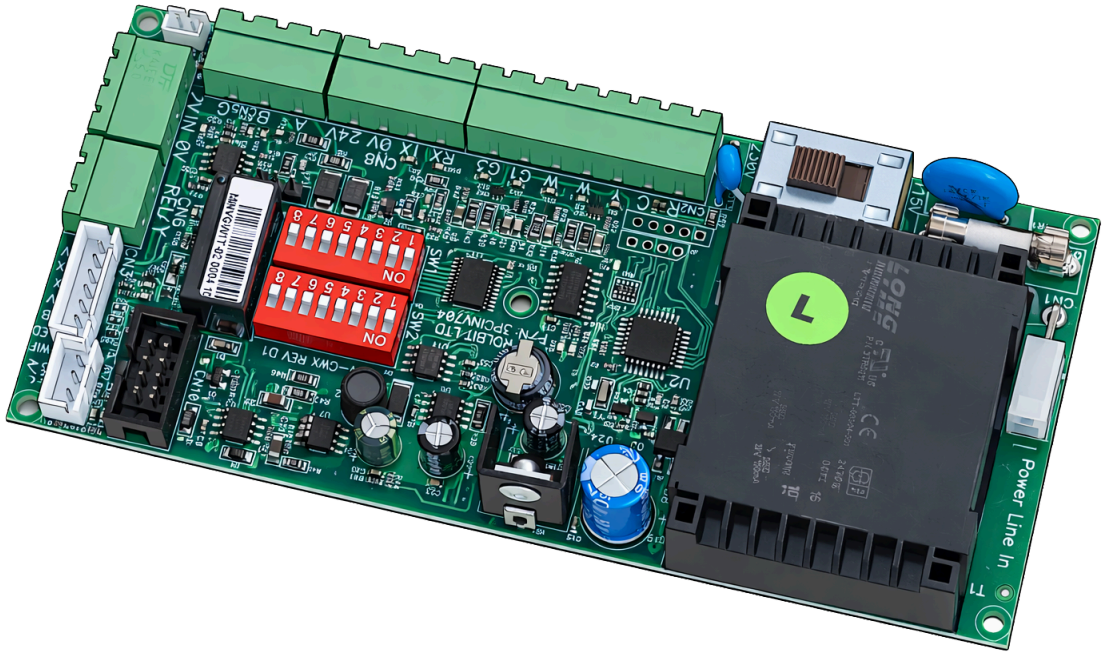
AIO® GWX Gateway for AIO® Heat Pumps

Installation Guide



CONTACT INFO

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DISCLAIMER

IMPORTANT - TRAINING IS REQUIRED PRIOR TO PERFORMING ANY INSTALLATION.

While this guide outlines the general installation requirements for the unit, it does not replace required installer training. Before commencing installation, the project manager must contact the INNOVA VIP Department at (212) 204-2700 to coordinate training for the installer.

Failure to ensure that installation is performed by INNOVA-trained personnel may result in improper operation or equipment damage, and may void the warranty.

Training may be conducted in person or remotely (online).

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Illustrations may not be to scale, and all information and dimensions stated herein are subject to change at any time at the sole discretion of INNOVA. Benefits described herein apply only to the extent that the product is installed correctly in the correct application and used for its intended purpose.

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1. ABOUT THIS GUIDE

This guide outlines the required procedures for safely installing the GWX gateway in an AIO® heat pump unit. Following these instructions reduces the risk of equipment damage, improper installation, and potential safety hazards.

Important: Read the entire installation guide before beginning any installation tasks. Pay close attention to all safety warnings and notices.

Note: This guide is shipped with the gateway and is the property of the customer. Make sure this guide is left in the customer's possession.

1.1 Specific language

Some language and symbols in this guide have specific meanings.

Reference to the product

- Any reference to "the unit" or "the AIO® unit" is meant to refer to the specific AIO® heat pump unit described in that section of the document.
- All references to the AIO® Wall Mounted unit refer to both the Wall Mounted Standard and the Wall Mounted Pro units.

Unit orientation

All directions in this guide (left, right, top, and bottom) are given from the perspective of facing the unit.

Role definitions

This guide is primarily intended for installers. The roles of end users and service technicians are also defined here for reference.

- **User:** A nonexpert who can safely operate the unit and perform basic diagnostics and maintenance.
- **Installer:** An INNOVA-trained and certified HVAC installation technician responsible for the correct installation of the unit as indicated in the installation guide and in accordance with all local and national codes.
- **Service technician:** A trained and qualified HVAC professional who performs service or maintenance in compliance with OSHA safety requirements, recognized industry best practices, and all applicable federal, state, and local codes and standards.
- **Trained HVAC technicians:** A group term for both installation and service technicians.

1.2 Safety notices, icons, and symbols

Warnings, Cautions, and Annotations are included throughout this guide. Read each carefully and follow the stated instructions.

Safety notices

Each safety notice represents the level and immediacy of risk. Each warning panel displays a background color and a signal word and includes an icon to specify the topic.

DANGER

A red notice with the **DANGER** title indicates an imminently hazardous situation that could result in death or serious injury if not avoided.

WARNING

The orange notice with the **WARNING** title indicates a potential hazard that, if not avoided, could result in death or serious injury.

CAUTION

The yellow notice with the **CAUTION** title indicates a hazardous situation that, if not avoided, could result in minor to moderate injury or property damage.

Warning icons
The warning icons indicate the type of risk and are used in conjunction with the safety notice panels.

	The flame icon indicates information related to a hot surface or explosion hazard.
	The lightning-bolt icon indicates a warning related to electrical hazards.
	The hand icon indicates information related to a hazard involving moving parts and sharp surfaces.
	The exclamation-mark icon indicates general hazards (environmental, lifting, and other categories).

Annotation icons
Annotations are provided throughout this guide. It is important to read each one carefully and follow the stated instructions.


Indicates instructions or information that is important to note to ensure optimal installation or operation of the unit.


Indicates supplemental information, tips, or useful background information.

2. QUICK GUIDE - INSTALLING THE GWX GATEWAY IN AIO® UNITS


Before beginning any installation, read the Safety Guidelines in Section 4.

This Quick Guide provides links to the sections in this document that describe how to install a GWX gateway control board in each type of AIO® heat pump unit.

To install in an AIO® Wall Mounted (Standard/Pro) unit (Gen 2)
To install in an AIO® Wall Mounted (Standard/Pro) unit (Gen 3)
To install in an AIO® Ceiling Ducted unit (with or without ERV)
To install in an AIO® Ceiling Suspended unit (with ERV option)
To install in an AIO® Ceiling Suspended unit (without ERV option)
To install in an AIO® Vertical Stack unit
To install in an AIO® Vertical Stack XL unit

3. GWX GATEWAY OVERVIEW

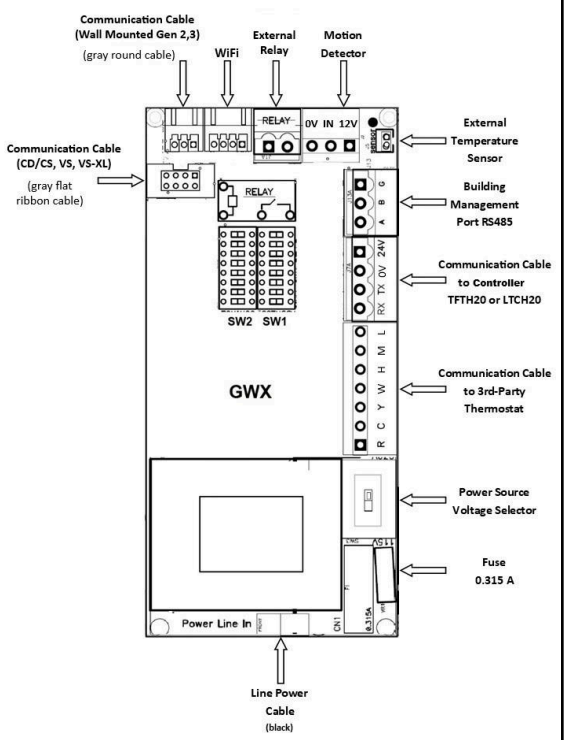
The GWX gateway provides an interface between AIO® units and wall thermostats, as well as Building Management Systems (BMS) protocols, including Modbus, BACnet, and Wi-Fi.

The following Layout shows the connections between the GWX gateway and the following:

- Power from the AIO® unit: **CN1 Power Line In**
- Communication with the AIO® Vertical Stack, Vertical Stack XL, and Ceiling Ducted/ Suspended units: **CN10**
- Communication with the AIO® Wall Mounted Gen 2 and 3 units: **CN4 A/C**
- Wi-Fi module: **CN3 Wi-Fi**
- Relay contact to control external heater, fresh air module, **or** dual power sources: **CN6 RELAY**
- Motion detector: **CN7**
- External temperature sensor: **CN9 SENSOR**
- Building management port: **CN5**
- Communication with an INNOVA controller TFTH20 or LTCH20: **CN8**
- Communication with a third-party thermostat: **CN2**

Figure 1 shows the GWX gateway board layout:

Figure 1. GWX gateway board layout



The GWX gateway can use either BACnet, Modbus, or Wi-Fi at any given point.

The GWX gateway can interface with:

- **INNOVA controllers/thermostats**: Enables connection to the AIO® Basic Touch Controller (LTCH20) and the AIO® Advanced Touch Controller (TFTH20). See Section 6.1.1.
- **Third-party controllers/thermostats.** See Section 6.1.2.
- **Wi-Fi module**: Enables control using a dedicated application for smartphones, tablets, and computers. See Section 6.2.
- **Building Management System (BMS)**: Enables seamless remote communication with BACnet and Modbus protocols. See Section 6.3, Section 13.1, and Section 13.2.
- **Motion detector**: Saves energy by turning off unit operations based on room occupancy. See Section 6.4.
- **External heating modes (via relay)**: Enables integration with external electric heaters (including baseboard heaters) to control the heaters based on outside temperature conditions, or with an external fresh air system. See Section 6.5 and Section 13.2.
- **Dual power sources (via relay)**: Enables switching between one power source for heating and a second power source for cooling, such as when the building provides heat, but the tenant is responsible for cooling. See Section 6.6.

3.1 AIO® unit compatibility

The GWX gateway can be used with the following AIO® units:

- AIO® Wall Mounted Standard/Pro (Gen 2+)
- AIO® Ceiling Ducted (with and without ERV)
- AIO® Ceiling Suspended (with and without ERV option)
- AIO® Vertical Stack (Gen 3 or later only)
- AIO® Vertical Stack XL

- All references to the AIO® Wall Mounted unit refer to both the Wall Mounted Standard and the Wall Mounted Pro units.
- The GWX gateway is not used with the Wall Mounted (Gen 1) unit. For these units, use the GWN gateway. Refer to the GWN Gateway Installation Guide for AIO® Heat Pumps for more information.
- The GWX gateway cannot be used with Gen 1 or 2 of the Vertical Stack unit. See Section 11.

3.2 GWX gateway specifications

The following are the specifications of the GWX gateway:

- DIP switches for the mode of operation and network address.
- Modbus and BACnet communication port via RS485.
- Relay Rating: Dry Contact - 24 VAC, 1 amp.
- LTCH20 and TFTH20 controller inputs via four-screw terminals (CN8).
- Third-party thermostat inputs via seven-screw terminals (CN2).
- Operating temperature: 40°F (4.4°C) - 158°F (70°C).
- Storage temperature: 0°F (-17.8°C) - 158°F (70°C), 90% relative humidity, non-condensing.
- Power supply: Switchable between 115/230V at 50/60 Hz.
- Power consumption: 2.4 watts.
- Fuse: 0.315-amp ceramic fuse.
- Dimensions: 6" x 2.7" x 1" (152.4 mm x 68.6 mm x 25.4 mm)

The GWX gateway is an optional component for the AIO® unit. It must only be used for this purpose.

4. SAFETY GUIDELINES - READ BEFORE INSTALLING

This guide details the steps required to safely install a GWX gateway in an AIO® unit. By following these instructions, the risk of equipment damage and personal injury can be significantly reduced.

Read the entire installation guide before installing the gateway. Pay careful attention to all safety notices and warnings.

Failure to apply the indicated rules may cause malfunctions in the appliances and relieve the manufacturer of any warranty and of any liability for damage to persons, animals, or property.

All safety regulations in force at the installation site, as well as common-sense precautions, must be followed.

The precautions listed in this installation guide are intended to supplement accepted safe practices. In case of a direct conflict between accepted safety practices and this guide, the more stringent precaution takes precedence.

Failure to follow the instructions in this guide can result in property damage, serious injury, or death.

4.1 Fire/explosion hazards

⚠ WARNING

- In the event of abnormal conditions (such as a strange or burning smell, noise, or smoke), turn off the unit and disconnect it from its power source immediately. Report the issue immediately to your INNOVA representative or distributor.
- Servicing shall be performed only as recommended by the manufacturer.

4.2 Electrical hazards

⚠ DANGER

- Only trained HVAC technicians may install this gateway. Improper modifications by an unqualified person can result in serious injury or death. When working on the equipment, observe all precautions in the guide and on labels attached to the equipment.
- Before installation, maintenance, or servicing, disconnect power to the entire system. Verify that power is off at all sources, including remote disconnect switches, circuit breakers in the electrical panel, peripherals, third-party devices, and devices operating on the unit's network.
- Follow all OSHA-compliant Lockout/Tagout (LOTO) procedures.

⚠ WARNING

- All electrical connections, wiring, and grounding must be done by a qualified electrician and must comply with the National Electrical Code (NEC/NFPA-70) and all local codes that hold jurisdiction. Improper wiring or loose connections may cause overheating, fire, or electric shock.
- Use only the supplied installation-specific components. Using different components could lead to water leakage, electric shock, or fire.
- Do not open access panels to the interior of the unit without first disconnecting the power and/or turning off the breaker.

⚠ WARNING

- The unit contains capacitors that may retain an electrical charge after the power is disconnected. Thus, before beginning any installation or servicing, to avoid electrical shock or serious injury, be sure to:
  - Discharge all motor start-run capacitors.
  - Verify (using a voltmeter) that no power is running into the unit.
  - Wait at least five minutes for the AIO® unit to cool down and for the capacitors inside the unit to discharge.

⚠ CAUTION

- In the event of a blackout or thunderstorm, turn the unit off and disconnect it from the power source immediately.

4.3 Moving parts hazards

⚠ DANGER

- Do not operate the equipment with panels, guards, or covers removed, except when specifically instructed by the procedures below to test the installation.
- Ensure power is disconnected and components have come to a complete stop before accessing the interior. Internal fans, motors, and other moving components may start automatically when power is supplied.

⚠ WARNING

- Keep hands, hair, tools, and loose clothing away from fans and moving components. Contact with moving parts can cause serious injury.
- Do not remove, bypass, or disable protective covers, guards, or safety interlocks.

4.4 General safety guidelines

⚠ WARNING

- Do not modify or tamper with the gateway or controller. Unauthorized alterations may compromise safety, create hazardous conditions, and void the warranty.
- Wear appropriate personal protective equipment (PPE) such as gloves and safety glasses during the installation process.
- Only a qualified HVAC professional may install this unit. The installer must be licensed, insured, or bonded, as required by local regulations.



Installation by anyone other than an INNOVA-trained and qualified HVAC professional voids the warranty on the unit.

4.5 Installer responsibilities

- Install the unit safely and in accordance with all applicable local and national codes and regulations.
- Ensure that you fully understand the product and the installation procedures before beginning installation. Installation activities involve greater risk than normal system operation.
- Provide the customer with the information necessary to operate the system safely after installation.

The safety precautions in this guide supplement recognized industry best practices. If a conflict occurs, follow the more stringent safety requirement.

5. PREPARING FOR INSTALLATION

Before beginning the installation procedure, verify that all required components have been received and that all required materials and accessories are present.

5.1 Shipping configuration

The GWX gateway is shipped in a single package containing the following:

- GWX gateway board
- Two double-sided adhesive foam strips
- Five white plastic spacer (stand-up) clips
- Alcohol pad

The GWX gateway may be ordered with or without cables. If the configuration with cables was ordered, the package should also contain:

- Flat ribbon (gray) communication cable (for use with Vertical Stack, Vertical Stack XL, and Ceiling Ducted/Suspended units)
- Round (gray) communication cable (for use with Wall Mounted Gen 2 and Gen 3 units)
- Black power cable (for use with all units)



Some of the AIO units may come with power and/or communication cables pre-installed. In this case, those cables should be used and the respective gateway cables would not be needed.

5.2 Inspecting the package

When the shipment is received, inspect it thoroughly before proceeding to installation:

1. Ensure that the contents match the order and shipping documents.
2. Inspect the entire gateway board and any accessories for any damage that may have occurred during shipping.
3. If the package or contents appear damaged:
   a. Photograph all damage and all sides of the component to support a damage claim.
   b. Clearly document the damage on the freight bill.
   c. Notify your INNOVA representative or distributor.

Report all damage within two weeks of delivery to be eligible for a claim.

5.3 Required tools and supplies

- #2 Phillips-head screwdriver
- Mini (⅛" [3.2 mm]) flathead screwdriver
- Basic electrical tools
- Hot glue (if installing the gateway into a 115V unit)

6. GWX GATEWAY CONNECTION OPTIONS

6.1 Connecting the GWX gateway to a wall controller

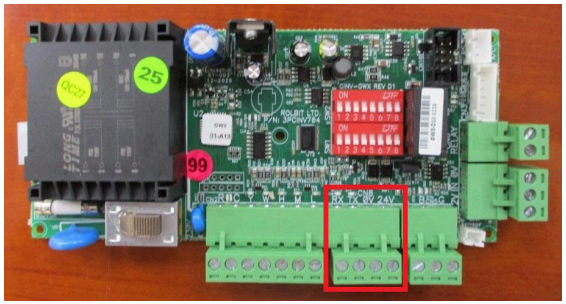
The GWX gateway can be connected to an INNOVA controller/thermostat or to a third-party controller/thermostat.

6.1.1 Connecting the GWX to the TFTH20 or LTCH20 controller / thermostat

- To use the GWX together with the LTCH20 Basic Touch Controller, refer to the AIO® Basic Touch Controller (LTCH20) Installation Guide.
- To use the GWX together with the TFTH20 Advanced Touch Controller, refer to the AIO® Advanced Touch Controller (TFTH20) Installation Guide.

  The GWX gateway is connected to an LTCH20 or TFTH20 controller via the dedicated terminal block (CN8), as shown.

