

INSOMNIAC® CIA

G-600 Gateway

P/N CIA-675-001
Revision 1.4
Date Code: 05-01-2025

Contents

INSTALLATION SPECIFICATIONS	2
WARNINGS.....	2
OVERVIEW	3
HOW TO CONTACT US.....	3
MOUNTING THE G-600	4
WIRING DIAGRAM.....	6
POWER/RS485.....	7
WIRELESS INSTALLATION (OPTIONAL)	9
RELAY OUTPUTS and INPUTS.....	9
BATTERY BACKUP CALCULATION.....	10
TESTING and TROUBLESHOOTING	11
MAINTENANCE	14
NOTICES and DISCLAIMERS.....	14

INSTALLATION MANUAL

CIA® G-600 Gateway

INSTALLATION SPECIFICATIONS

ITEM	DESCRIPTION	FEATURES
1	ENCLOSURE	INDOOR, ALUMINUM, POWER COATED
2	COMMUNICATIONS	RS485 (2) & WIRELESS (900 MHZ), ETHERNET
3	PROCESSOR	AM3358 1GHZ, 512MB
4	FORM-C RELAY OUTPUTS	4
5	SECURE COMMUNICATIONS	YES
6	AUXILIARY INPUTS	8
7	WIEGAND INTERFACE	2
8	MAX OPERATING INPUT VOLTAGE	24V
9	MIN OPERATING INPUT VOLTAGE	15V
10	MAX INPUT CURRENT	6A
11	MAX OUTPUT CURRENT	5A TOTAL, 3A PER CHANNEL , 0.75A ACCESSORY (FIGURE 8)
12	OUTPUT VOLTAGE – RS485	0-2 VOLTS BELOW INPUT VOLTAGE
13	OUTPUT VOLTAGE- ACCESSORY	+5 AND +12 AS MARKED +/- 2%
14	OPERATING TEMP RANGE	32 TO 120 DEG. F.
15	HUMIDITY	0-95% NON-CONDENSING
16	INGRESS RATING	UL294 – INDOOR EQUIPMENT
17	NOMINAL BATTERY VOLTAGE	12V
18	BATTERY BACKUP POWER	8AH (TIME DEPENDS ON SYSTEM CONFIG – SEE PG 10)
19	UL294 PERFORMANCE LEVEL	LEVEL II

IMPORTANT

- All installations must conform to local building and electrical codes and shall be in accordance with the **National Electric Code, ANSI/NFPA 70.**
- When discrepancies exist between local codes and this manual, local code takes precedence.
- Follow recommended UL installation standards. Find the standards catalog here: [Standards Catalog | UL Solutions](#)



WARNINGS

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

INSTALLATION MANUAL

CIA® G-600 Gateway

OVERVIEW

The OpenTech Alliance, Inc. **INSOMNIAC® CIA G-600** is an access Gateway designed to manage access to or from a series of secured areas. It operates from a list of access codes and areas where they are valid. It communicates with OpenTech's Control Center, a master database that exists and is centrally accessible via the internet. This is the system's source of access and configuration information.

If internet connectivity is lost, the Gateway will continue to operate using cached data – but no updates in access codes or configuration will be possible until internet connectivity is restored.

The Gateway cabinet contains one Main PCB, an Ethernet Router and a battery and should be located indoors, in a protected area. It can be used to control gate access, building access, door access, elevator access, lighting and other security related functions that are relay driven. In all cases, however, the control logic must be configured in the central Gateway via the Control Center.

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
Website
Email

602-773-1700 (option 2, then option 1)

[Support - OpenTech Alliance, Inc.](#)

support@opentechalliance.com

Looking for a local installer?

Click below to find Authorized Dealers in your area who sell and service INSOMNIAC® self storage solutions?

