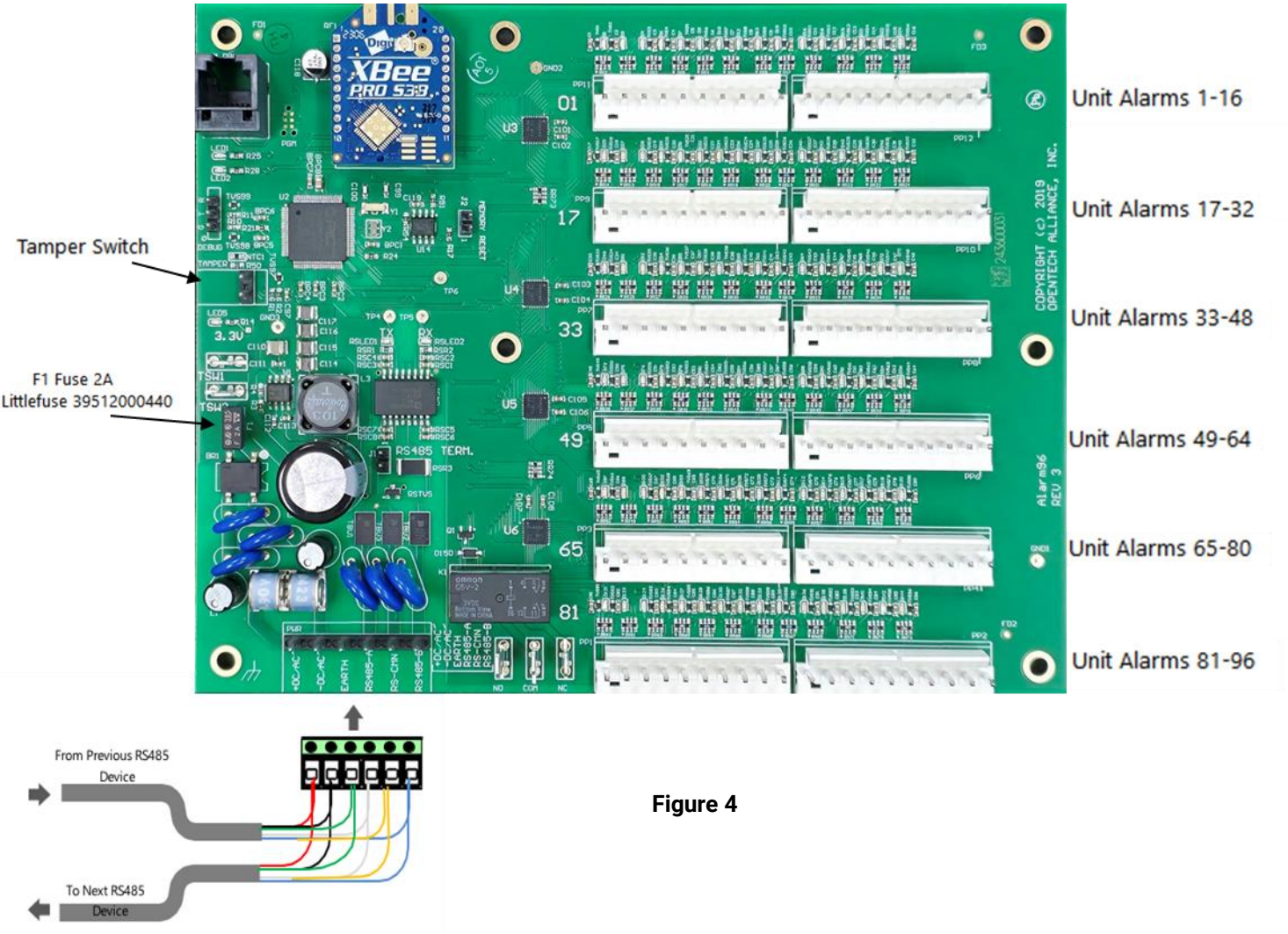

Figure 4

UNIT DOOR ALARM PUNCH DOWN CONNECTORS

There are six punch down connectors on the right side of the circuit board. These connectors are used to connect up to 96 individual unit switches to the individual unit alarm switches that are installed on the unit doors. Each terminal strip has sixteen inputs and four ground wires.

Punch Down Connector 1

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Gnd	Gnd	Gnd	Gnd

Punch Down Connector 2

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Gnd	Gnd	Gnd	Gnd

Punch Down Connector 3

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Gnd	Gnd	Gnd	Gnd

Punch Down Connector 4

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	Gnd	Gnd	Gnd	Gnd

Punch Down Connector 5

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	Gnd	Gnd	Gnd	Gnd

Punch Down Connector 6

Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Gnd	Gnd	Gnd	Gnd
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Gnd	Gnd	Gnd	Gnd

Each alarm switch installed in a unit will be associated with a channel number on the PCB. This channel number will be associated with the unit number in the Control Center. Document the unit and channel numbers to facilitate software configuration (see **Unit Alarm Connection Worksheet**).