Figure 2. GWX to LTCH20/TFTH20 controller terminals



6.1.2 Connecting the GWX to a third-party thermostat

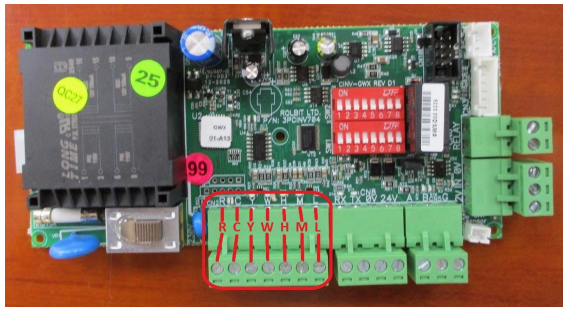
To use the GWX together with a third-party controller/thermostat, connect it as described below.

To connect a third-party thermostat to the GWX gateway:

1. **Connect the control cable to the gateway.**
   With the power disconnected, connect the seven* wires of the control cable through the back of the AIO® Wall Mounted unit to the following terminals of the dedicated terminal block (CN2) on the GWX gateway board:
   - R - Power 24 VAC
   - C - Common
   - Y - Cool
   - W - Heat
   - H - High Fan Speed
   - M - Medium Fan Speed
   - L - Low Fan Speed

* If using a thermostat that has only a single fan speed, use only five wires. In this case, you must choose the fan speed at which you want the AIO® unit to operate by attaching the wire for the fan to either H, M, or L. We recommend using the M terminal for medium fan speed.

Figure 3. Terminals on the gateway for connecting the wires



⚠CAUTION

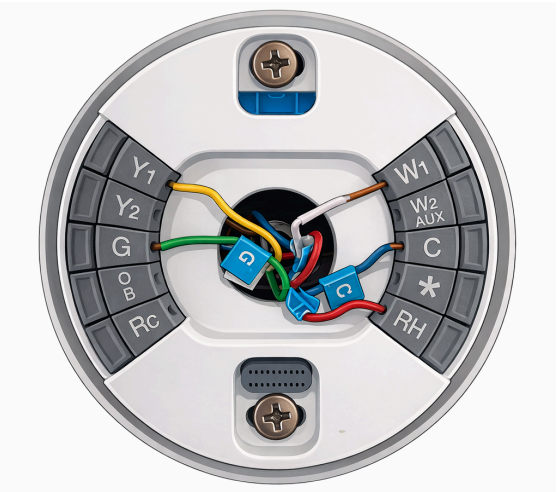
When using a third-party thermostat with this gateway, you must use both the R and C wires, even if it is a smart thermostat. Do not use any workarounds to the C-wire that steal or bleed power from the R or the Y/Y1 wire.

2. **Connect the control cable to the thermostat.**
   Follow the manufacturer's instructions for the thermostat you are using to connect the wires of the control cable from the GWX gateway board to the corresponding inputs on the thermostat.

Where the inputs do not match the terminal labels exactly, refer to the following table:

If the thermostat has:	Connect this gateway wire:	To this thermostat input:
RC and RH	R	Either one (RC and RH use the same transformer)
Y1 and Y2	Y	Y1
W1 and W2	W	W1
Only one G	M	G
	H, L	Not used

Figure 4. Connect the wires to the thermostat (reference only)



The image above illustrates a particular type of third-party thermostat for reference only. The appearance of the thermostat and the connections required may vary from the illustration.

⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

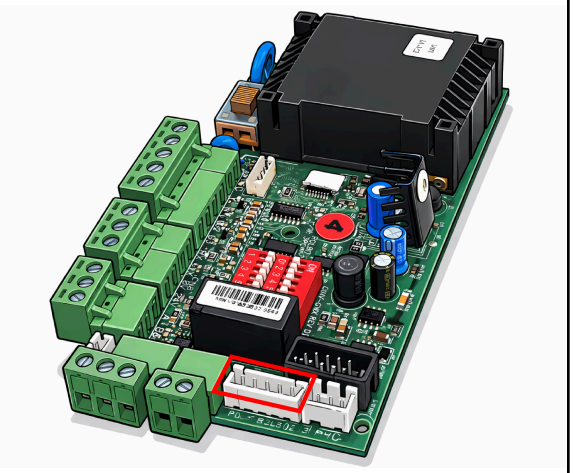
6.2 Connecting the GWX gateway to Wi-Fi

The GWX gateway enables controlling the AIO unit via Wi-Fi, using a mobile device, by providing an interface for the AIO GW1-WIFI Wi-Fi module.

For information on installing and using the Wi-Fi module, refer to the AIO® Wi-Fi Module GW1-WIFI and Smart Life App Installation and User Guide.

The GWX gateway is connected to the Wi-Fi module via the Wi-Fi port (CN3), as shown.

Figure 5. GWX Wi-Fi interface

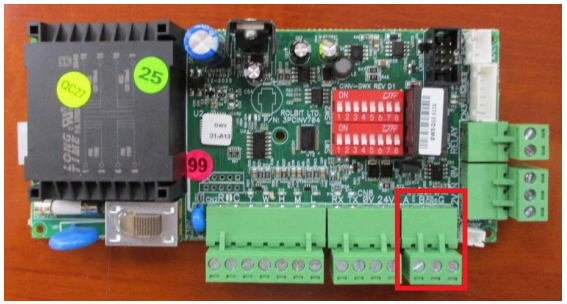


6.3 Connecting the GWX gateway to a building management system

The GWX gateway enables connecting the AIO unit to a building management system (BMS) using BACnet or Modbus protocols. These options are configured using the DIP switches on the gateway, and are described fully in Section 13.1 and Section 13.2.

The GWX gateway is connected to the BMS via the dedicated port (CN5), as shown.

Figure 6. GWX Building Management System terminals



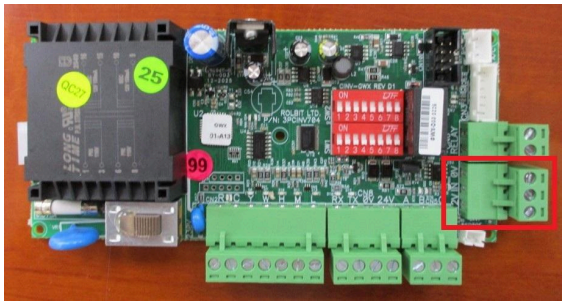
6.4 Connecting the GWX gateway to a motion detector

The GWX gateway can be connected to an occupancy sensor or motion detector to determine whether someone is in the area. When the area is unoccupied, the AIO unit and any external heater are disabled to save energy. When someone enters the area, the unit and external heater automatically turn on with the last set configuration.

- Occupancy detection can be disabled by a parameter sent from the BMS.
- The motion sensor can be any third-party occupancy sensor that features 12V operation with a dry contact and a timer.

The GWX gateway is connected to the occupancy or motion detector via the dedicated port (CN7), as shown.

Figure 7. GWX motion detector terminals



6.5 Connecting the GWX gateway to an external heater or fresh air system

The external heating function on the GWX enables using an external sensor (NTC thermistor - not included) to automatically activate the heating from an external source (such as an external or baseboard heater) and deactivate the heating function of the AIO unit.

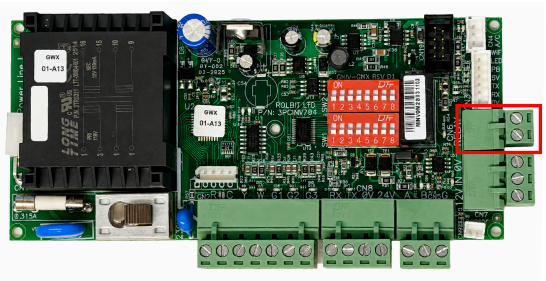
When using an external heating source, the system uses the relay contact (CN6) on the GWX to set different operating modes.

- The relay on the GWX can support either external heating or fresh air, depending on which external device is attached. Two devices cannot be connected simultaneously.
- Similarly, if the relay is used for dual power sources (see Section 6.6), it cannot be used for external heating or fresh air.

⚠CAUTION

The relay on the GWX is a dry-contact relay (pilot-duty) that is rated at only 24 VAC and 1 amp. When connecting an external device, do not exceed this capacity.

Figure 8. GWX relay contact



The external heat function has four modes that are activated using the relay:

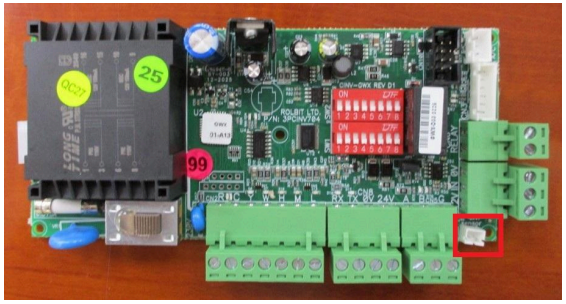
- **Fresh Air:** The relay output activates an external fresh air system when the AIO unit turns off.
- **Internal:** The AIO unit provides both heating and cooling.
- **Basic External Heat:** The relay output activates an external heat source when the temperature sensor reads below 41°F (5°C).
- **Low-Temperature External Heat:** The relay output activates an external heat source when the temperature sensor reads below 23°F (-5°C).

These four modes are configured using the SW2 DIP switches on the GWX. For the configuration process and complete logic tables, refer to Section 13.

For the External Heat modes to work, an external NTC sensor (not included) must be connected. Without a sensor attached, heating will be controlled by the AIO unit regardless of the mode selected.

The external sensor is connected via a dedicated connector (CN9) on the GWX, as shown.

Figure 9. GWX external temperature sensor



To reduce wear on the external-heat relay, the gateway applies two protections:

1. **Deadband between ON and OFF thresholds:**
   In External Heat modes, the gateway uses separate ON/OFF temperatures. External heat turns ON when the measured temperature drops below the mode's ON threshold, and turns OFF only after the temperature rises above the corresponding OFF threshold. A "deadband" is defined with the OFF threshold set at 3.6°F (2°C) above the ON threshold, and no new heating command is sent while the temperature is within this band.
   a. For **Basic External Heat Control mode**, the deadband is between 41°F (5°C) and 44.6°F (7°C).
   b. For **Low-Temperature External Heat Control mode**, the deadband is between 23°F (-5°C) and 26.6°F (-3°C).
2. **5-minute activation delay:**
   Even after the temperature crosses the ON threshold, external heat turns ON only if the temperature stays below the ON threshold (i.e., outside the deadband on the low side) for at least five consecutive minutes.

6.6 Connecting the GWX gateway to dual power sources

In some installations, it may be necessary to draw the power for the heating and cooling functions from two separate power sources (for example, if the building provides heat, but the tenant is responsible for paying for cooling).

When a GWX gateway is installed in an AIO heat pump unit, it enables the unit to connect to dual power sources and to switch back and forth between them depending on the operating mode. This is accomplished via the relay contact (CN6) on the GWX gateway board. When the contact is closed, power is drawn from one source, and when it is open, the first power source is disabled, and power is drawn from the second source.

The relay contact on the GWX gateway has the following logic:

- The relay opens when the unit is in cooling mode.
- The relay closes when the unit is in heating mode.

When the relay is used for dual power sources, it cannot be used to control the external heater or fresh air (see Section 6.5).

⚠CAUTION

The relay on the GWX is a dry-contact relay

⚠CAUTION

(pilot-duty) that is rated at only 24 VAC and 1 amp. When connecting an external device, do not exceed this capacity.

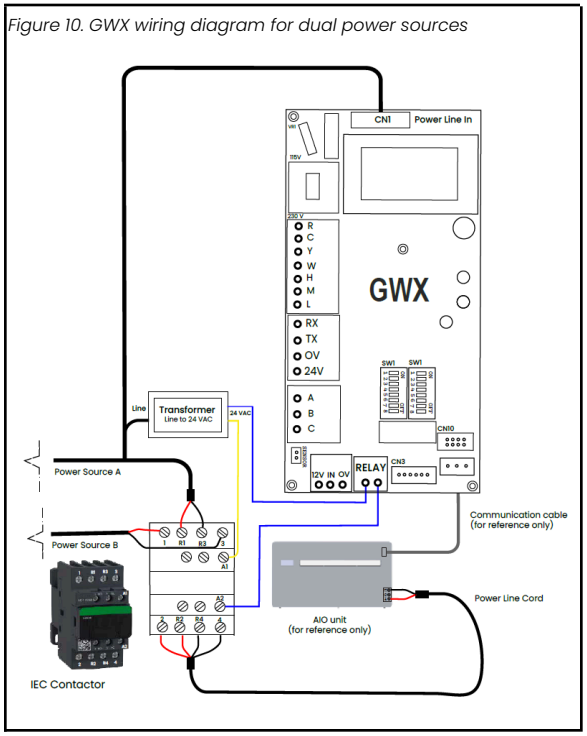
The relay terminals on the GWX gateway are shown above in Figure 8 in Section 6.5.

Figure 10 provides a sample scheme for wiring the GWX gateway to dual power sources using an IEC contactor. Other wiring schemes are also possible, as long as the wiring aligns with the relay logic described above.

In the diagram, the dual power sources are labeled as follows:

- **Power source 'A'** is the power source that is used when the relay is closed, meaning the unit is in heating mode.
- **Power source 'B'** is the power source that is used when the relay is open, meaning the unit is in cooling mode.

Figure 10. GWX wiring diagram for dual power sources



To view this wiring diagram as a PDF file, click the following link:

AIO GWX Dual Power Sources Wiring Diagram.pdf

7. INSTALLING THE GWX GATEWAY IN THE AIO® WALL MOUNTED UNIT (GEN 2)

To install the GWX gateway in an AIO® Wall Mounted (Gen 2) unit:

1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

7.1 Opening the unit

To open the AIO® Wall Mounted (Gen 2) unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **Remove the return air filter and grille.**
   Lift off the top grille from the unit. Then pull up on the plastic around the return air filter and remove the filter.

Figure 11. Lift off the top grille

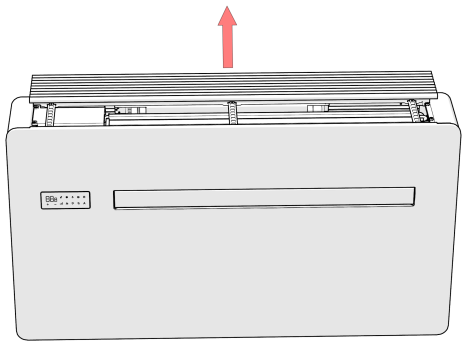
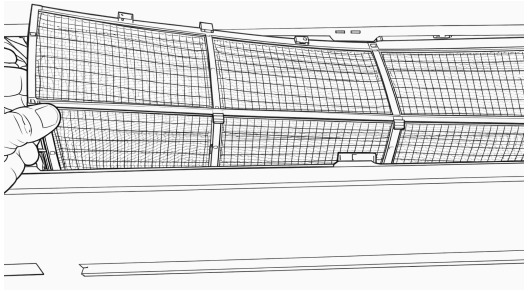


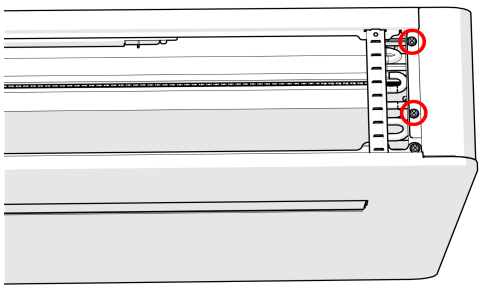
Figure 12. Remove the filter



3. **Remove the right side panel.**
   Remove the two screws from the right side decorative panel of the unit, and then lift and remove the right side panel.

Keep the screws removed in each step separate.

Figure 13. Remove the right side panel



7.2 Attaching the GWX gateway to the unit

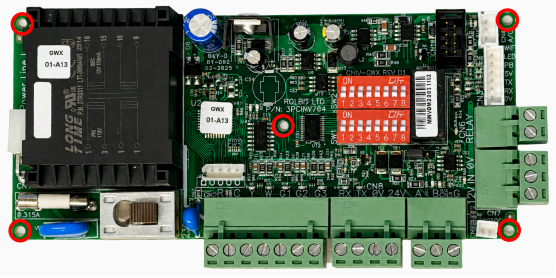
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

To attach the GWX gateway to the AIO® Wall Mounted (Gen 2) unit:

1. **Mount the GWX gateway board to the unit.**
   - If there are five mounting holes on the inner metal panel:
     a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
     b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 14. Holes for spacer clips

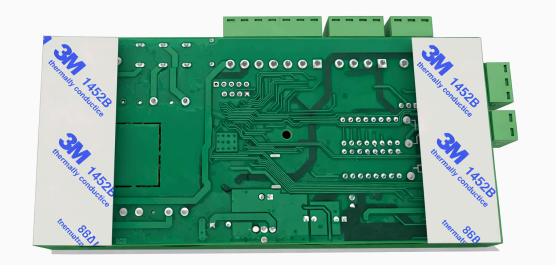


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

   - If there are no mounting holes on the panel:
     a. Clean the mounting location on the inside of the right side metal panel with an alcohol pad to ensure proper adhesion.
     b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 15. Adhesive strips on the gateway board



c. Remove the backing from the other side of the adhesive strips and mount the gateway board on the inside of the right side metal panel. Press firmly to ensure it is securely attached.

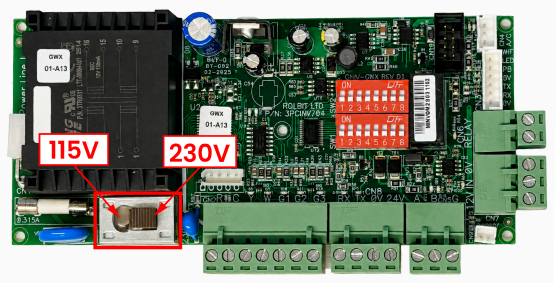
⚠CAUTION

Make sure there is no direct contact between the gateway board and the metal panel.