[Find an OpenTech Dealer - OpenTech Alliance, Inc.](#)

MOUNTING THE G-600

Begin by unlatching the door, typically with a screwdriver. The front panel will also accommodate an optional security lock. (Figure 1)

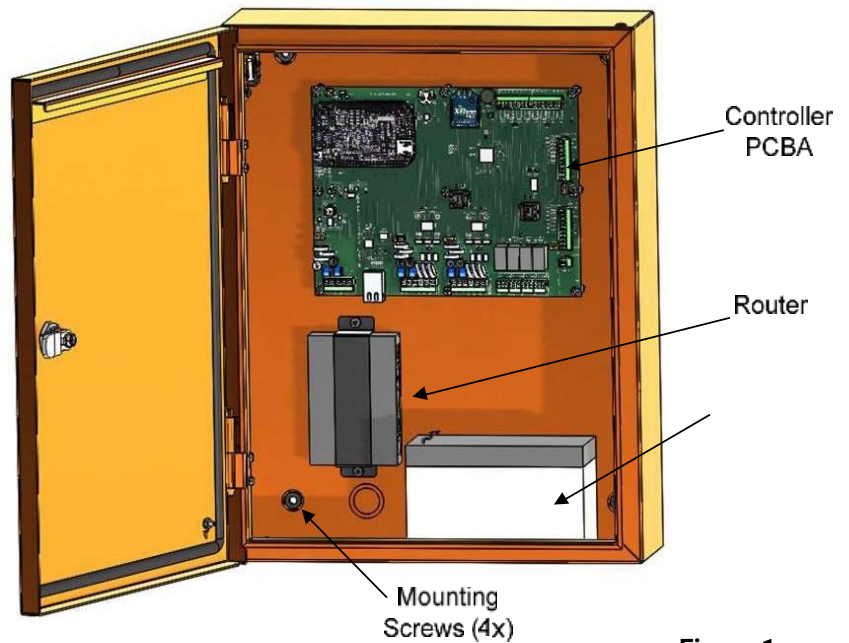


Figure 1

Mount the back plate to the desired Gateway location, **which must be inside a protected area**, using the 4 grommet filled holes.

There are knock-outs on the back and the floor of the enclosure, for pulling wires through.

(Figure 2)

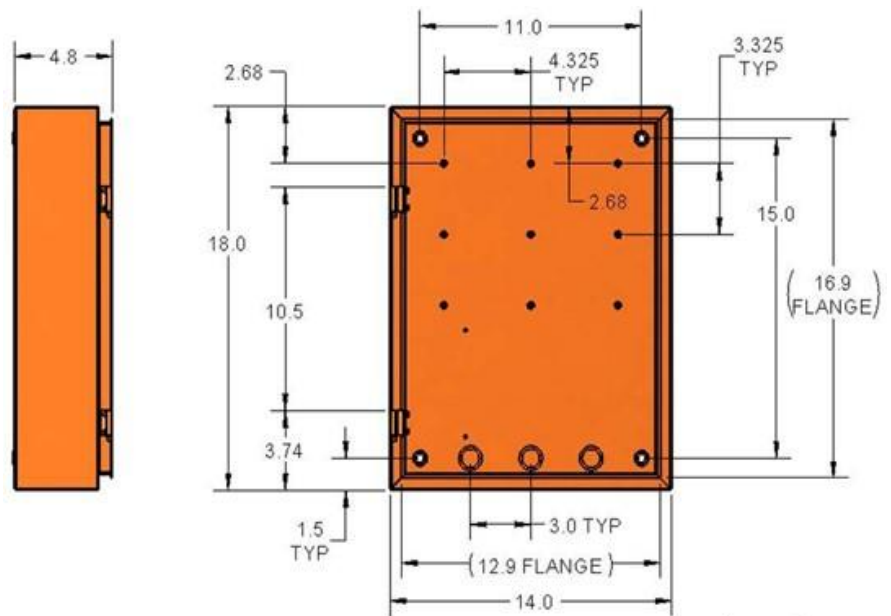


Figure 2

INSTALLATION MANUAL

CIA® G-600 Gateway

Mount the router and the battery and then pull the necessary wires through the knockouts on the back or bottom of the housing.

The router has a bracket to hold it in place, and the battery rests free in the cabinet.