The wires for each door switch should be punched down on the terminal strip using the proper tool. The recommend punch down tool is **.156 inch IDC T handle**.

⚠ WARNING

- Do not use a telephone punch down tool or screwdriver.
- Remove the punch down connectors from the circuit board before the wires are punched down. Place the punch down connectors on a hard surface.
- Do not punch down wires while the connector is attached to the Unit Alarm Board as this can damage the circuit board.

DOOR SWITCHES

Depending on the door type, there are several different door switches that can be used with the CIA Individual Unit Alarm board. These switches are provided by the installation company.

When selecting door switches it is recommended that a wide gap switch be used. Below are some compatible types.

For swing or roll up doors

- **Amseco AMS-37L Series** magnetic contact: when mounted on roll up doors it is recommended to use a Z-Bracket (4270004). For more information: www.pottersignal.com/product/206/ams-37-series.
- **Quick Switch** can be used on both roll up and swing doors if the door latch is made of ferrous metal and is long enough to go all the way through the door switch. For more information: quick-switch.com

For swing doors

- Consider recessed switches such as the Amesco AMS-21 (www.pottersignal.com/product/246/ams-21- series) or
- Amseco AMS-26 (https://www.pottersignal.com/product/282/ams-26-series)

UNIT ALARM (TRUNK) CABLE

The trunk cable is typically routed from the Individual Unit Alarm Board (board) through the building to each of the units that will be monitored. The wires from the unit switch connect to the unit trunk cable above the door. One wire from the switch will connect to a unique individual wire and the other wire will connect to the ground or common wire. The ground or common wire may be shared among multiple switches.

Recommended:

- Use 22 or 24 AWG solid core unshielded cable for connection to the individual unit door contacts.
- Use UG crimp connectors for connecting individual switches to the unit alarm (trunk) cable.
- For ease of troubleshooting share one ground or common wire with up to four unit switches.
- Use the **Unit Alarm Connection Worksheet** to document the wiring connection and wire color code.

To connect a switch to the trunk cable:

- Cut lengthwise into the Unit Alarm Cable approximately 3” into the outer installation and expose the individual wires. Exercise caution to not cut or damage the individual wires.
- Connect the two wires coming from the switch to the Unit Alarm Cable using UG style connectors to the proper wires.

WARNING

- Do not splice the trunk cable.
- Do not run the trunk cable with unshielded AC power lines or near light fixtures.
- Avoid running a trunk cable between buildings: use a separate Individual Unit Alarm Board for each building.

POWER/RS485

Power and RS485 data communication is handled with a single connector. This is the last connector to be attached because it may carry active power. We recommend:

- Power and RS485 data communication be via a single 18 AWG, 6-conductor shielded cable.
- The shield drain wire may be used as the RS-CMN wire.
- Do not connect more than two (2) RS485 cables to one PCB.
- Connect all PCBs as an inline chain beginning with the Gateway and ending with the last device.
- Install a "termination" jumper on the last device (all other devices have this jumper omitted).

⚠ WARNING

All wiring voltage, including pre-existing, must be measured prior to wiring it into the RS485 Terminal block. Incoming voltage will damage the board and void any warranty currently in place.

- **5 Pin terminal blocks are not compatible with OpenTech's 6 Pin RS485 and attempts to use them will void the warranty.**
- For any additional power supplies, ensure the additional power is not back-fed into the Gateway controller, as this will damage the board and **void the warranty.**
- Cross-wiring or shorting power wires can damage the circuit board, which will **void the warranty**.

These RS485 connectors have 6 pins.

DC +V (12-24VDC)	Required	Red
DC -V (DC Common)	Required	Black
Earth	Required	Green Insulated Copper Wire
RS485-A	Required	White
RS-CMN	Required	Orange
RS-485-B	Required	Blue

RS485 Requirements

A wired door alarm board may be located up to 4000 feet from the Gateway *given proper twisted pair cable with ground wire*. To correctly terminate cables into connectors follow these instructions:

1. Strip back the outer insulation and shield foil from both of the 18 AWG, 6-conductor, shielded cables (coming from the Gateway or previous device in line and going out to the next device in line), being careful not to cut the bare shield wire. Strip ¼ inch of insulation off the end of each of the individual colored conductor wires.
2. Remove the terminal blocks from the door alarm circuit board by sliding them up and off. The terminal blocks may be somewhat difficult to remove, as a tight electrical connection is necessary. If they are tight, rock them slightly back and forth while lifting away from the board.
3. Insert wires into the desired connector. Where 2 wires are tied together, ensure that both wires are seated all the way inside the slot. Use a flathead precision screwdriver to tighten down the terminal screw.