2. **Set the correct voltage.**
   The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

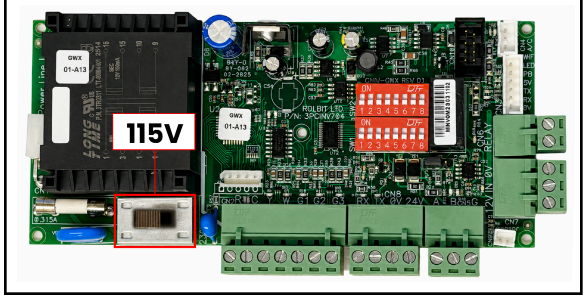
   As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 16. GWX gateway board voltage switch



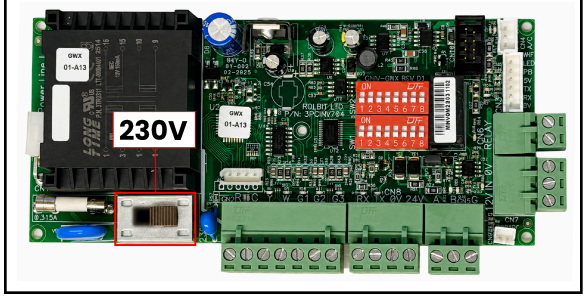
Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 17. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 18. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

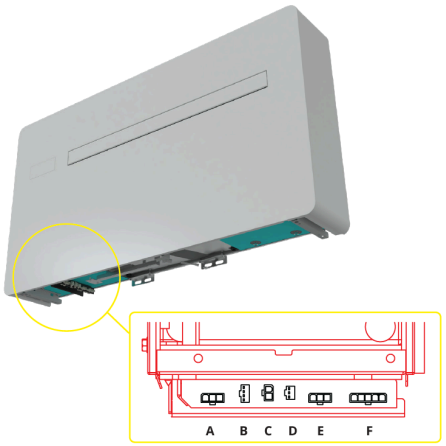
The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab of hot glue to keep the switch in the new position.

7.3 Connecting the gateway cables

To connect the power and communication cables between the GWX gateway and the AIO® Wall Mounted (Gen 2) unit:

1. **Open the Accessory Connection Block on the unit.**
   Locate the accessory connection block on the bottom left of the unit, as shown. Remove the screw from the accessory connection block cover and slide the cover to the right to remove it.

Figure 19. Wall Mounted Gen 2 accessory connection block



A	Power Supply for gateway	**D**	Communication port for ERV
B	Communication port for gateway	**E**	Power for ERV
C	Power for the heat trace wire on the condensate line	**F**	Not Used

2. **Connect the communication cable to the unit.**
   Connect the end of the gray communication cable (with the black connector) to the dedicated gateway communication port on the accessory connection block (labeled B in Figure 19). Ensure the connector is inserted completely and securely.
3. **Connect the power cable to the unit.**
   Connect the three-pronged end of the black power cable to the dedicated gateway power supply port on the accessory connection block (labeled A in Figure 19). Ensure the connector is inserted completely and securely.

Figure 20. Power and communication cable connections

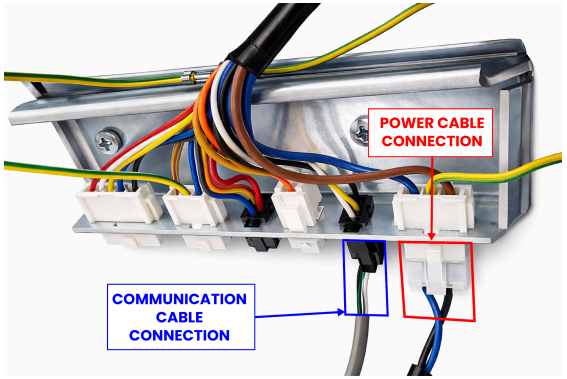
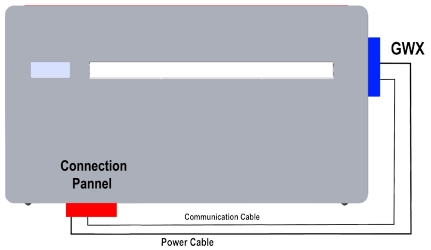
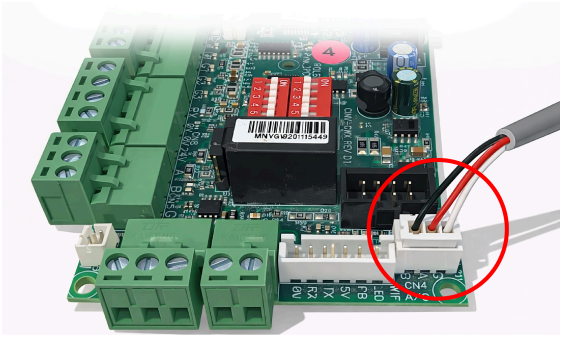


Figure 21. Connected cables from the gateway to the unit



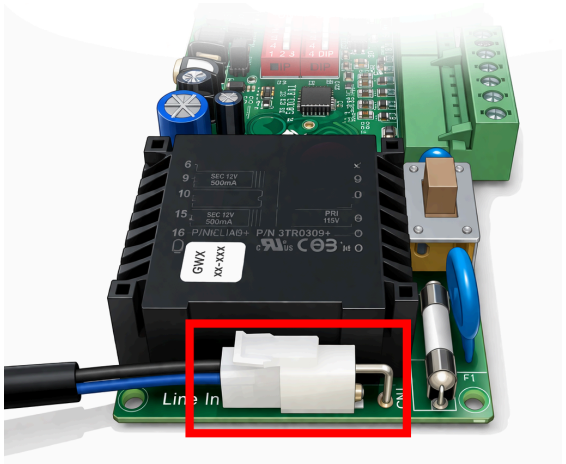
4. **Connect the communication cable to the gateway.**
   Insert the white connector on the round gray communication cable into the "A/C" port (CN4) on the GWX gateway.

Figure 22. Connect the communication cable to the gateway



5. **Connect the power cable to the gateway.**
   Insert the two-pronged end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 23. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

7.4 Closing the unit

To close the AIO® Wall Mounted (Gen 2) unit:

1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Wall Mounted (Gen 2/3) User Guide for more information.
      - If the touch controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
      - If the test fails, repeat the applicable steps in Sections 7.1 through 7.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.
2. **Close the accessory connection block cover and side panel.**
   a. Replace the accessory connection block cover and slide it to the left, ensuring the tab on the left side of the cover slides into the slot on the unit, and secure it with the screw removed in Section 7.3, Step 1.
   b. Replace the right side panel and secure it to the frame of the unit using the two screws removed in Section 7.1, Step 3.
   c. Reinstall the return air filter and the grille into the unit.
3. **Reconnect the power supply to the unit.**

8. INSTALLING THE GWX GATEWAY IN THE AIO® WALL MOUNTED UNIT (GEN 3)

To install the GWX gateway in an AIO® Wall Mounted (Gen 3) unit:

1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the GWX gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

8.1 Opening the unit

To open the AIO® Wall Mounted (Gen 3) unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **Remove the return air filter and grille.**
   Lift off the top grille from the unit, and then gently pull up on the plastic around the return air filter and carefully lift the filter out.

Figure 24. Lift off the top grille

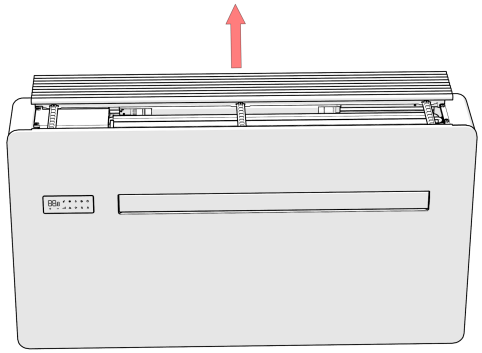
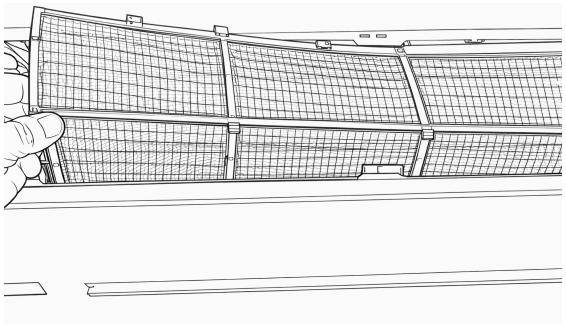


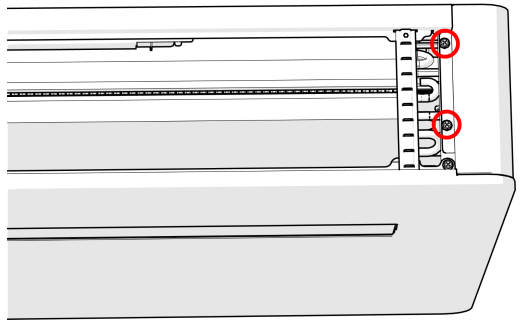
Figure 25. Remove the filter



3. **Remove the right side panel.**
   Remove the two screws from the right side decorative panel of the unit, and then lift and remove the right side panel.

Keep the screws removed in each step separate.

Figure 26. Remove the right side panel



After removing the right side panel, you will see two cables hanging down. These are the power and communication cables for the GWX gateway, and will be used in Section 8.3.

8.2 Attaching the GWX gateway to the unit

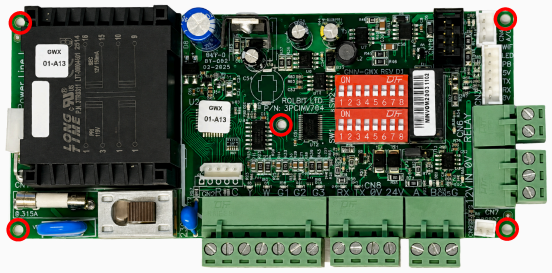
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

To attach the GWX gateway to the AIO® Wall Mounted (Gen 3) unit:

1. **Mount the GWX gateway board to the unit.**
   - If there are five mounting holes on the inner metal panel:
     a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
     b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 27. Holes for spacer clips

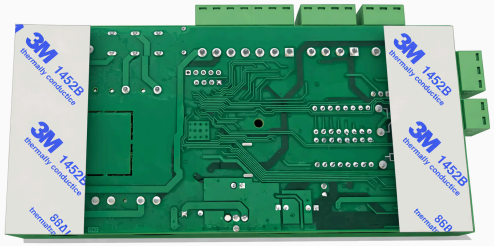


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

   - If there are no mounting holes on the panel:
     a. Clean the mounting location on the inside of the right side metal panel with an alcohol pad to ensure proper adhesion.
     b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 28. Adhesive strips on the gateway board



     c. Remove the backing from the other side of the adhesive strips and mount the gateway board on the inside of the right side metal panel. Press firmly to ensure it is securely attached.

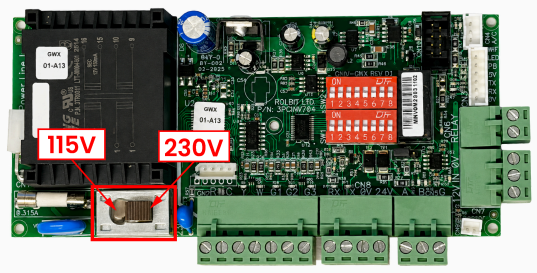
⚠CAUTION

Make sure there is no direct contact between the gateway board and the metal panel.

2. **Set the correct voltage.**
   The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

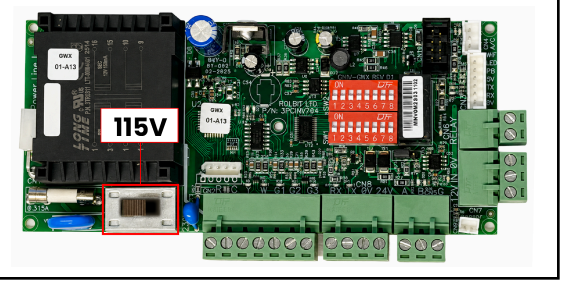
   As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 29. GWX gateway board voltage switch



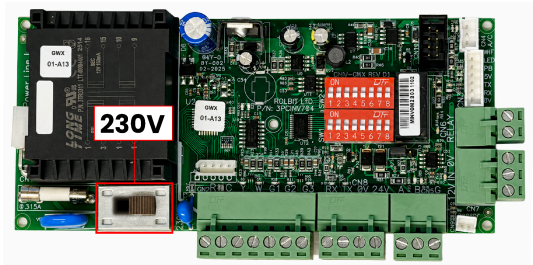
   Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 30. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 31. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab of hot glue to keep the switch in the new position.

8.3 Connecting the gateway cables

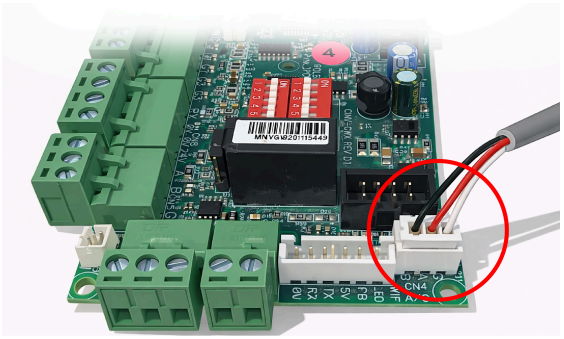
To connect the power and communication cables between the GWX gateway and the AIO® Wall Mounted (Gen 3) unit:

1. **Connect the communication cable to the gateway.**

The black power cable and round gray communication cable are pre-attached to the Gen 3 Wall-Mounted unit and hang down under the right side decorative panel, and only need to be connected to the gateway.

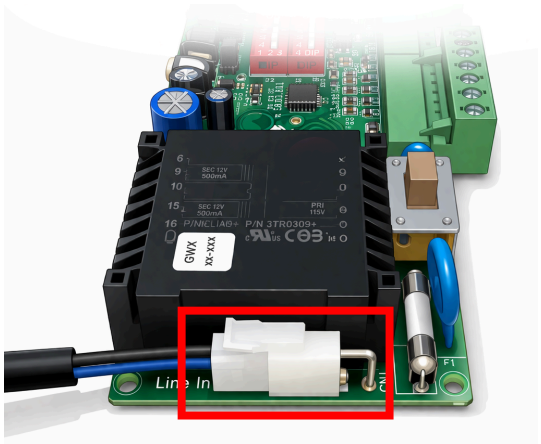
Insert the white connector on the round gray communication cable into the "A/C" port (CN 4) on the GWX gateway.

Figure 32. Connect the communication cable to the gateway



2. **Connect the power cable to the gateway.**
   Insert the free end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 33. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

8.4 Closing the unit

To close the AIO® Wall Mounted (Gen 3) unit:

1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Wall Mounted (Gen 2/3) User Guide for more information.

- If the touch controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
- If the test fails, repeat the applicable steps in Sections 8.1 through 8.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.

2. Close the side panel.

a. Replace the right side panel and secure it to the frame of the unit using the two screws removed in Section 8.1, Step 3.

b. Reinstall the return air filter and the grille into the unit.

3. Reconnect the power supply to the unit.

9. INSTALLING THE GWX GATEWAY IN THE AIO® CEILING DUCTED / CEILING SUSPENDED (WITH ERV OPTION) UNIT

To install the GWX gateway in an AIO® Ceiling Ducted / Ceiling Suspended (with ERV option) unit:

1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the GWX gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

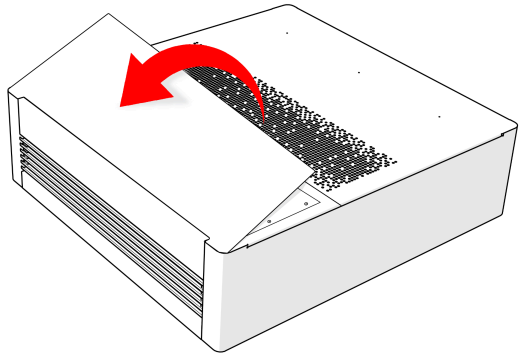
- The instructions in this section describe Gen 3 of the AIO® Ceiling Ducted (with and without ERV) and the Ceiling Suspended (with ERV option), but the procedure is similar for Gen 1 and Gen 2 of both unit types.
- The illustrations in this section show the AIO® Ceiling Suspended (with ERV option) unit, but the installation is very similar for the Ceiling Ducted units.

9.1 Opening the unit

To open the AIO® Ceiling Ducted / Ceiling Suspended (with ERV option) unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **For Ceiling Suspended units only: Open the decorative bottom panel.**
   The Ceiling Suspended units have a decorative bottom panel. Pull this panel open as shown to expose the metal panel that covers the electrical panel.

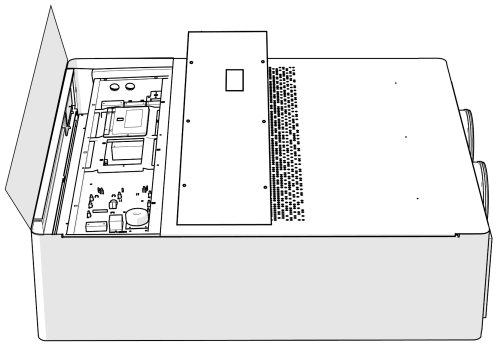
Figure 34. Open the decorative bottom panel



3. **Open the electrical panel.**
   Remove all the screws that secure the metal panel, and remove the metal panel to access the electrical panel.

Keep the screws removed in each step separate.

Figure 35. Access the electrical panel



9.2 Attaching the GWX gateway to the unit

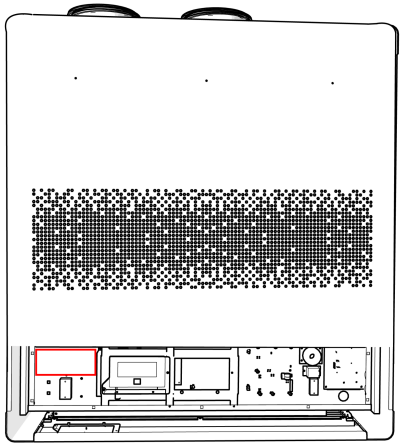
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

To attach the GWX gateway to the AIO® Ceiling Ducted / Ceiling Suspended (with ERV option) unit:

1. **Mount the GWX gateway to the unit.**
   The electrical panel has a space near the terminal block for mounting the gateway.