(Figure 3)

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

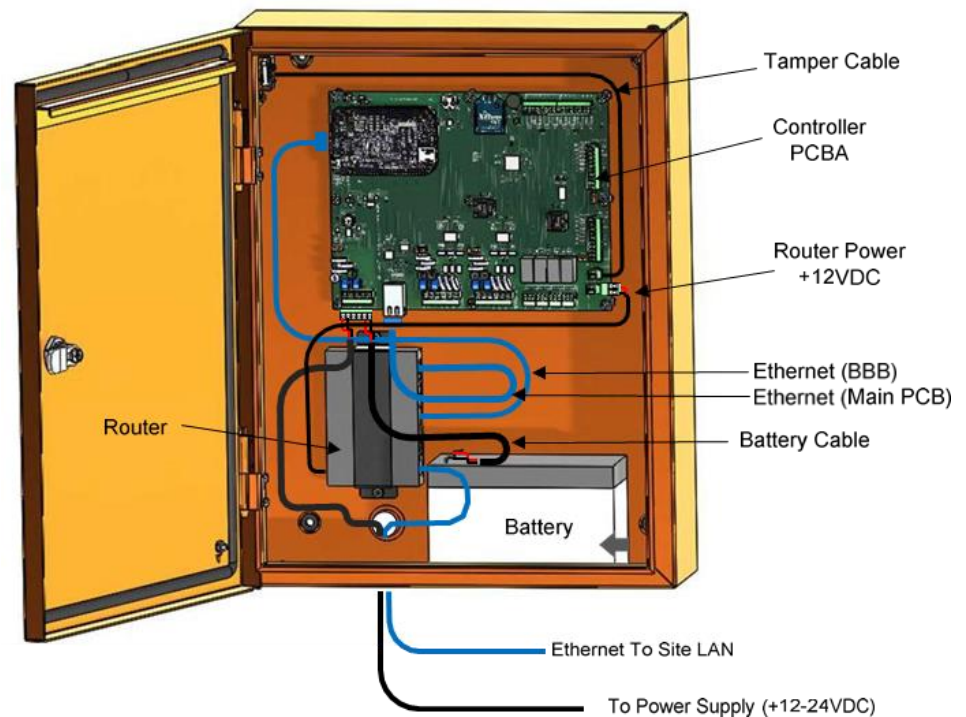


Figure 3

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.

INSTALLATION MANUAL

CIA® G-600 Gateway

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 Keypad Printed Circuit Board (PCB).

- All cables entering the gateway must be insulated and shielded with drain wires connected to earth ground at one end.
- In addition, incoming cables other than the RS485 cables must be less than 10 meters long.
- The R485 wires should be 18 gauge. Other wires must be between 16 and 26 gauge.
- An 18g 6 Conductor shielded cable is recommended for RS485 data & power.
- A green wire on the 3rd terminal screw of the power terminal block is included in the shipment, and is to be run to an electrical ground as highlighted below.