4. Verify that the terminal slot has tightened down on the copper wire and not on the rubber insulation. There should be no copper wire showing outside of the terminal slot. Gently tug the wires to verify that they are tightly held inside the terminal slot. Repeat this process with each of the remaining wire connections.

Earth Grounding

The installation must comply with applicable codes regarding the type of wire used.

IMPORTANT

- Uninsulated wires (typically used for earth grounding) must not be located inside the unit's case.
- Make any needed connections for an uninsulated ground wire *outside* the enclosure.
- For all devices except the Gateway, an **insulated copper wire must be connected to the RS-485 terminal labeled "Earth."** This follows the single-point grounding principle, which helps minimize interference and enhances protection against lightning damage.

⚠ WARNING

- 5 Pin terminal blocks (including PTI) are not compatible with OpenTech's 6 Pin RS485 and attempts to use will **void the warranty.**
- Cross-wiring or shorting power wires can damage the circuit board, which will **void the warranty**.

WIRELESS INSTALLATION (OPTIONAL)

The Individual Unit Alarm system can function without the RS485 wiring. In this case, a Digi XBee or XBee Pro wireless module and an RPSMA antenna must be installed on the Gateway and on the Individual Unit Alarm Board (Board). For this option, 12-24VDC power is all that is necessary on the PWR/RS485 connector.

If the Board is within wireless range of the Gateway, it will work in same fashion as with wired RS485 connections. The range depends on the wireless module used:

- XBEE module range is typically 300ft.
- XBEE Pro range is typically 1 mile.

*This option has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. This option has **not** been evaluated nor certified as part of UL294 level 2 nor CSA C22.2 No.205.*

RELAY OUTPUTS

Relays have a Normally Closed (NC) , Common (COM) and a Normally Open (NO) connection. Depending on the need, wire to the COM and either the NC or NO. Onboard LEDs will show if the relay is activated.

Typically, alarm sirens and strobes require the NO contact.

Relay Specifications:

Item	Rating
Contact Type	Single Ag-Alloy (Cd Free)
Rated Load	5A (NO) / 3A (NC) @ 30VDC
Max Switching Voltage	30VDC
Max Switching Current	5A (NO) / 3A (NC)

⚠ WARNING

- Relay voltage must not exceed 30 volts.
- Do not wire the relay to the operating device. This will introduce the operating device control voltage into the Individual Unit Alarm housing, which is not designed to contain high voltage.
- Follow UL standards.

TESTING and TROUBLESHOOTING

To test (or troubleshoot), check the LEDs:

- If the system is operating as expected the LED on each Unit Alarm input on the board will be on when the associated unit door is closed.
- Check the 3 Power LEDs on the PCB.
    - If they are all dark, check/replace the PCB fuse.
    - If a single specific power LED such as the 3.3V or 5V LEDs is dark, replace the PCB.

MAINTENANCE

Follow a simple schedule of routine maintenance to keep all systems functional and to preserve any warranty.

Annually:

- Open the enclosure and inspect the inside of the unit.
- Use compressed air to remove any dust or debris that has collected on the inside of the housing and the circuit board.
- Repair any signs or sources of water damage or corrosion (e.g. a leak in the sealant).
- Replace any worn seals.

NOTICES and DISCLAIMERS

Liability Disclaimer: While every effort has been made to ensure the accuracy of the information in this document we assume no liability for any inaccuracies contained herein. We reserve the right to change the information contained herein at any time and without notice.

WARNING

Remember that 5 Pin terminal blocks are not compatible with OpenTech's 6 Pin RS485.

UPGRADING PTI/STORLOGIX DOOR ALARMS

This section covers upgrading PTI/StorLogix unit alarms.

These Alarm Boards may have different input configurations (16, 32, 48, 64, 80 or 96) but the CIA-A96-01 circuit board is designed to allow for upgrade with any of them. However, before upgrading the existing system, it is important to **ensure that the individual unit alarms are working properly** and the proper units are being reported when the unit door is opened or closed. **Correct any issues before proceeding.**

To speed configuration, INSOMNIAC CIA has the ability to import unit/mux/channel configurations from a PTI or StorLogix system. To do this, it is required to perform an export from the PTI Falcon 2000 or StorLogix software. To export the alarm.alm from StorLogix, select Setup, select Assign Input to Units. Select the Advanced tab. Select Export and save a copy of the alarm.alm file. For more information, refer to the StorLogix help file or documentation.

The alarm.alm is a CSV file with the format of Unit#,Mux#,Channel, Status where Status is 0 Alarm Off or 1 Alarm On.