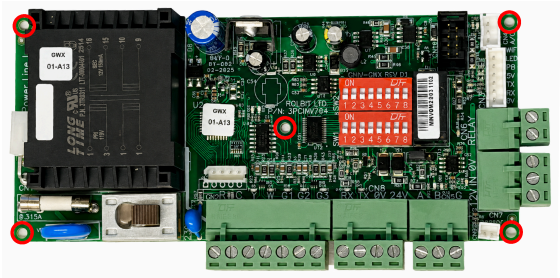
Figure 36. Mounting location for gateway on the electrical panel



Mount the gateway board as follows:

- If there are five mounting holes on the electrical panel:
  a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
  b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 37. Holes for spacer clips

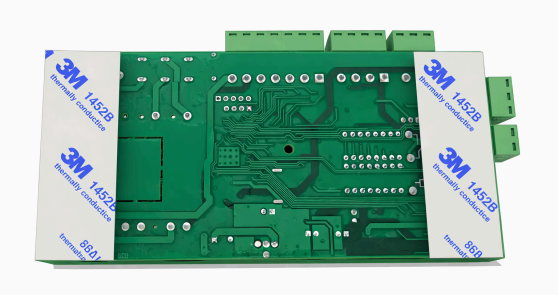


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

- If there are no mounting holes on the panel:
  a. Clean the mounting location on the electrical panel with an alcohol pad to ensure proper adhesion.
  b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

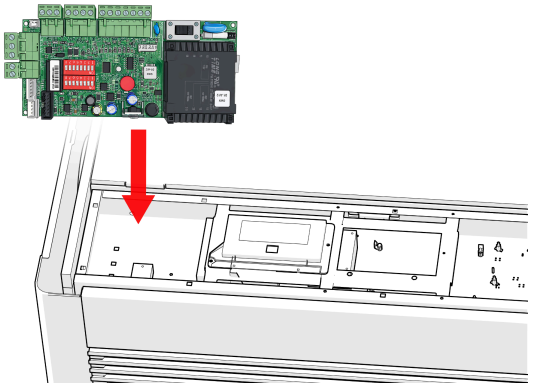
The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 38. Adhesive strips on the gateway board



c. Remove the backing from the other side of the adhesive strips and mount the gateway board in the indicated location on the electrical panel. Press firmly to ensure it is securely attached.

Figure 39. Mount the gateway board



⚠CAUTION

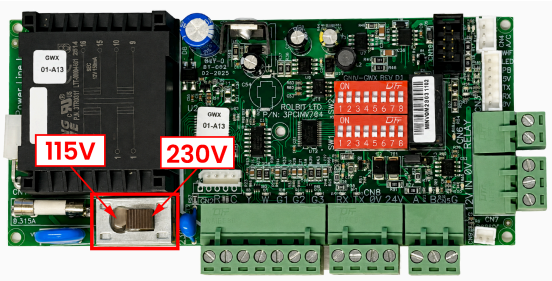
Make sure there is no direct contact between the gateway board and the metal panel.

2. Set the correct voltage.

The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

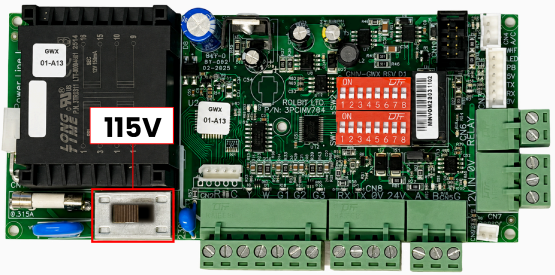
As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 40. GWX gateway board voltage switch



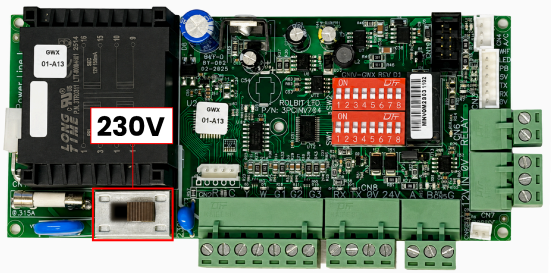
Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 41. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 42. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

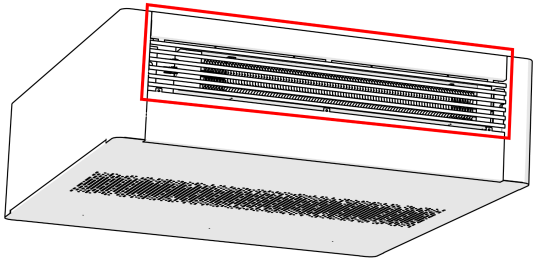
The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab of hot glue to keep the switch in the new position.

9.3 Connecting the gateway cables

To connect the power and communication cables between the GWX gateway and the AIO® Ceiling Ducted / Ceiling Suspended (with ERV option) unit:

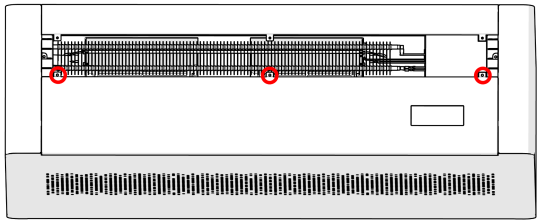
1. **Access the onboard touch controller.**
   a. Remove the supply grille on the front panel.

Figure 43. Grille on front panel



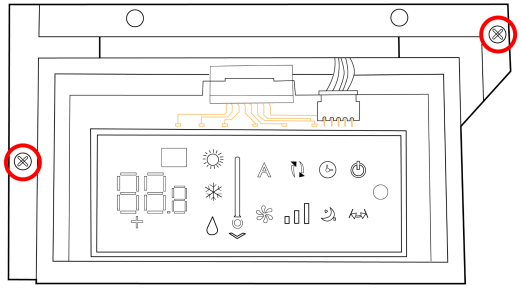
   b. **For Ceiling Suspended units only:** Remove the three screws from the decorative front panel to access the onboard touch controller.

Figure 44. Remove the front panel



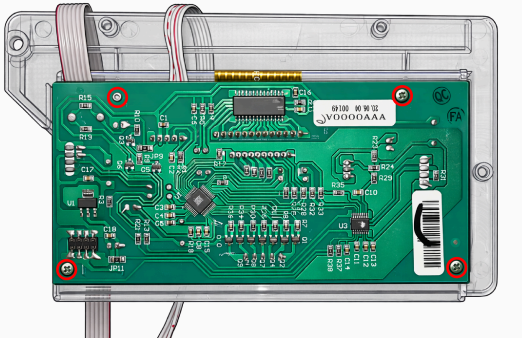
   c. Remove the two screws to detach the onboard touch controller housing from the unit.

Figure 45. Detach the controller housing



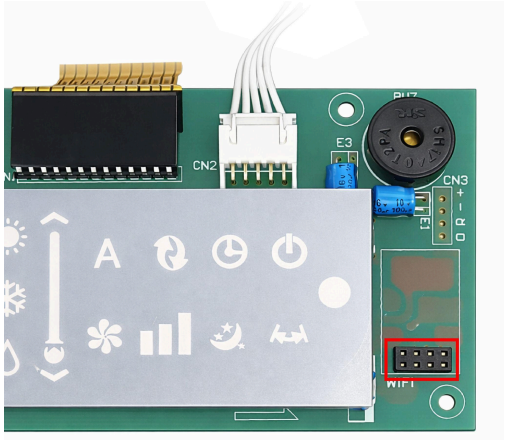
   d. Remove the four screws to remove the controller from the housing.

Figure 46. Open the controller housing



2. **Connect the communication cable to the unit.**
   a. Locate the black, eight-hole Wi-Fi socket on the right side of the onboard touch controller circuit board.

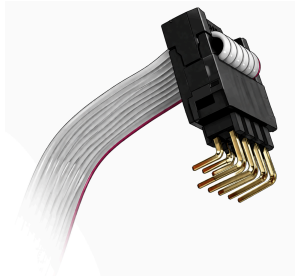
Figure 47. Wi-Fi socket on the controller board



> If there is a Wi-Fi chip in the Wi-Fi socket, remove this chip to enable installing the communication cable. This Wi-Fi chip is not used with the GWX gateway. To enable Wi-Fi communication, see Section 6.2.

   b. On the gray flat ribbon communication cable, find the end with an eight-pin right-angle pin header in the black connector.

Figure 48. Communication cable connector with right-angle pin header

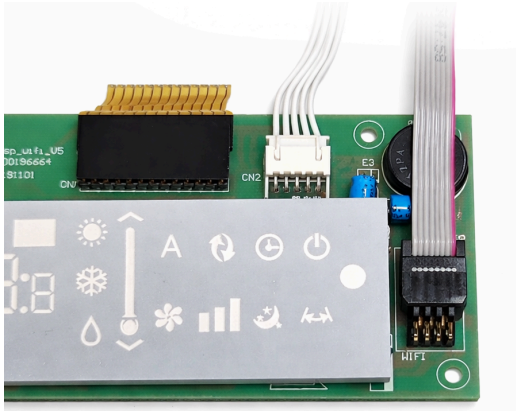


c. Connect the cable to the Wi-Fi socket as follows:

Ensure that the communication cable is inserted with the red stripe on the cable facing away from the display.

- If the Wi-Fi socket is empty:
  Insert the eight pins on the cable connector securely into the Wi-Fi socket as shown.

Figure 49. Connect the communication cable to the unit



- If there is already a right-angle pin header in the Wi-Fi socket:
  Remove the right-angle pin header from the cable connector, and push the cable connector securely onto the pins in the Wi-Fi socket.

Figure 50. Remove the pin header from the connector

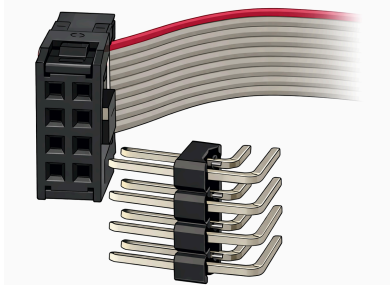
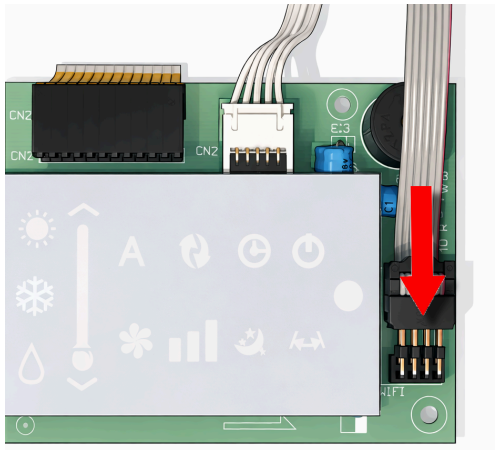


Figure 51. Connect the cable to the pin header in the Wi-Fi socket

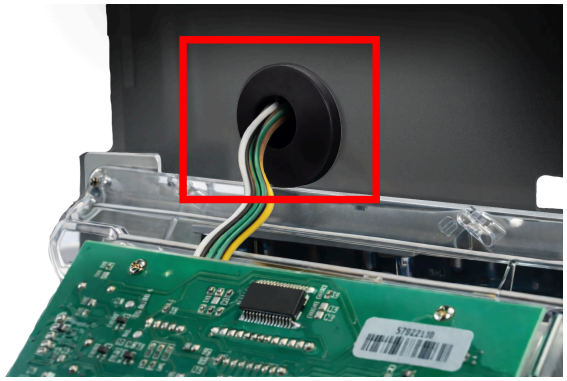


d. Route the free end of the communication cable through the rubber cable grommet behind the controller housing

⚠CAUTION

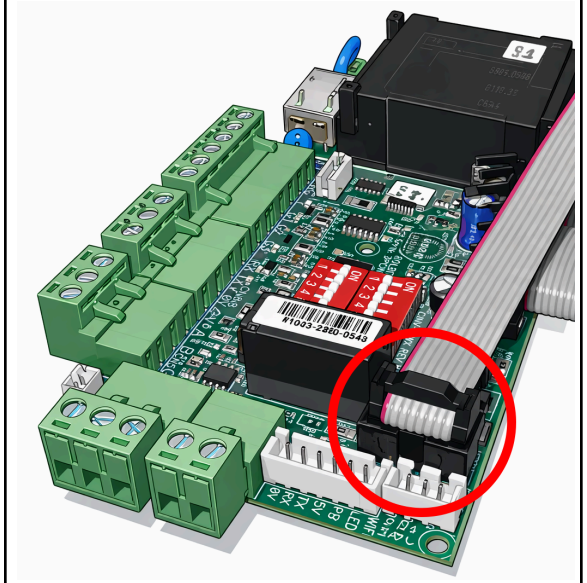
Be careful not to damage the colored wires (shown below) that are already routed through the grommet.

Figure 52. Rubber grommet in the controller housing



3. **Reattach the onboard touch controller.**
   a. Replace the controller in its housing and secure it using the four screws removed in Step 1d above.
   b. Reattach the controller housing to the unit using the two screws removed in Step 1c above.
4. **Connect the communication cable to the gateway.**
   Connect the end of the gray flat ribbon communication cable (with the 8-hole connector) to the GWX gateway via the black 8-pin communication port (CN10).

Figure 53. Connect the communication cable to the gateway

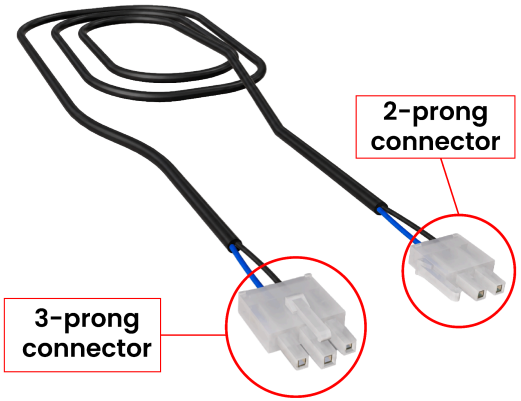


5. **Connect the power cable to the unit (if needed).**
   The black power cable may come pre-installed in the Ceiling Ducted/Suspended unit. In this case, the cable only needs to be connected to the gateway, as described in Step 6.
   If the power cable is not pre-connected to the unit, the power cable that comes with the gateway must be hard-wired to the screw terminal block on the unit.

The gateway power cable contains two wires, one black and one blue.

At one end of the cable, the wires terminate in a three-prong connector, and at the other end, they terminate in a two-prong connector, as shown.

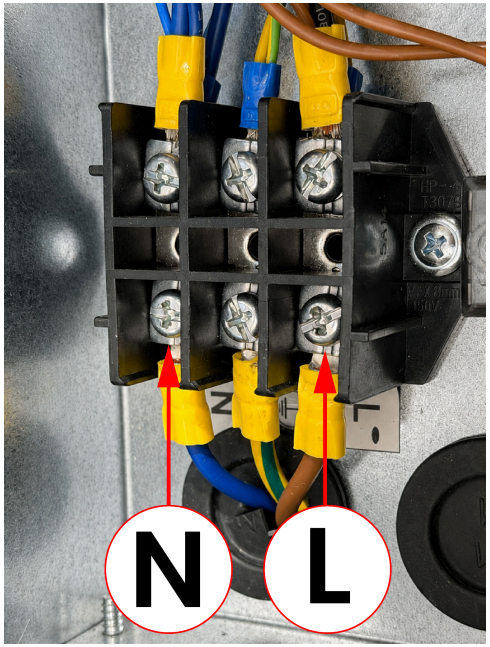
Figure 54. Gateway power cable



To hard-wire the power cable to the unit's screw terminal block:

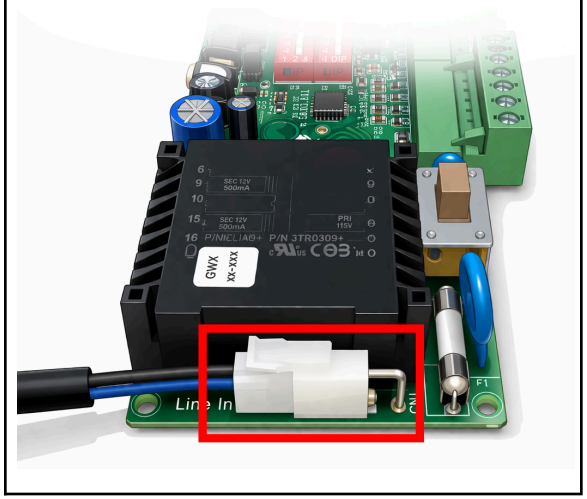
   a. Cut off the **three-pronged** connector from the cable.
   b. Strip enough insulation from the black and blue wires to enable connecting them to the terminals on the unit.
   c. The black wire in this cable is Live (Hot). Connect this wire to the L or L1 terminal on the unit.
   d. The blue wire in this cable is Neutral. Connect this wire to the N terminal on the unit.

Figure 55. L and N terminals on screw terminal block



6. **Connect the power cable to the gateway.**
   Insert the two-pronged end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 56. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

9.4 Closing the unit

To close the AIO® Ceiling Ducted / Ceiling Suspended (with ERV option) unit:

1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Ceiling Ducted User Guide for more information (since the Ceiling Suspended units use the same controller).
      - If the controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
      - If the test fails, repeat the applicable steps in Sections 9.1 through 9.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.
2. **Close the unit.**
   a. **For Ceiling Suspended units only:** Reinstall the front panel using the three screws removed in Section 9.3, Step 1b.
   b. Replace the supply grille (see Section 9.3, Step 1a).
   c. Replace the metal panel that covers the electrical panel, and secure it using all of the screws removed in Section 9.1, Step 3.
   d. **For Ceiling Suspended units only:** Close the decorative bottom panel (see Section 9.1, Step 2).
3. **Reconnect the power supply to the unit.**

10. INSTALLING THE GWX GATEWAY IN THE AIO® CEILING SUSPENDED (WITHOUT ERV OPTION) UNIT

To install the GWX gateway in an AIO® Ceiling Suspended (without ERV option) unit:

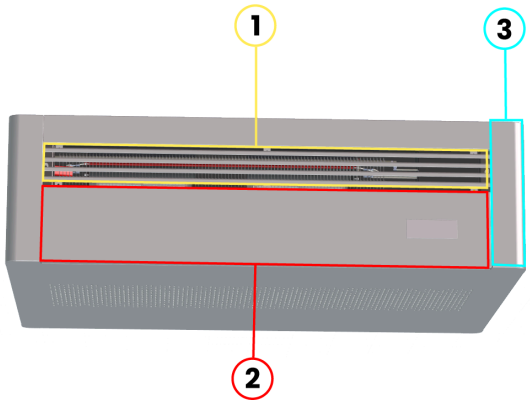
1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the GWX gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

10.1 Opening the unit

Figure 57. Open the Ceiling Suspended (without ERV) unit

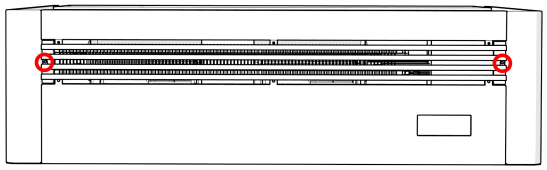


1	Supply grille	3	Right Panel
2	Front panel		

To open the AIO® Ceiling Suspended (without ERV option) unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **Remove the supply grille, front panel, and right panel.**
   a. Remove the two screws from the supply grille, and remove the supply grille.