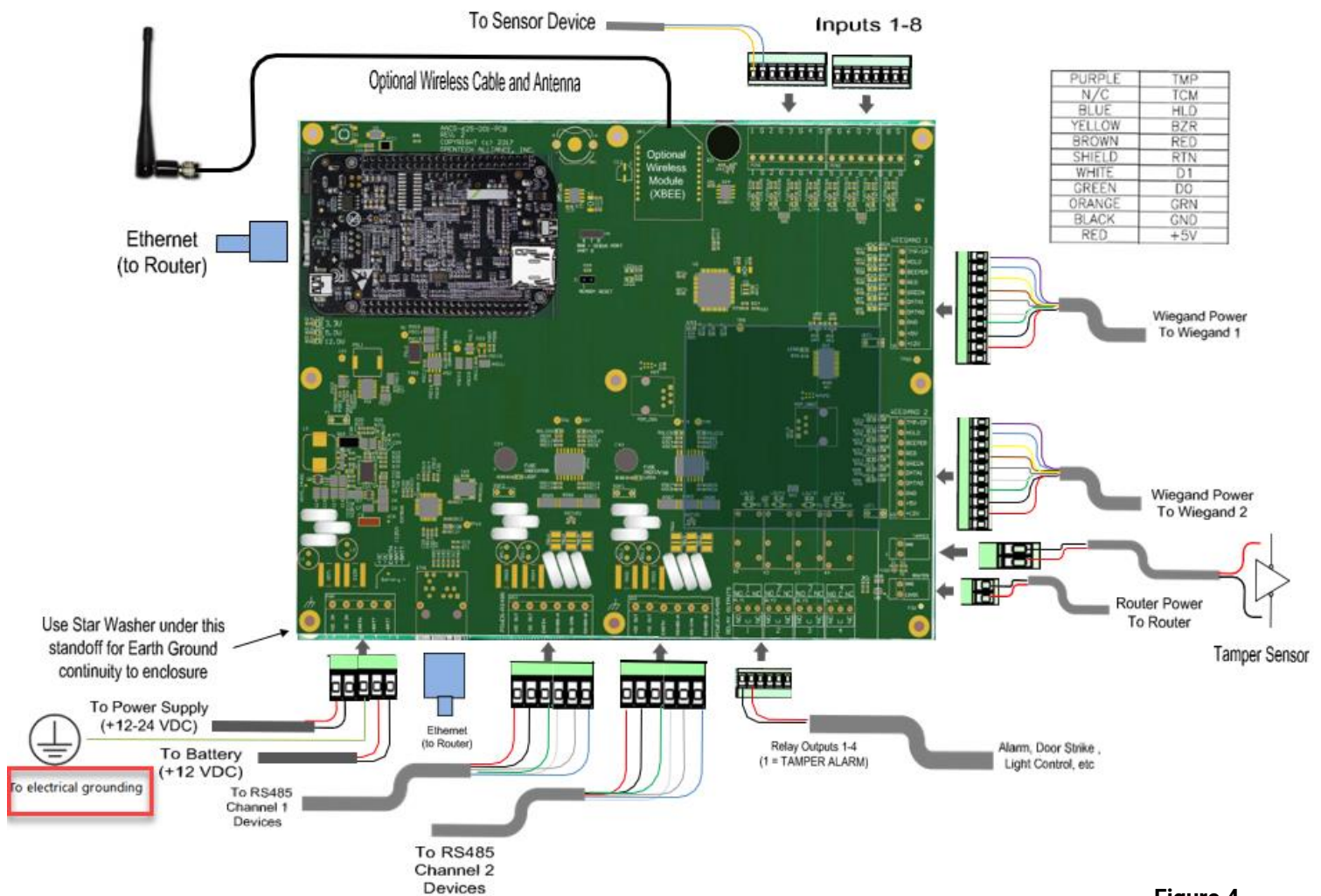


Figure 4

INSTALLATION MANUAL

CIA® G-600 Gateway

POWER/RS485

Incoming power

Connect incoming power (15-24VDC) at the bottom left corner of the PCB (see Figure 4 “To Power Supply”). A 24V 5A DC supply is provided by default. One suggested P/N is SDI120-24-U-P51 by CUI. This is sufficient for systems having up to 6 keypads depending on the distance of the wire run.

Outgoing power

RS485 data communication originates here in 2 connectors (2 parallel channels). Each will support up to 6 devices. Do not connect more than one RS485 cable to each channel.

For each channel all attached devices shall be connected as an inline chain beginning with the Gateway and ending with the last device. The last device shall have a “termination” jumper installed as shown in the Keypad and Relay module manuals. All other devices shall have this jumper omitted.

Recommendations:

- 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 required 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

INSTALLATION MANUAL

CIA® G-600 Gateway

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**.

INSTALLATION MANUAL

CIA® G-600 Gateway

WIRELESS INSTALLATION (OPTIONAL)

The Gateway 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 remote device to operate wirelessly. If the keypad or relay unit is within wireless range of the Gateway, the keypad will work as it would with RS485 connections.

The range depends on the wireless module used, the antenna used, the RF background level of the area (rural or urban) and the number of obstructions between devices. The XBee basic module range is rate to 300ft rural (unobstructed line of sight). The typical obstructed range of XBee in urban areas is 100 ft. The XBee Pro module range is up to 1 mile rural (unobstructed line of sight) and 500ft obstructed/urban. XBee Pro transmitter modules are recommended.

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

RELAY OUTPUTS and INPUTS

Outputs

The Gateway includes 4 dry contact relays, each with Normally Closed (NC), Common (COM), and Normally Open (NO) terminals. Wire COM to either NC or NO based on the application. Onboard red LEDs located above each Relay will indicate relay activation.