1. Export the alarm.alm file from the StorLogix or Falcon 2000 software.
2. Document the existing PTI Door Alarm Mux address and location. The PTI Alarm Mux address can be found by looking at the DIP switches settings on the Mux. This mux number will be used when importing the alarm.alm file to ensure that the mux channel is associated with the proper unit and board.
3. Remove the unit alarm punch down connectors from the old PTI circuit board. Labe each connector. The punch down connectors can be connected directly to the CIA A96 Individual unit alarm circuit board.
4. Disconnect and label the alarm relay from the old PTI board if being used.
5. Disconnect the RS-485 power connector from the circuit board. Label each wire DC+, DC-, Data +, Com and Data –
6. Remove the old PTI circuit board from the enclosure. This is typically accomplished by removing four screws that are used to mount the circuit board inside the enclosure.
7. Install the new CIA-A96 circuit board in the existing enclosure using the screws that were used to attach the old PTI circuit board.
8. Reconnect the unit alarm punch down connectors. Ensure that it is connected to the proper channel input.
9. Reconnect the alarm relay if used.

10. Connect RS-485 communication wires Data +, CMN and Data – to the CIA-A96 Circuit Board. Refer to Figure 4. Ensure that the connections are terminated correctly.
11. Connect DC + and DC – to the CIA-A96 Circuit board.

    ⚠ WARNING
    If the device is being powered by a separate 12V power supply, the power wires CANNOT be connected to the Gateway. The Gateway outputs 24V. **Connecting a 12V power will damage the Gateway circuit board.**

12. Verify that LEDs turn on off when corresponding unit door is opened or closed.

UPGRADING DIGITECH UNIMUX DOOR ALARMS

This section covers upgrading DigiTech individual unit alarm that utilize the UniMux system.

IMPORTANT: DigiTech systems that utilize the matrix contacts CANNOT be upgraded.

The DigiGate UniMux can control different numbers of individual door alarm units (22, 44, 66, 88 or 110). If more than 96 units are being controlled by a UniMux then two CIA-A96 Circuit boards will be required. Note when upgrading DigiTech UniMux alarms the existing enclosure will need to be removed.

Before upgrading the existing system, it is important to **ensure that the individual unit alarms are working properly** and the proper units are being reported when the unit door is opened or closed. **Correct any issues before proceeding.**

To speed configuration, INSOMNIAC CIA is able to import unit/mux/channel configurations to.

1. Export the Mux/Slot report. In the DigiGate system select Reports/Misc Report/MuxSlot Report. Export the report. This information will be used to import into the Control Center.
2. Document the existing Door Alarm Mux address and location. The Alarm Mux address can be found by looking at the DIP switches settings on the Mux. This mux number will be used when importing the alarm.alm file to ensure that the mux channel is associated with the proper unit and board.
3. Label and remove each unit alarm wire from the DigiGate UniMux daughter boards. The DigiGate UniMux may contain up to 5 daughter boards addressed A – E. Daughter board A contains slot/channel 1 – 22. Daughter board B contains slot/channel 23 – 44. Daughter board C contains slot/channel 45 – 66. Daughter board D contains slot/channel 67-88. Daughter board E contains slot/channel 89-110. Each daughter board also contains two ground/common wires.
4. Disconnect and label the alarm relay from the old DigiGate board if being used.

5. Disconnect the RS-485 power connector from the circuit board. Label each wire DC+, DC-, Data +, Com and Data –
6. Remove the DigiGate UniMux from the building wall.
7. Install the new CIA-A96 enclosure to the wall. Pulling the existing data communication, relay and unit alarm wires into the new enclosure.
8. Reconnect the unit alarm wires to the punch down connectors
9. Reconnect the alarm relay if used.
10. Connect RS-485 communication wires Data +, CMN and Data – to the CIA-A96 Circuit Board. Refer to Figure 4. Ensure that the connections are terminated correctly.
11. Connect DC + and DC – to the CIA-A96 Circuit board.

WARNING
If the device is being powered by a separate 12V power supply, the power wires CANNOT be connected to the Gateway. The Gateway outputs 24V. **Connecting a 12V power will damage the Gateway circuit board.**

12. Verify that LEDs turn on off when the corresponding unit door is opened or closed.

INDIVIDUAL UNIT ALARM CONNECTION WORKSHEET

Use the Switch and Gnd/CMN columns to document the wire color for each switch connection.

Channel	Unit	Switch	Gnd/CMN	Channel	Unit	Switch	Gnd/Cm
1				49			
2				50			
3				51			
4				52			
5				53			
6				54			
7				55			
8				56			
9				57			
10				58			
11				59			
12				60			
13				61			
14				62			
15				63			
16				64			
17				65			
18				66			
19				67			
20				68			
21				69			
22				70			
23				71			
24				72			
25				73			
26				74			
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47				95			
48				96			