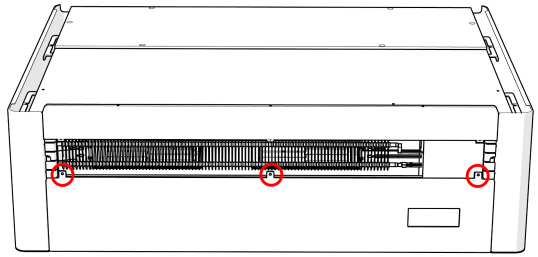
Figure 58. Remove the supply grille



Keep the screws removed in each step separate.

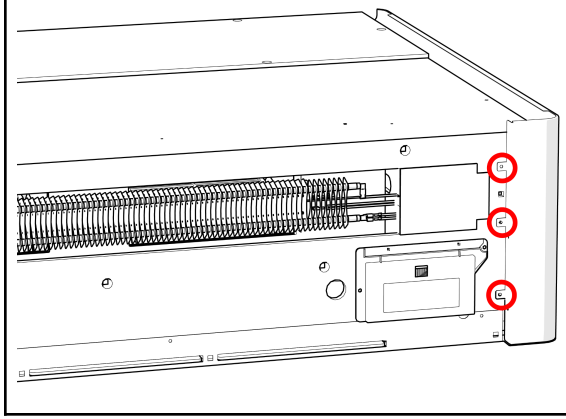
b. Remove the three screws from the front panel, and remove the front panel.

Figure 59. Remove the front panel



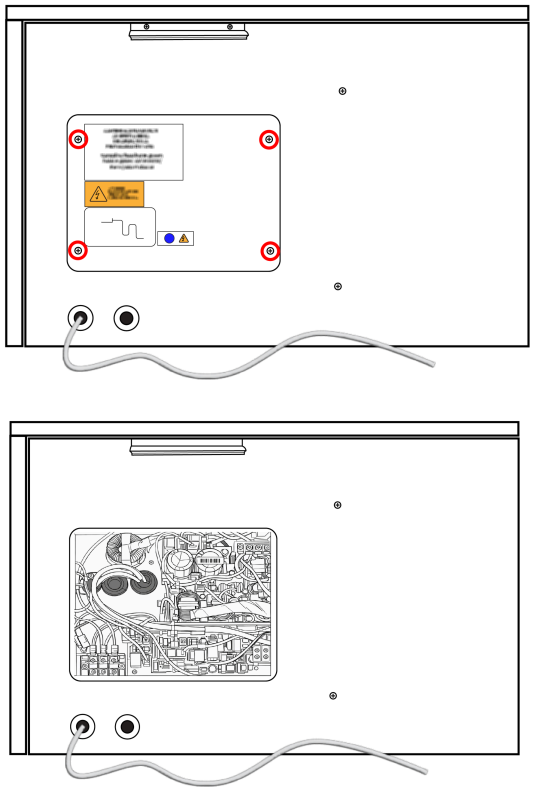
c. Remove the three screws from the right side panel, and remove the right side panel (the side next to the display).

Figure 60. Remove the right side panel



3. **Open the electrical panel.**
   On the side of the unit next to the display, remove the four screws from the electrical panel cover, and remove the cover to expose the electrical panel.

Figure 61. Open the electrical panel



10.2 Attaching the GWX gateway to the unit

⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

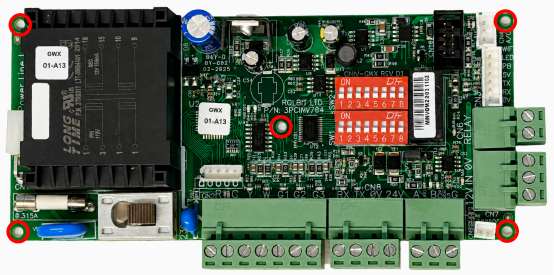
To attach the GWX gateway to the AIO® Ceiling Suspended (without ERV option) unit:

1. **Mount the GWX gateway to the unit.**
   The electrical panel has a space on the side wall for mounting the gateway, as shown in Figure 62 below.

   Mount the gateway board as follows:

   - If there are five mounting holes on the electrical panel:
     a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
     b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 62. Holes for spacer clips

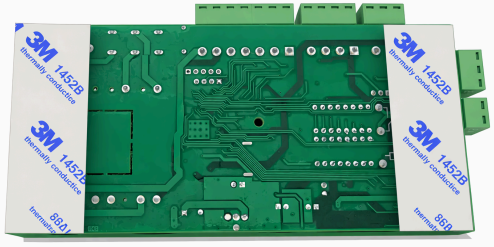


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

   - If there are no mounting holes on the panel:
     a. Clean the mounting location on the electrical panel with an alcohol pad to ensure proper adhesion.
     b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

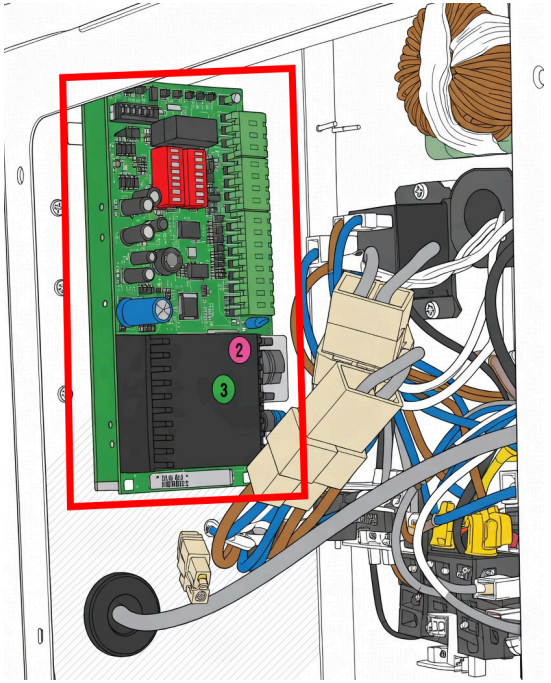
The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 63. Adhesive strips on the gateway board



     c. Remove the backing from the other side of the adhesive strips and mount the gateway board in the indicated space on the electrical panel. Press firmly to ensure it is securely attached.

Figure 64. Mount the gateway board



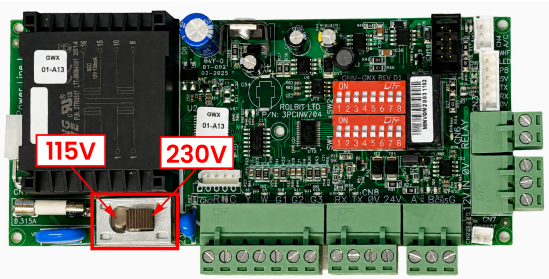
⚠CAUTION

Make sure there is no direct contact between the gateway board and the metal panel.

2. **Set the correct voltage.**
   The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

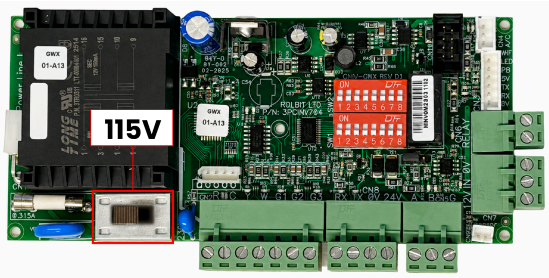
   As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 65. GWX gateway board voltage switch



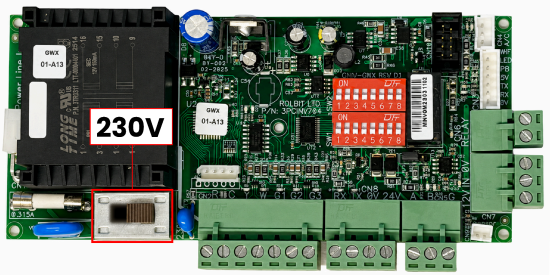
Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 66. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 67. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

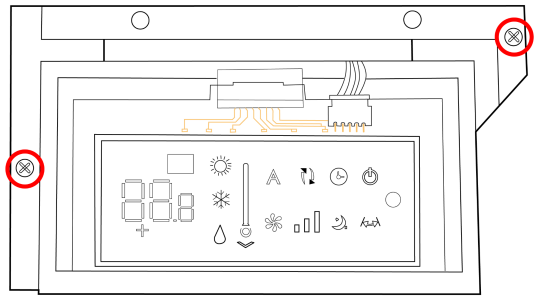
The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab of hot glue to keep the switch in the new position.

10.3 Connecting the gateway cables

To connect the power and communication cables between the GWX gateway and the AIO® Ceiling Suspended (without ERV option) unit:

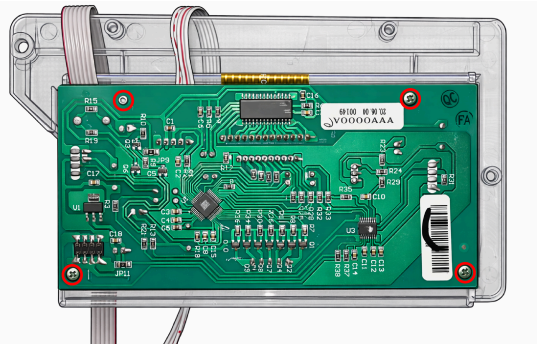
1. **Access the onboard touch controller.**
   a. Remove the two screws to detach the onboard touch controller housing from the unit.

Figure 68. Detach the controller housing



   b. Remove the four screws to remove the controller from the housing.

Figure 69. Open the controller housing



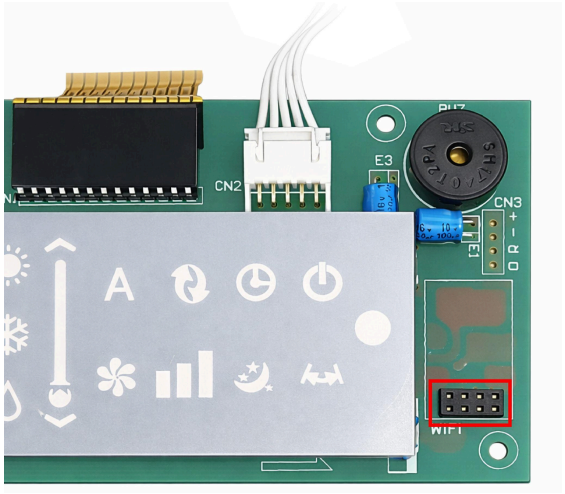
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

2. Connect the communication cable to the unit.

a. Locate the black, eight-hole Wi-Fi socket on the right side of the onboard touch controller circuit board.

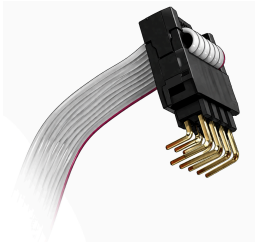
Figure 70. Wi-Fi socket on the controller board



If there is a Wi-Fi chip in the Wi-Fi socket, remove this chip to enable installing the communication cable. This Wi-Fi chip is not used with the GWX gateway. To enable Wi-Fi communication, see Section 6.2.

b. On the gray flat ribbon communication cable, find the end with an eight-pin right-angle pin header in the black connector.

Figure 71. Communication cable connector with right-angle pin header

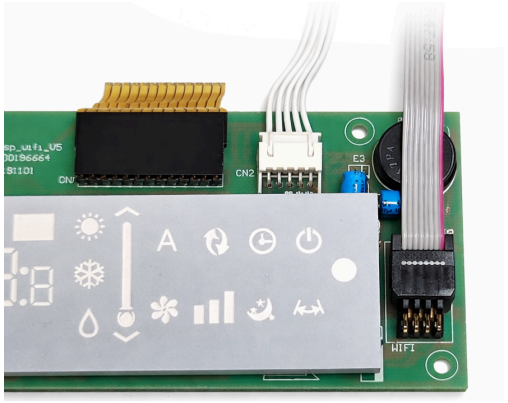


c. Connect the cable to the Wi-Fi socket as follows:

Ensure that the communication cable is inserted with the red stripe on the cable facing away from the display.

- If the Wi-Fi socket is empty:
  Insert the eight pins on the cable connector securely into the Wi-Fi socket as shown.

Figure 72. Connect the communication cable to the unit



- If there is already a right-angle pin header in the Wi-Fi socket:
  Remove the right-angle pin header from the cable connector, and push the cable connector securely onto the pins in the Wi-Fi socket.

Figure 73. Remove the pin header from the connector

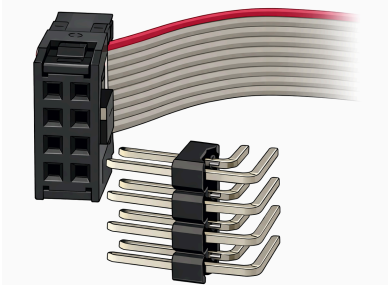
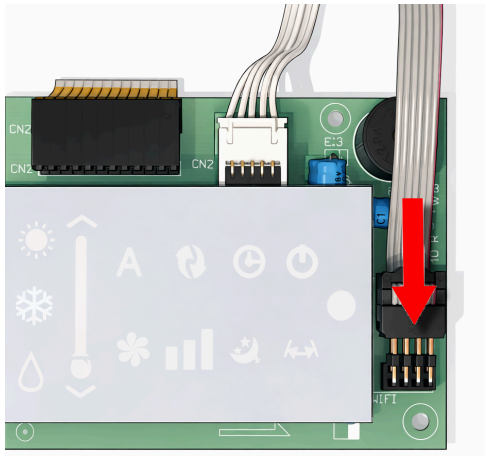


Figure 74. Connect the cable to the pin header in the Wi-Fi socket

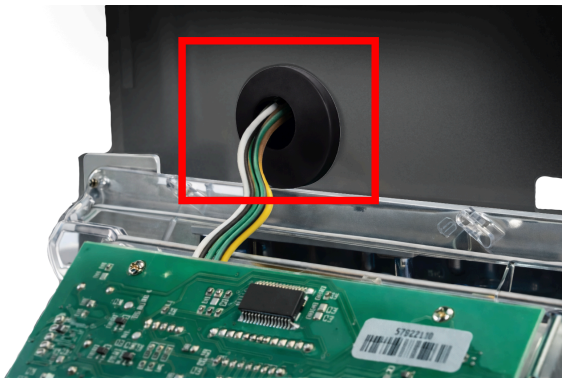


d. Route the free end of the communication cable through the rubber cable grommet behind the controller housing.

⚠CAUTION

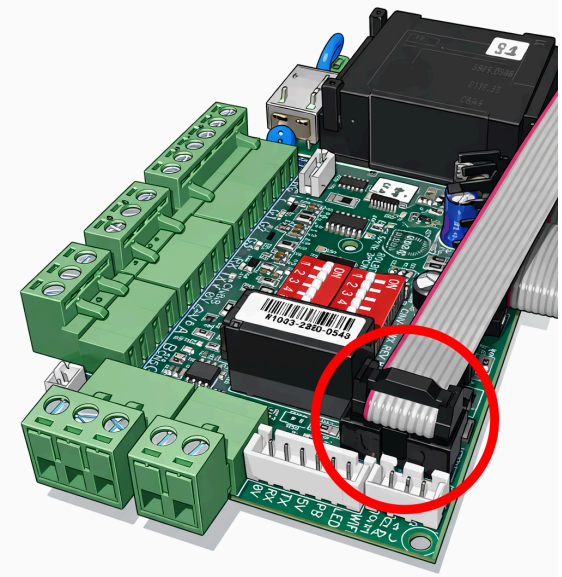
Be careful not to damage the colored wires (shown below) that are already routed through the grommet.

Figure 75. Rubber grommet in the controller housing



3. **Reattach the onboard touch controller.**
   a. Replace the controller in its housing and secure it using the four screws removed in Step 1b above.
   b. Reattach the controller housing to the unit using the two screws removed in Step 1a above.
4. **Connect the communication cable to the gateway.**
   Connect the end of the gray flat ribbon communication cable (with the 8-hole connector) to the GWX gateway via the black 8-pin communication port (CN10).

Figure 76. Connect the communication cable to the gateway



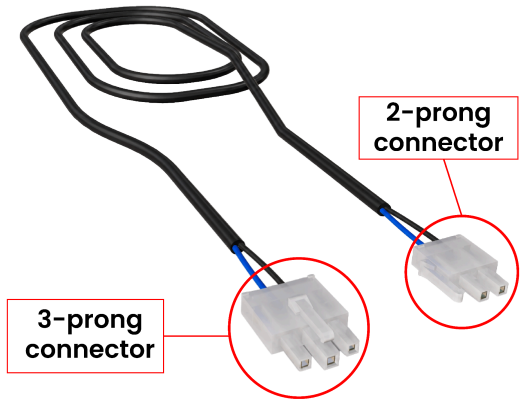
5. **Connect the power cable to the unit (if needed).**
   The black power cable may come pre-installed in the Ceiling Suspended (without ERV option) unit. In this case, the cable only needs to be connected to the gateway, as described in Step 6.

If the power cable is not pre-connected to the unit, the power cable that comes with the gateway must be hard-wired to the screw terminal block on the unit.

The gateway power cable contains two wires, one black and one blue.

At one end of the cable, the wires terminate in a three-prong connector, and at the other end, they terminate in a two-prong connector, as shown.

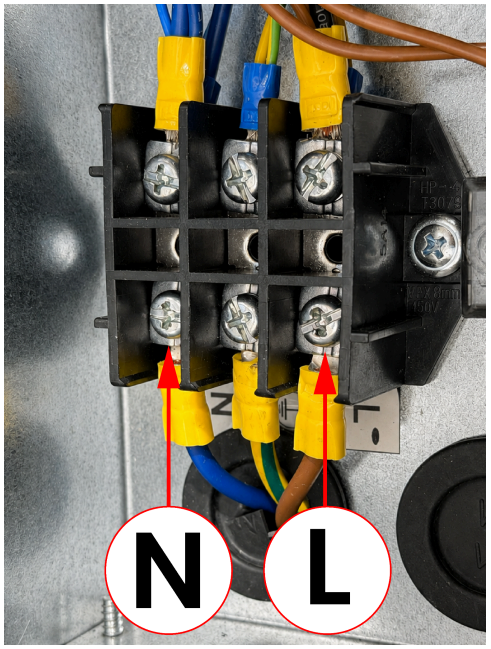
Figure 77. Gateway power cable



To hard-wire the power cable to the unit's screw terminal block:

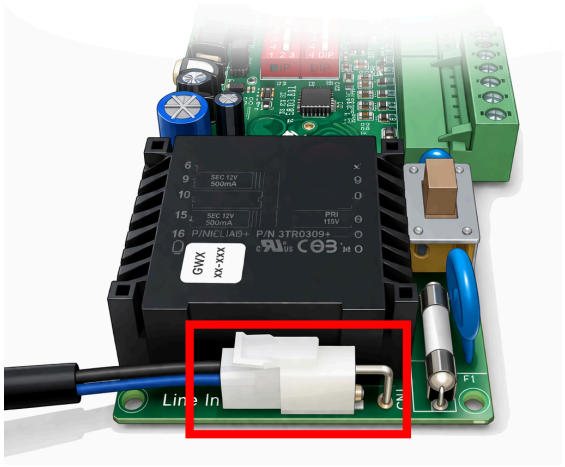
a. Cut off the **three-pronged** connector from the cable.
b. Strip enough insulation from the black and blue wires to enable connecting them to the terminals on the unit.
c. The black wire in this cable is Live (Hot). Connect this wire to the L or L1 terminal on the unit.
d. The blue wire in this cable is Neutral. Connect this wire to the N terminal on the unit.