Typical gate operators requires NO contact while some electric door strikes require a NC contact. If door strikes are used it is recommended they be DC powered (typically 12V) which requires a shunting diode be installed across the solenoid to prevent ground spikes from disrupting keypad communication. **Do not pull power from the RS485 terminal block to power any other device.**

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.
- Do not connect a gate operator or door strike to a keypad that is located outside the area it secures.
- Follow UL standards.

INSTALLATION MANUAL

CIA® G-600 Gateway

Inputs

Each Input has a Ground Connection (G pin) and a Sense Connection. The sense connections are marked 1-4 and will source a small voltage at high impedance. Wire any dry contact across a sense pin and a G pin. Closing the contact will energize the input. Onboard LEDs will light up if the input is activated.

BATTERY BACKUP CALCULATION

The Gateway PCB has a built-in battery charger to keep the battery full charged.

The standard 12V Battery (P/N: DURA12-8F or Equivalent) is rated at 8AH which is sufficient to keep a 6-keypad system running for approximately 3 hours. The following formula is used to estimate battery life.

Current draw is defined below for 12V input (battery).

Device	Draw
Gateway	300ma + 41ma per wired relay + 500ma for router + any accessory power
Keypad	200ma + 41ma per wired relay + 100ma if RF transmitter is installed + any accessory power
Relay	200ma + 41ma per wired relay + 100ma if RF transmitter is installed

Example Calculation

For Gateway, six keypads with two relays, one relay module w/4 relays used and router (8000mah)

$$((300 + (282 \times 6) + (364 \times 1) + 500) = 2.8 \text{ Hrs})$$

INSTALLATION MANUAL

CIA® G-600 Gateway

TESTING and TROUBLESHOOTING

The Gateway

Test the Gateway by applying power to the INCOMING power connection. There are multiple LEDs as shown (**Figure 5**) that should be active. For troubleshooting purposes:

- Check the 3 Power Indicator LEDs.
 - If all are dark, check/replace the PCB main fuse.
 - If a single specific power LED such as the 3.3V or 5V LEDs is dark, replace the main PCB.