Figure 78. L and N terminals on screw terminal block



6. **Connect the power cable to the gateway.**
   Insert the two-pronged end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 79. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

10.4 Closing the unit

To close the AIO® Ceiling Suspended (without ERV option) unit:

1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Ceiling Ducted User Guide for more information (since the Ceiling Suspended units use the same controller).
      - If the controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
      - If the test fails, repeat the applicable steps in Sections 10.1 through 10.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.
2. **Close the unit.**
   a. Replace the electrical panel cover using the four screws removed in Section 10.1, Step 3.
   b. Replace the right side panel using the three screws removed in Section 10.1, Step 2c.
   c. Reinstall the front panel using the three screws removed in Section 10.1, Step 2b.
   d. Replace the supply grille using the two screws removed in Section 10.1, Step 2a.
3. **Reconnect the power supply to the unit.**

11. INSTALLING THE GWX GATEWAY IN THE AIO® VERTICAL STACK UNIT

The GWX gateway can only be installed in a Vertical Stack unit if it is Gen 3 or later, since in Gen 1 and 2, the display is located near the top of the Vertical Stack unit and cannot be connected to a gateway.

To install the GWX gateway in an AIO® Vertical Stack (Gen 3) unit:

1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the GWX gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

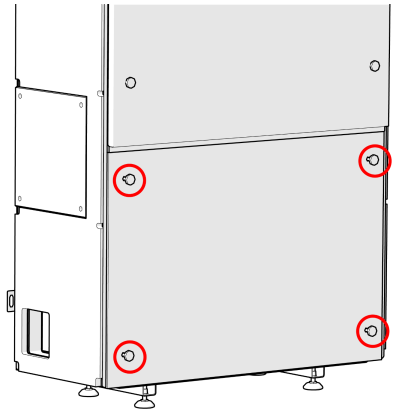
11.1 Opening the unit

To open the AIO® Vertical Stack unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **Open the electrical panel.**
   Open the electrical panel by removing the four knobs.

Keep the screws or knobs removed in each step separate.

Figure 80. Remove the knobs to open the electrical panel



11.2 Attaching the GWX gateway to the unit

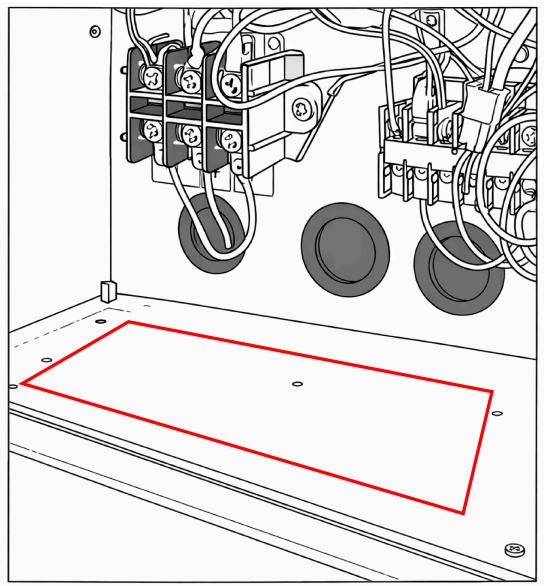
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

To attach the GWX gateway to the AIO® Vertical Stack unit:

1. **Mount the GWX gateway to the unit.**
   The electrical panel has a space at the bottom, near the terminal block, for mounting the gateway.

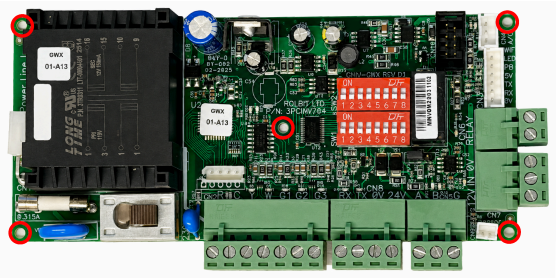
Figure 81. Gateway board mounting location



Mount the gateway board as follows:

- If there are five mounting holes on the electrical panel:
  a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
  b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 82. Holes for spacer clips

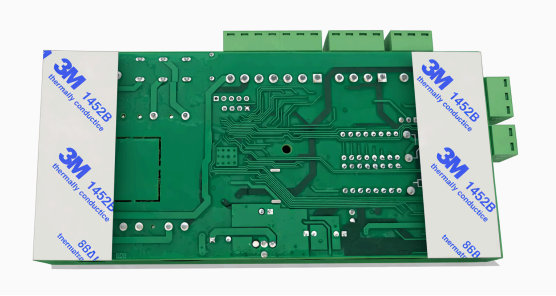


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

- If there are no mounting holes on the panel:
  a. Clean the mounting location on the electrical panel with an alcohol pad to ensure proper adhesion.
  b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 83. Adhesive strips on the gateway board

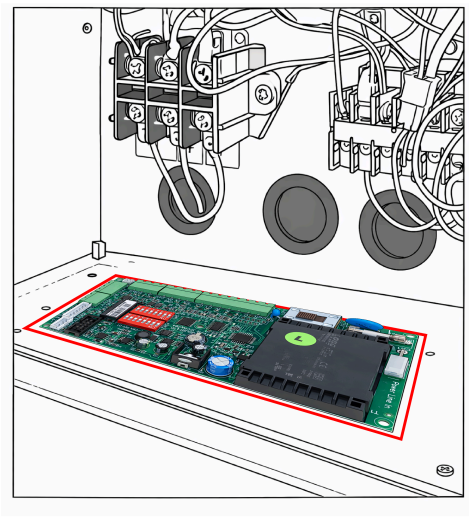


c. Remove the backing from the other side of the adhesive strips and mount the gateway board in the indicated location on the electrical panel. Press firmly to ensure it is securely attached.

⚠CAUTION

Make sure there is no direct contact between the gateway board and the metal panel.

Figure 84. Mount the gateway board

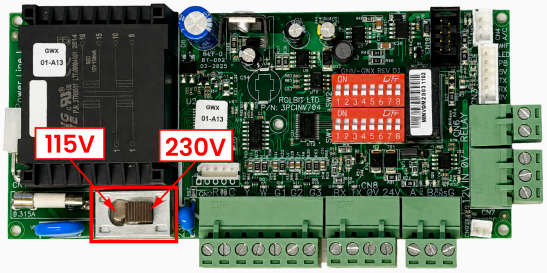


2. Set the correct voltage.

The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

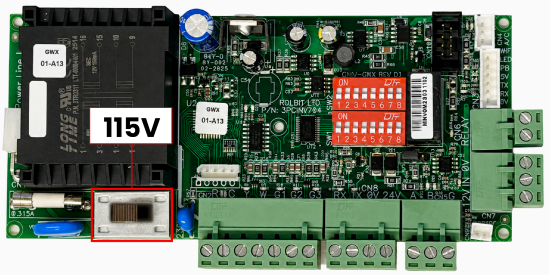
As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 85. GWX gateway board voltage switch



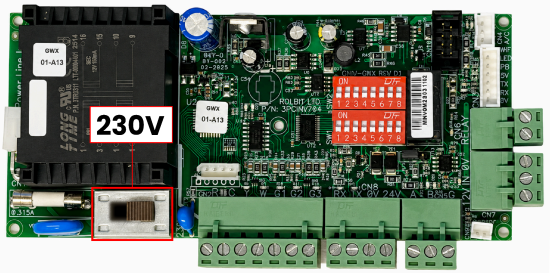
Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 86. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 87. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab

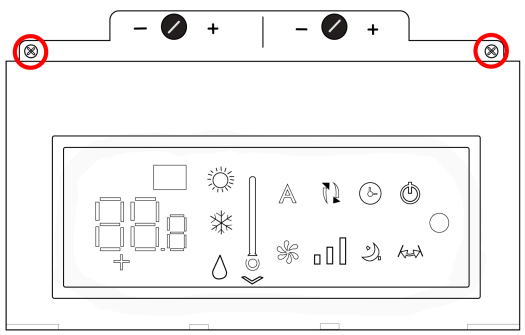
of hot glue to keep the switch in the new position.

11.3 Connecting the gateway cables

To connect the power and communication cables between the GWX gateway and the AIO® Vertical Stack unit:

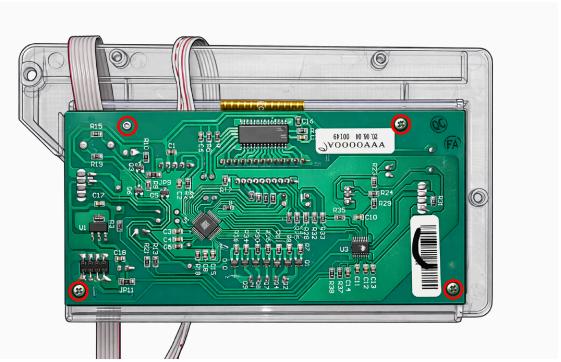
1. **Access the onboard touch controller.**
   a. Remove the two screws to detach the onboard touch controller housing from the unit.

Figure 88. Access the onboard touch controller



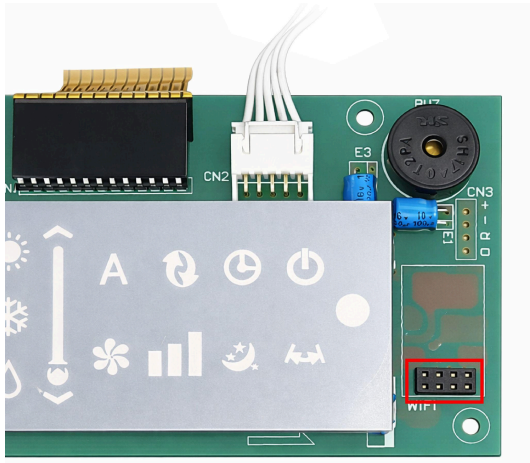
   b. Remove the four screws to remove the controller from the housing.

Figure 89. Open the controller housing



2. **Connect the communication cable to the unit.**
   a. Locate the black, eight-hole Wi-Fi socket on the right side of the onboard touch controller circuit board.

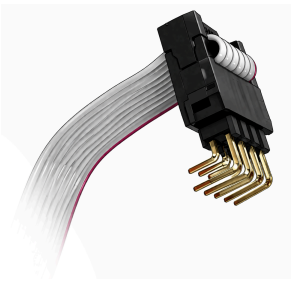
Figure 90. Wi-Fi socket on the controller board



If there is a Wi-Fi chip in the Wi-Fi socket, remove this chip to enable installing the communication cable. This Wi-Fi chip is not used with the GWX gateway. To enable Wi-Fi communication, see Section 6.2.

   b. On the gray flat ribbon communication cable, find the end with an eight-pin right-angle pin header in the black connector.

Figure 91. Communication cable connector with right-angle pin header

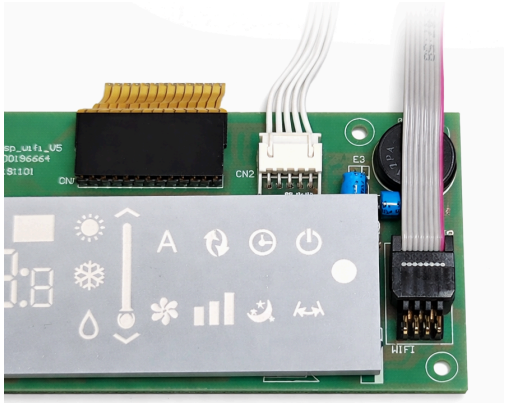


   c. Connect the cable to the Wi-Fi socket as follows:

Ensure that the communication cable is inserted with the red stripe on the cable facing away from the display.

- If the Wi-Fi socket is empty:
  Insert the eight pins on the cable connector securely into the Wi-Fi socket as shown.

Figure 92. Connect the communication cable to the unit



- If there is already a right-angle pin header in the Wi-Fi socket:
  Remove the right-angle pin header from the cable connector, and push the cable connector securely onto the pins in the Wi-Fi socket.

Figure 93. Remove the pin header from the connector

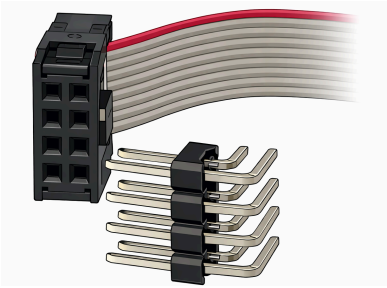
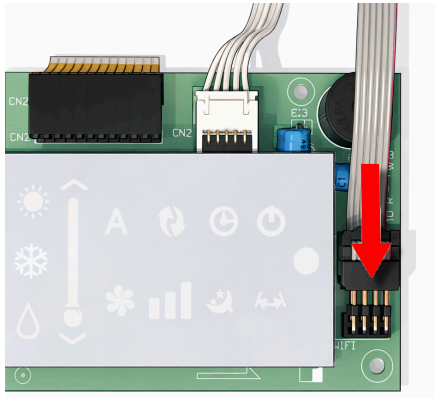


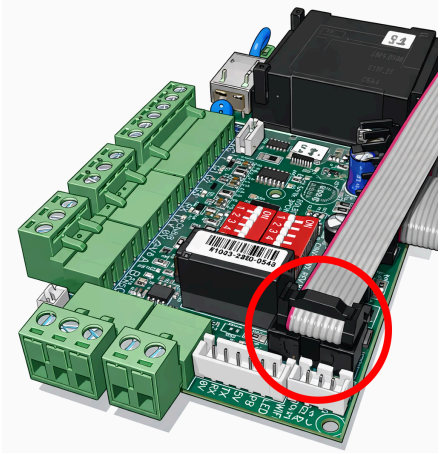
Figure 94. Connect the cable to the pin header in the Wi-Fi socket



3. **Reattach the onboard touch controller.**
   a. Replace the controller in its housing and secure it using the four screws removed in Step 1b above.
   b. Reattach the controller housing to the unit using the two screws removed in Step 1a above.

4. **Connect the communication cable to the gateway.**
   Connect the end of the gray flat ribbon communication cable (with the 8-hole connector) to the GWX gateway via the black 8-pin communication port (CN10).

Figure 95. Connect the communication cable to the gateway



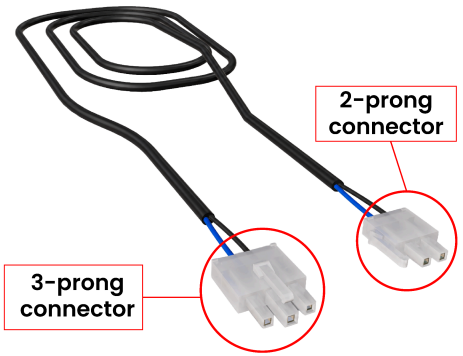
5. **Connect the power cable to the unit (if needed).**
   The black power cable may come pre-installed in the Vertical Stack unit. In this case, the cable only needs to be connected to the gateway, as described in Step 6.

   If the power cable is not pre-connected to the unit, the power cable that comes with the gateway must be hard-wired to the screw terminal block on the unit.

The gateway power cable contains two wires, one black and one blue.

At one end of the cable, the wires terminate in a three-prong connector, and at the other end, they terminate in a two-prong connector, as shown.

Figure 96. Gateway power cable



To hard-wire the power cable to the unit's screw terminal block:

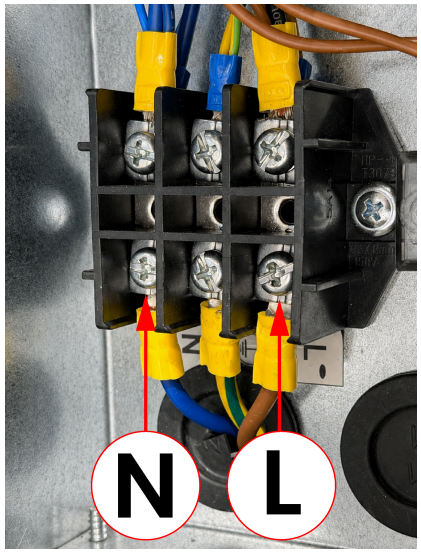
a. Cut off the **three-pronged** connector from the cable.

b. Strip enough insulation from the black and blue wires to enable connecting them to the terminals on the unit.

c. The black wire in this cable is Live (Hot). Connect this wire to the L or L1 terminal on the unit.

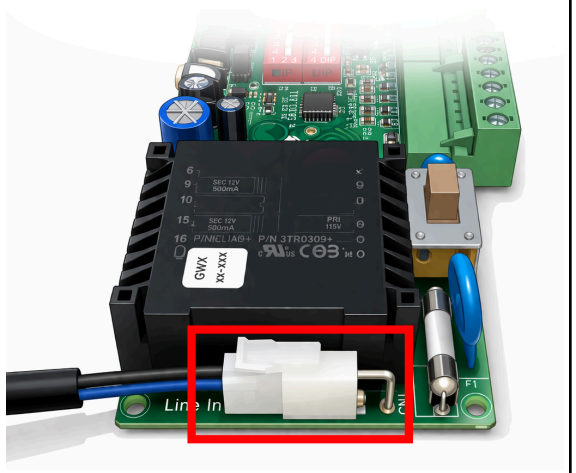
d. The blue wire in this cable is Neutral. Connect this wire to the N terminal on the unit.

Figure 97. L and N terminals on screw terminal block



6. **Connect the power cable to the gateway.**
   Insert the two-pronged end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 98. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

11.4 Closing the unit

To close the AIO® Vertical Stack unit:

1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Ceiling Ducted User Guide for more information (since the Vertical Stack units use the same controller).
      - If the controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
      - If the test fails, repeat the applicable steps in Sections 11.1 through 11.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.
2. **Close the unit.**
   Close the electrical panel by replacing and tightening the four knobs removed in Section 11.1, Step 2.
3. **Reconnect the power supply to the unit.**

12. INSTALLING THE GWX GATEWAY IN THE AIO® VERTICAL STACK XL UNIT

To install the GWX gateway in an AIO® Vertical Stack XL unit:

1. Configure the GWX gateway (*).
2. Open the unit.
3. Attach the gateway to the unit.
4. Connect the power and communication cables between the gateway and the unit.
5. Close the unit.

*** Gateway configuration:**

Before operating the unit, the GWX gateway must be configured. To simplify the installation process, we recommend configuring the GWX gateway before installing it in the unit. However, configuration can also be performed after installation if needed. For detailed configuration instructions, refer to Section 13.

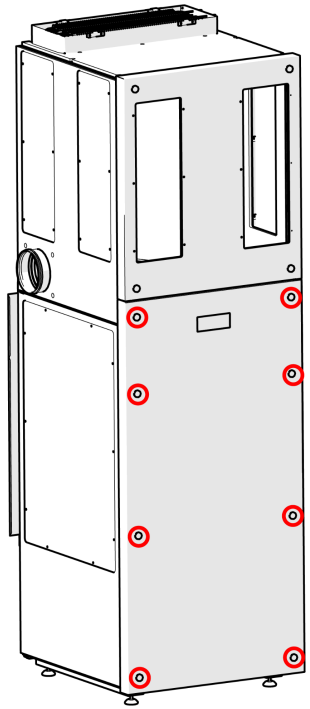
12.1 Opening the unit

To open the AIO® Vertical Stack XL unit:

1. **Disconnect the power supply.**
   Disconnect the unit from the power supply and wait at least five minutes after it was last operated.
2. **Remove the decorative panel.**
   Remove the eight knobs from the decorative panel. Then remove the decorative panel.

Keep the screws or knobs removed in each step separate.

Figure 99. Remove the knobs from the decorative panel



3. **Open the electrical panel.**
   Remove the four screws and the two metal panels to access the electrical panel.

Figure 100. Remove the metal panels

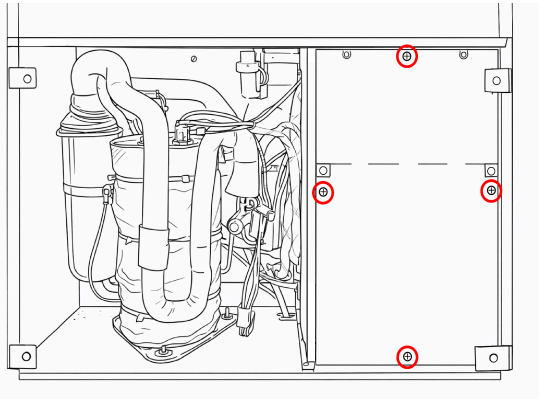
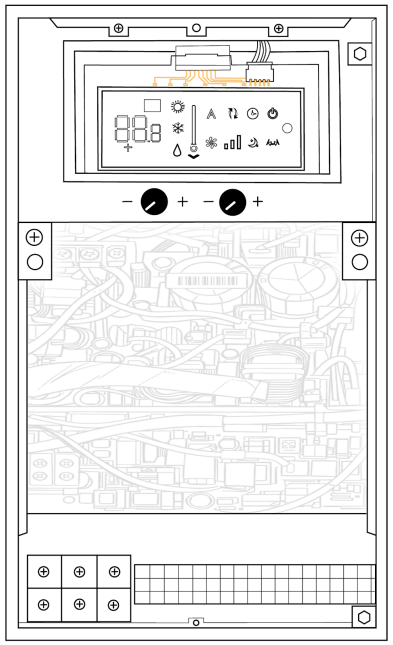


Figure 101. Open the electrical panel



12.2 Attaching the GWX gateway to the unit

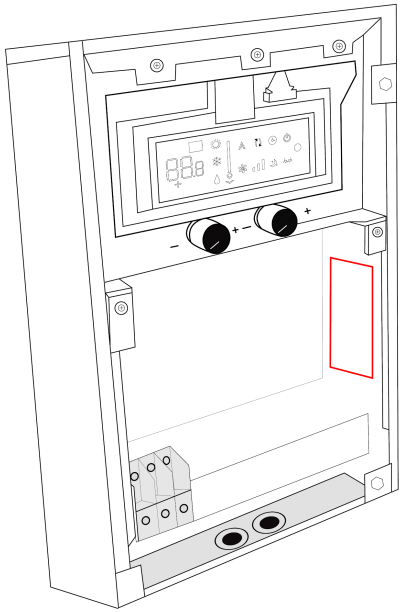
⚠CAUTION

Handle the control board and all electronic components with care to avoid damage.

To attach the GWX gateway to the AIO® Vertical Stack XL unit:

1. **Mount the GWX gateway to the unit.**
   The electrical panel has a space on the side wall for mounting the gateway.

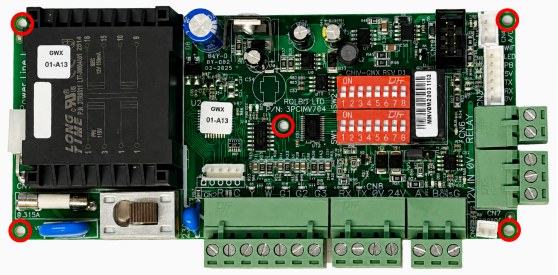
Figure 102. Gateway board mounting location



Mount the gateway board as follows:

- If there are five mounting holes on the electrical panel:
  a. Insert the five plastic spacer (stand-up) clips (provided with the gateway) into the holes.
  b. Mount the GWX gateway board onto the clips, using the holes in the gateway.

Figure 103. Holes for spacer clips

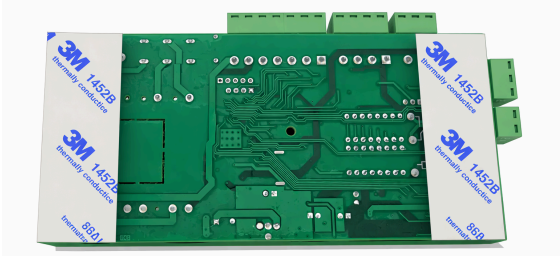


It is recommended to use spacer clips if there are holes, since the spacers raise the gateway board ¼" (6.4 mm) above the metal chassis, preventing contact and ensuring safe clearance.

- If there are no mounting holes on the panel:
  a. Clean the mounting location on the electrical panel with an alcohol pad to ensure proper adhesion.
  b. Remove the backing from one side of the two double-sided adhesive foam strips and attach the strips to the back of the GWX gateway board.

The foam in the adhesive strips provides insulation to prevent short circuits.

Figure 104. Adhesive strips on the gateway board

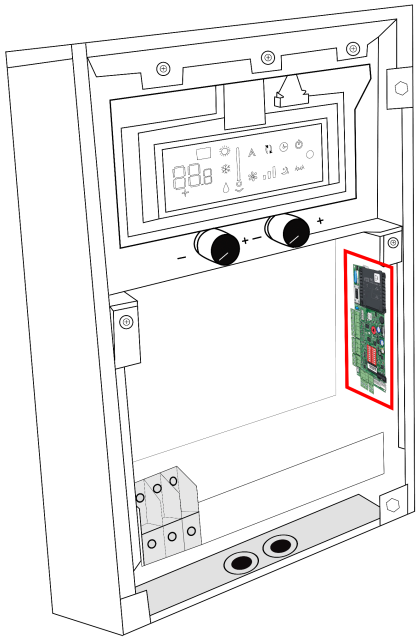


c. Remove the backing from the other side of the adhesive strips and mount the gateway board in the indicated location on the electrical panel. Press firmly to ensure it is securely attached.

⚠CAUTION

Make sure there is no direct contact between the gateway board and the metal panel.

Figure 105. Mount the gateway board

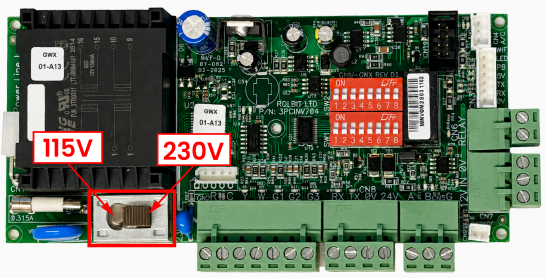


2. Set the correct voltage.

The GWX gateway board includes a switch for 115 V or 230 V, so it can work with both configurations of the AIO® unit.

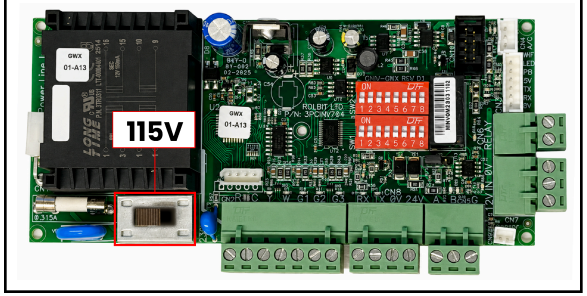
As you hold the gateway board so the text on the board is right-side up, moving the switch to the left sets the gateway for 115 V, and moving the switch to the right sets the gateway for 230 V.

Figure 106. GWX gateway board voltage switch



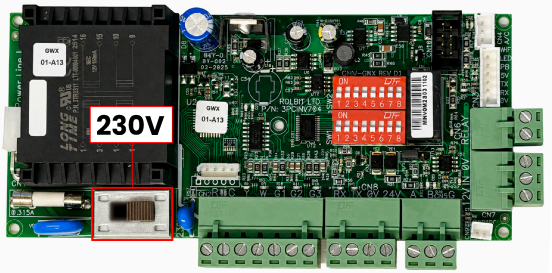
Thus, if the unit is configured for 115 V, set the switch as shown:

Figure 107. GWX gateway voltage set for 115



If the unit is configured for 230 V, set the switch as shown:

Figure 108. GWX gateway board voltage switch



⚠CAUTION

Make sure the GWX gateway is set to the same voltage as the AIO unit. Connecting a 115 V gateway to a 230 V unit will destroy the gateway.

The GWX gateway is preset to 230 V, and the switch is fixed in place with a dab of hot glue to avoid accidental damage to the gateway. If you need to move it, use a screwdriver to carefully remove the hot glue. It is recommended to reapply a dab

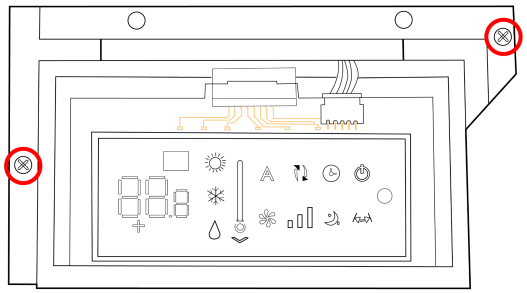
of hot glue to keep the switch in the new position.

12.3 Connecting the gateway cables

To connect the power and communication cables between the GWX gateway and the AIO® Vertical Stack XL unit:

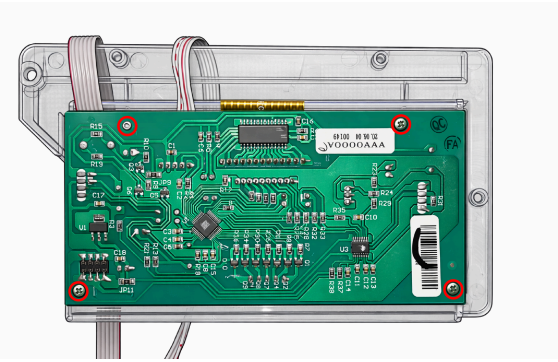
1. **Access the onboard touch controller.**
   a. Remove the two screws to detach the onboard touch controller housing from the unit.

Figure 109. Access the onboard touch controller



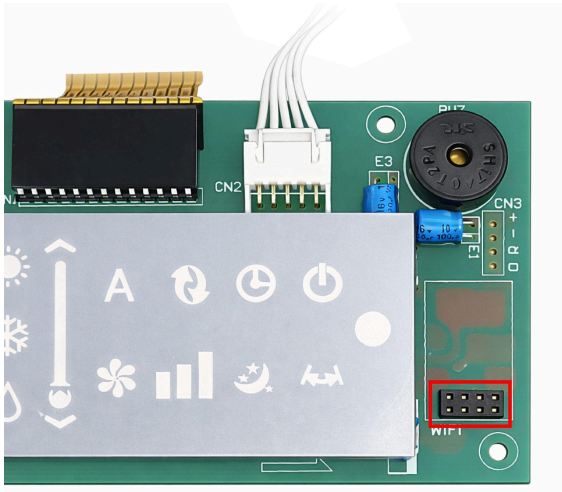
   b. Remove the four screws to remove the controller from the housing.

Figure 110. Open the controller housing



2. **Connect the communication cable to the unit.**
   a. Locate the black, eight-hole Wi-Fi socket on the right side of the onboard touch controller circuit board.

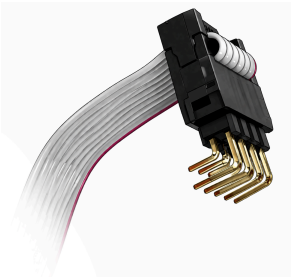
Figure 111. Wi-Fi socket on the controller board



If there is a Wi-Fi chip in the Wi-Fi socket, remove this chip to enable installing the communication cable. This Wi-Fi chip is not used with the GWX gateway. To enable Wi-Fi communication, see Section 6.2.

   b. On the gray flat ribbon communication cable, find the end with an eight-pin right-angle pin header in the black connector.

Figure 112. Communication cable connector with right-angle pin header

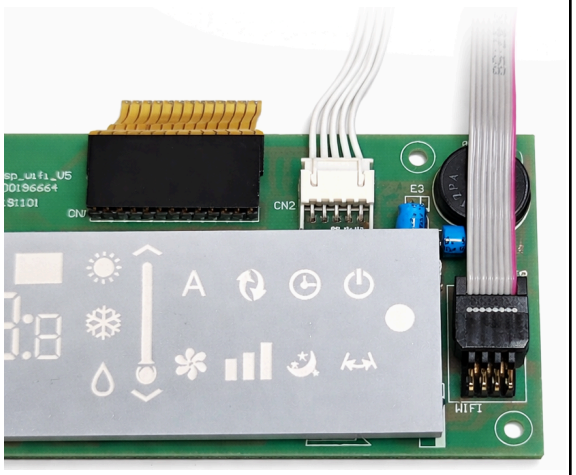


   c. Connect the cable to the Wi-Fi socket as follows:

Ensure that the communication cable is inserted with the red stripe on the cable facing away from the display.

- If the Wi-Fi socket is empty:
  Insert the eight pins on the cable connector securely into the Wi-Fi socket as shown.

Figure 113. Connect the communication cable to the unit



- If there is already a right-angle pin header in the Wi-Fi socket:
  Remove the right-angle pin header from the cable connector, and push the cable connector securely onto the pins in the Wi-Fi socket.

Figure 114. Remove the pin header from the connector

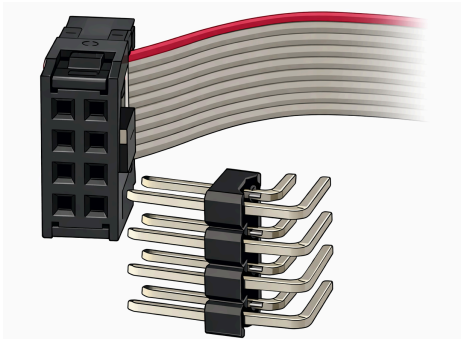
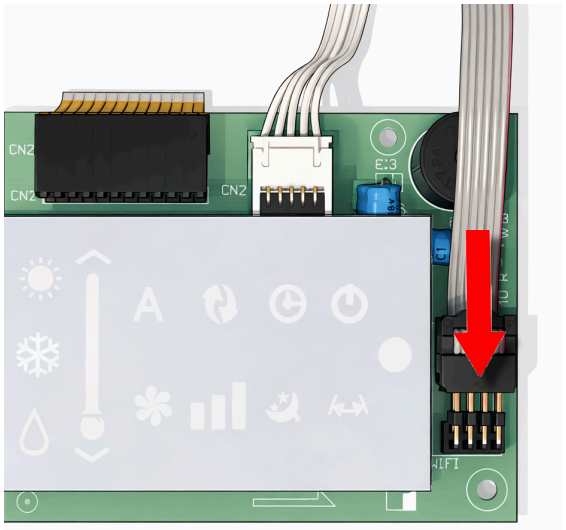
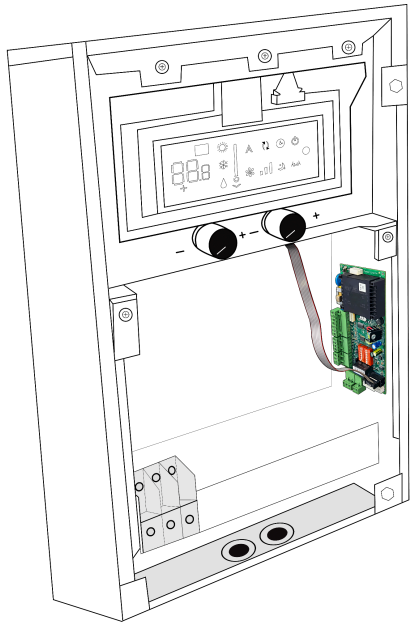


Figure 115. Connect the cable to the pin header in the Wi-Fi socket



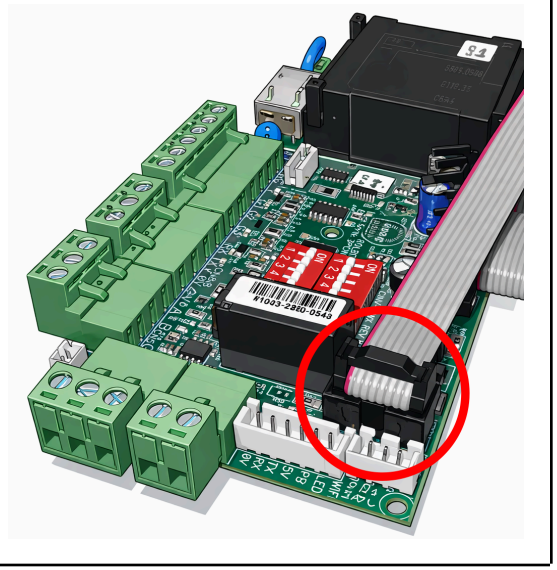
3. **Reattach the onboard touch controller.**
   a. Replace the controller in its housing and secure it using the four screws removed in Step 1b above.
   b. Reattach the controller housing to the unit using the two screws removed in Step 1a above.
4. **Connect the communication cable to the gateway.**
   a. Route the free end (with the 8-hole connector) of the gray flat ribbon communication cable from behind the controller to enable connecting it to the gateway.