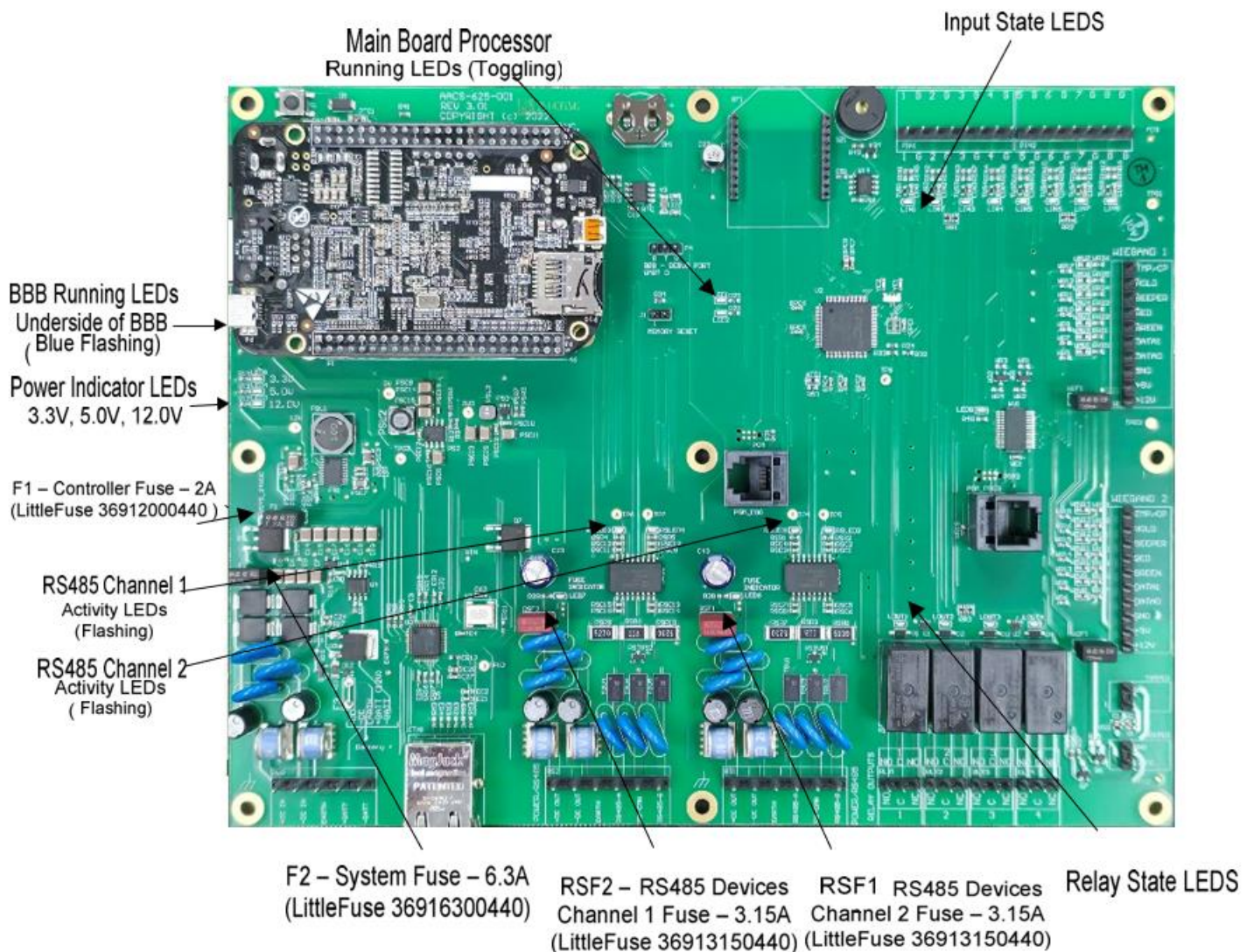


Figure 5

NOTE

The main PCB carries a Master ID Address called the UID. If this board is changed out, the new board's UID must be entered in Control Center, replacing the previous board's address before the board will function.

INSTALLATION MANUAL

CIA® G-600 Gateway

Power Distribution & Fuses

The main PCB includes four key slow-blow fuses, identified in **Figure 5** above with part numbers and arranged as shown in **Figure 8** below.

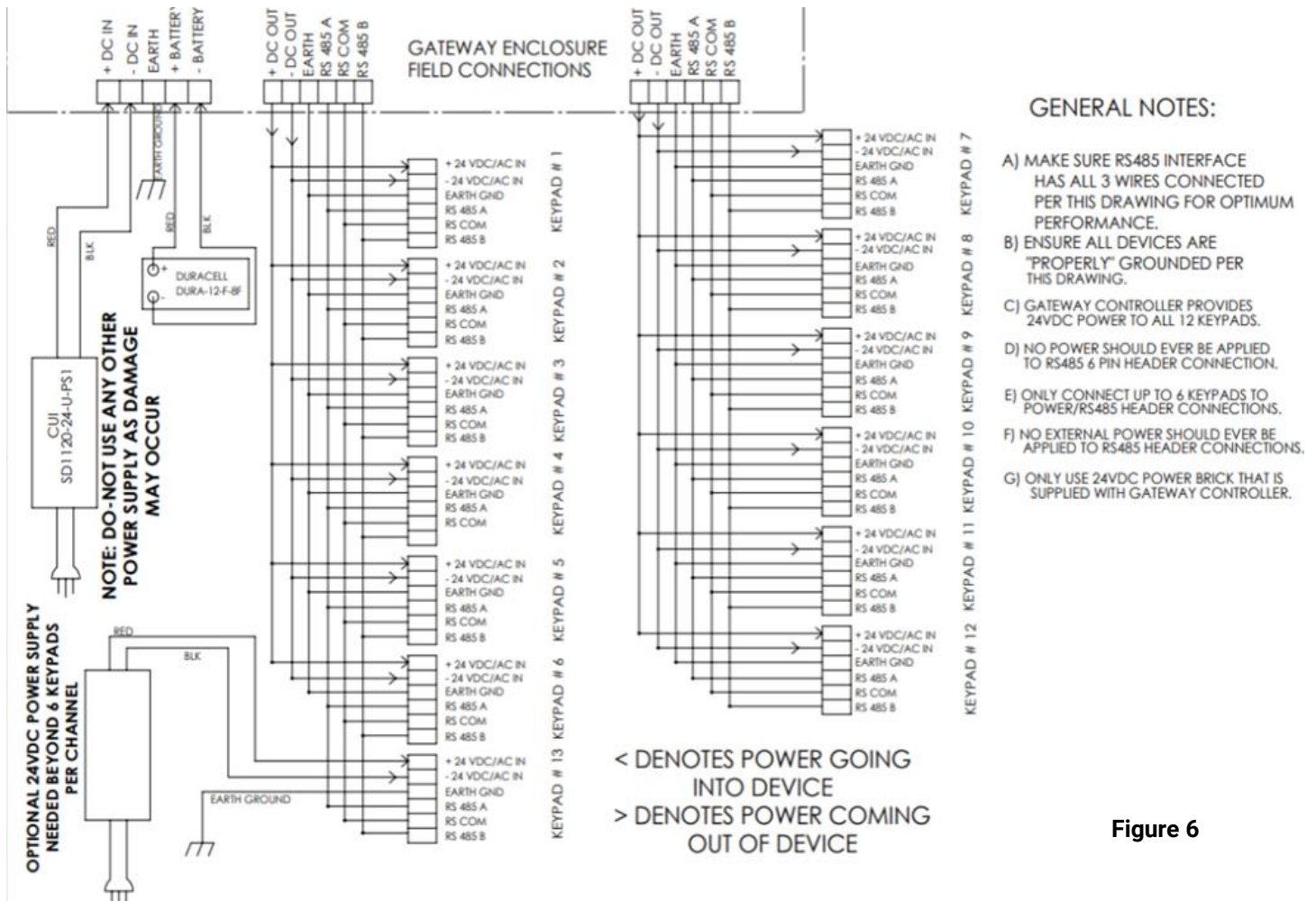


Figure 6

Each RS485 channel (two total) supports up to 6 RS485 devices without additional power supplies, based on fuse ratings. Because keypads draw high in-rush current, slow-blow fuses are required.

INSTALLATION MANUAL

CIA® G-600 Gateway

Device and accessory counts are limited by the total power budget.

While keypads offer ample accessory power, **system sizing must be calculated at 12V**, the lowest voltage during battery backup. At 24V (normal operation), currents are lower, but during power loss, the system runs at 12V and currents double, increasing fuse risk. **If a router is powered from the Gateway, only 0.25A remains for accessories at 12V or 5V.**

- Total system: Max 5A
- Per RS485 channel: Max 3A
- Accessories: Max 1A total

RS485 Power Limits

Each RS485 channel is protected by a 3.1A slow-blow fuse, supporting up to 6 Keypads and/or Relay Units per channel. For more devices, use external power supplies.

Important:

- Do not connect the positive output of an external power supply back into the RS485 chain that is run back to the gateway.
- Each Keypad/Relay unit can draw 3.2W steady state (with two active relays).
- Devices with the wireless option draw an additional 1.1W, but may be externally powered, not using the RS485 cable for power.

INSTALLATION MANUAL

CIA® G-600 Gateway

MAINTENANCE

Gateway

Follow a simple schedule of routine maintenance to keep the system functional and to preserve the warranty.

Annually

- Open the Gateway cabinet 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.

Battery

Biannually replace the main backup battery (P/N: Duracell DURA12-8F or Equivalent) and the Coin Cell battery (P/N Panasonic CR1220) on the PCB, following this process:

1. Leave Power ON. This is important.
2. Open Cabinet Door, all items inside are low voltage (<30V)
3. Disconnect Red Battery wire
4. Disconnect Black Battery Wire
5. Remove Battery
6. Replace Battery
7. Reconnect Black wire
8. Reconnect Red Wire
9. Remove Coin Cell battery
10. Replace with new Coin Cell at upper rim of PCB and ensure Coin cell battery (+) side faces you.
11. Test System (see method described on Page 11)
12. Close and secure cabinet door.

NOTICES and DISCLAIMERS

FCC Part 15 Notice: The referenced equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment can generate and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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.