Figure 116. Route the communication cable from the controller



b. Connect the end of the gray flat ribbon communication cable (with the 8-hole connector) to the GWX gateway via the black 8-pin communication port (CN10).

Figure 117. Connect the communication cable to the gateway



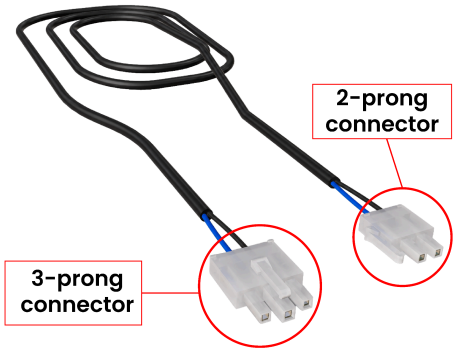
5. **Connect the power cable to the unit (if needed).**
   The black power cable may come pre-installed in the Vertical Stack XL unit. In this case, the cable only needs to be connected to the gateway, as described in Step 6.

   If the power cable is not pre-connected to the unit, the power cable that comes with the gateway must be hard-wired to the screw terminal block on the unit.

The gateway power cable contains two wires, one black and one blue.

At one end of the cable, the wires terminate in a three-prong connector, and at the other end, they terminate in a two-prong connector, as shown.

Figure 118. Gateway power cable



To hard-wire the power cable to the unit's screw terminal block:

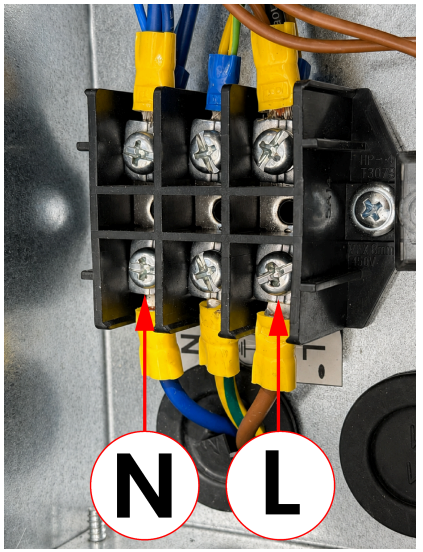
a. Cut off the **three-pronged** connector from the cable.

b. Strip enough insulation from the black and blue wires to enable connecting them to the terminals on the unit.

c. The black wire in this cable is Live (Hot). Connect this wire to the L or L1 terminal on the unit.

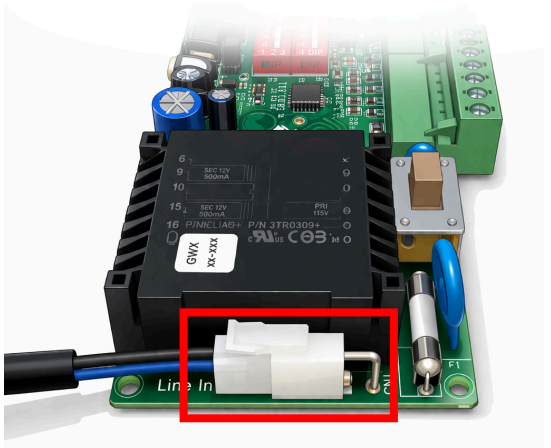
d. The blue wire in this cable is Neutral. Connect this wire to the N terminal on the unit.

Figure 119. L and N terminals on screw terminal block



6. **Connect the power cable to the gateway.**
   Insert the two-pronged end of the black power cable into the "Power Line In" port (CN1) on the GWX gateway board.

Figure 120. Connect the power cable to the gateway



⚠CAUTION

Ensure that all wire insulation is intact and that there are no exposed conductive parts that could cause short circuits or other electrical issues.

12.4 Closing the unit

To close the AIO® Vertical Stack XL unit:

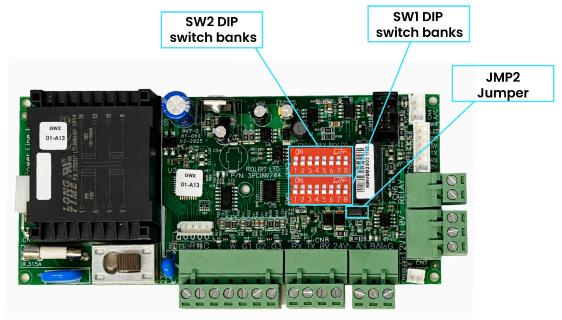
1. **Test the onboard touch controller.**
   a. Reconnect the power supply to the unit and power it on.
   b. Test the onboard touch controller to verify that it changes the temperature setting and operating modes as selected. Refer to the AIO® Ceiling Ducted User Guide for more information (since the Vertical Stack XL units use the same controller).
      - If the controller works as expected, power off the unit and wait at least five minutes for the capacitors inside the unit to discharge.
      - If the test fails, repeat the applicable steps in Sections 12.1 through 12.3 to verify that all connections are secure, and then repeat the test. If the test still fails, contact an INNOVA-trained service technician.
2. **Close the unit.**
   a. Replace the two metal panels and secure them with the four screws removed in Section 12.1, Step 3.
   b. Replace the decorative panel and secure it by replacing and tightening the eight knobs removed in Section 12.1, Step 2.
3. **Reconnect the power supply to the unit.**

13. CONFIGURING THE GWX GATEWAY

We recommend configuring the GWX gateway before installing it in an AIO® unit. However, it can also be configured after installation.

The GWX gateway board includes two rows of DIP switches (SW1 and SW2) and a jumper (JMP2) for activating the termination resistor in the chain.

Figure 121. DIP switches and jumper



SW1 switches are used to set the gateway's network address. SW2 switches are used to configure the gateway's modes and settings.

To configure the AIO® GWX gateway, set the SW1 and SW2 DIP switches to the desired configuration as detailed in the sections below.

The GWX gateway is shipped with all the DIP switches set to OFF. This does not represent a valid configuration. When installing the gateway into an AIO unit, the DIP switches must be configured as required before operating the unit.

13.1 Configuring SW1 DIP switches

The SW1 DIP switches on the GWX gateway are used to configure the gateway's network address when connecting the AIO unit to a building management system (BMS).

DIP switches 1-8 are used to configure the address. The configuration is different when using the BACnet protocol or the Modbus protocol.

The BACnet DIP switch settings and the Modbus DIP switch settings are provided in Section 13.1.1 and Section 13.1.2, respectively.

13.1.1 SW1 BACnet DIP switch settings

When using the BACnet protocol to communicate with the BMS, the BACnet protocol requires each device on the network to have a globally unique ID, called the "Device Object Instance Number". This ID is created by adding the MAC address of the device to a unique base number, as follows:

1. **Set the MAC address (0-127).**
   This is the local network identifier, which is set using DIP switches #1 through #7 on SW1. These switches are added to represent a binary address between 000 and 127. The default address is 000.
2. **Create the Device Instance:** This is the global BACnet identifier, which is set to the base number plus the MAC address. For AIO® units, the base number 369,000 is used. For example, if the MAC address of the device on the local network is 002, the Device Object Instance Number is 369,002.

When using the BACnet protocol, SW2 DIP switch #3 must be ON for SW1 to function.

Table 1 shows the DIP switch settings for each address:

SW1 DIP switch #8 must always be OFF for BACnet protocol addresses.

Table 1. SW1 BACnet DIP Switch Settings

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF
39	ON	ON	ON	OFF	OFF	ON	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF
41	ON	OFF	OFF	ON	OFF	ON	OFF
42	OFF	ON	OFF	ON	OFF	ON	OFF
43	ON	ON	OFF	ON	OFF	ON	OFF
44	OFF	OFF	ON	ON	OFF	ON	OFF
45	ON	OFF	ON	ON	OFF	ON	OFF
46	OFF	ON	ON	ON	OFF	ON	OFF
47	ON	ON	ON	ON	OFF	ON	OFF
48	OFF	OFF	OFF	OFF	ON	ON	OFF
49	ON	OFF	OFF	OFF	ON	ON	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF
51	ON	ON	OFF	OFF	ON	ON	OFF
52	OFF	OFF	ON	OFF	ON	ON	OFF
53	ON	OFF	ON	OFF	ON	ON	OFF
54	OFF	ON	ON	OFF	ON	ON	OFF
55	ON	ON	ON	OFF	ON	ON	OFF
56	OFF	OFF	OFF	ON	ON	ON	OFF
57	ON	OFF	OFF	ON	ON	ON	OFF
58	OFF	ON	OFF	ON	ON	ON	OFF
59	ON	ON	OFF	ON	ON	ON	OFF
60	OFF	OFF	ON	ON	ON	ON	OFF
61	ON	OFF	ON	ON	ON	ON	OFF
62	OFF	ON	ON	ON	ON	ON	OFF
63	ON	ON	ON	ON	ON	ON	OFF
64	OFF	OFF	OFF	OFF	OFF	OFF	ON
65	ON	OFF	OFF	OFF	OFF	OFF	ON
66	OFF	ON	OFF	OFF	OFF	OFF	ON
67	ON	ON	OFF	OFF	OFF	OFF	ON
68	OFF	OFF	ON	OFF	OFF	OFF	ON
69	ON	OFF	ON	OFF	OFF	OFF	ON
70	OFF	ON	ON	OFF	OFF	OFF	ON
71	ON	ON	ON	OFF	OFF	OFF	ON
72	OFF	OFF	OFF	ON	OFF	OFF	ON
73	ON	OFF	OFF	ON	OFF	OFF	ON
74	OFF	ON	OFF	ON	OFF	OFF	ON
75	ON	ON	OFF	ON	OFF	OFF	ON
76	OFF	OFF	ON	ON	OFF	OFF	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7
77	ON	OFF	ON	ON	OFF	OFF	ON
78	OFF	ON	ON	ON	OFF	OFF	ON
79	ON	ON	ON	ON	OFF	OFF	ON
80	OFF	OFF	OFF	OFF	ON	OFF	ON
81	ON	OFF	OFF	OFF	ON	OFF	ON
82	OFF	ON	OFF	OFF	ON	OFF	ON
83	ON	ON	OFF	OFF	ON	OFF	ON
84	OFF	OFF	ON	OFF	ON	OFF	ON
85	ON	OFF	ON	OFF	ON	OFF	ON
86	OFF	ON	ON	OFF	ON	OFF	ON
87	ON	ON	ON	OFF	ON	OFF	ON
88	OFF	OFF	OFF	ON	ON	OFF	ON
89	ON	OFF	OFF	ON	ON	OFF	ON
90	OFF	ON	OFF	ON	ON	OFF	ON
91	ON	ON	OFF	ON	ON	OFF	ON
92	OFF	OFF	ON	ON	ON	OFF	ON
93	ON	OFF	ON	ON	ON	OFF	ON
94	OFF	ON	ON	ON	ON	OFF	ON
95	ON	ON	ON	ON	ON	OFF	ON
96	OFF	OFF	OFF	OFF	OFF	ON	ON
97	ON	OFF	OFF	OFF	OFF	ON	ON
98	OFF	ON	OFF	OFF	OFF	ON	ON
99	ON	ON	OFF	OFF	OFF	ON	ON
100	OFF	OFF	ON	OFF	OFF	ON	ON
101	ON	OFF	ON	OFF	OFF	ON	ON
102	OFF	ON	ON	OFF	OFF	ON	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7
103	ON	ON	ON	OFF	OFF	ON	ON
104	OFF	OFF	OFF	ON	OFF	ON	ON
105	ON	OFF	OFF	ON	OFF	ON	ON
106	OFF	ON	OFF	ON	OFF	ON	ON
107	ON	ON	OFF	ON	OFF	ON	ON
108	OFF	OFF	ON	ON	OFF	ON	ON
109	ON	OFF	ON	ON	OFF	ON	ON
110	OFF	ON	ON	ON	OFF	ON	ON
111	ON	ON	ON	ON	OFF	ON	ON
112	OFF	OFF	OFF	OFF	ON	ON	ON
113	ON	OFF	OFF	OFF	ON	ON	ON
114	OFF	ON	OFF	OFF	ON	ON	ON
115	ON	ON	OFF	OFF	ON	ON	ON
116	OFF	OFF	ON	OFF	ON	ON	ON
117	ON	OFF	ON	OFF	ON	ON	ON
118	OFF	ON	ON	OFF	ON	ON	ON
119	ON	ON	ON	OFF	ON	ON	ON
120	OFF	OFF	OFF	ON	ON	ON	ON
121	ON	OFF	OFF	ON	ON	ON	ON
122	OFF	ON	OFF	ON	ON	ON	ON
123	ON	ON	OFF	ON	ON	ON	ON
124	OFF	OFF	ON	ON	ON	ON	ON
125	ON	OFF	ON	ON	ON	ON	ON
126	OFF	ON	ON	ON	ON	ON	ON
127	ON	ON	ON	ON	ON	ON	ON

13.1.2 SW1 Modbus DIP switch settings

When using the Modbus protocol to communicate with the BMS, DIP switches 1-8 are used to set the device's address. These switches are added to represent a binary address between 002 and 255.

When the Modbus protocol is in use, SW2 DIP switch #3 must be OFF for SW1 to function.

Table 2 shows the DIP switch settings for each address:

Addresses 0 and 1 cannot be used in Modbus communication with the BMS, since they are reserved for separate Modbus communication between the gateway and the unit. When configuring the Modbus protocol, always start at address 2.

Table 2. SW1 Modbus DIP Switch Settings

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
0	N/A							
1	N/A							
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
39	ON	ON	ON	OFF	OFF	ON	OFF	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
41	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
42	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
43	ON	ON	OFF	ON	OFF	ON	OFF	OFF
44	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
45	ON	OFF	ON	ON	OFF	ON	OFF	OFF
46	OFF	ON	ON	ON	OFF	ON	OFF	OFF
47	ON	ON	ON	ON	OFF	ON	OFF	OFF
48	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
49	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
51	ON	ON	OFF	OFF	ON	ON	OFF	OFF
52	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
53	ON	OFF	ON	OFF	ON	ON	OFF	OFF
54	OFF	ON	ON	OFF	ON	ON	OFF	OFF
55	ON	ON	ON	OFF	ON	ON	OFF	OFF
56	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
57	ON	OFF	OFF	ON	ON	ON	OFF	OFF
58	OFF	ON	OFF	ON	ON	ON	OFF	OFF
59	ON	ON	OFF	ON	ON	ON	OFF	OFF
60	OFF	OFF	ON	ON	ON	ON	OFF	OFF
61	ON	OFF	ON	ON	ON	ON	OFF	OFF
62	OFF	ON	ON	ON	ON	ON	OFF	OFF
63	ON	ON	ON	ON	ON	ON	OFF	OFF
64	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
66	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
67	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
68	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
69	ON	OFF	ON	OFF	OFF	OFF	ON	OFF
70	OFF	ON	ON	OFF	OFF	OFF	ON	OFF
71	ON	ON	ON	OFF	OFF	OFF	ON	OFF
72	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
74	OFF	ON	OFF	ON	OFF	OFF	ON	OFF
75	ON	ON	OFF	ON	OFF	OFF	ON	OFF
76	OFF	OFF	ON	ON	OFF	OFF	ON	OFF
77	ON	OFF	ON	ON	OFF	OFF	ON	OFF
78	OFF	ON	ON	ON	OFF	OFF	ON	OFF
79	ON	ON	ON	ON	OFF	OFF	ON	OFF
80	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
81	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
82	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
83	ON	ON	OFF	OFF	ON	OFF	ON	OFF
84	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON	OFF
86	OFF	ON	ON	OFF	ON	OFF	ON	OFF
87	ON	ON	ON	OFF	ON	OFF	ON	OFF

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
88	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
89	ON	OFF	OFF	ON	ON	OFF	ON	OFF
90	OFF	ON	OFF	ON	ON	OFF	ON	OFF
91	ON	ON	OFF	ON	ON	OFF	ON	OFF
92	OFF	OFF	ON	ON	ON	OFF	ON	OFF
93	ON	OFF	ON	ON	ON	OFF	ON	OFF
94	OFF	ON	ON	ON	ON	OFF	ON	OFF
95	ON	ON	ON	ON	ON	OFF	ON	OFF
96	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
97	ON	OFF	OFF	OFF	OFF	ON	ON	OFF
98	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON	OFF
100	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
101	ON	OFF	ON	OFF	OFF	ON	ON	OFF
102	OFF	ON	ON	OFF	OFF	ON	ON	OFF
103	ON	ON	ON	OFF	OFF	ON	ON	OFF
104	OFF	OFF	OFF	ON	OFF	ON	ON	OFF
105	ON	OFF	OFF	ON	OFF	ON	ON	OFF
106	OFF	ON	OFF	ON	OFF	ON	ON	OFF
107	ON	ON	OFF	ON	OFF	ON	ON	OFF
108	OFF	OFF	ON	ON	OFF	ON	ON	OFF
109	ON	OFF	ON	ON	OFF	ON	ON	OFF
110	OFF	ON	ON	ON	OFF	ON	ON	OFF
111	ON	ON	ON	ON	OFF	ON	ON	OFF
112	OFF	OFF	OFF	OFF	ON	ON	ON	OFF
113	ON	OFF	OFF	OFF	ON	ON	ON	OFF

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
114	OFF	ON	OFF	OFF	ON	ON	ON	OFF
115	ON	ON	OFF	OFF	ON	ON	ON	OFF
116	OFF	OFF	ON	OFF	ON	ON	ON	OFF
117	ON	OFF	ON	OFF	ON	ON	ON	OFF
118	OFF	ON	ON	OFF	ON	ON	ON	OFF
119	ON	ON	ON	OFF	ON	ON	ON	OFF
120	OFF	OFF	OFF	ON	ON	ON	ON	OFF
121	ON	OFF	OFF	ON	ON	ON	ON	OFF
122	OFF	ON	OFF	ON	ON	ON	ON	OFF
123	ON	ON	OFF	ON	ON	ON	ON	OFF
124	OFF	OFF	ON	ON	ON	ON	ON	OFF
125	ON	OFF	ON	ON	ON	ON	ON	OFF
126	OFF	ON	ON	ON	ON	ON	ON	OFF
127	ON	ON	ON	ON	ON	ON	ON	OFF
128	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
129	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
130	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
131	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
132	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
133	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
134	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
135	ON	ON	ON	OFF	OFF	OFF	OFF	ON
136	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
137	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
138	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
139	ON	ON	OFF	ON	OFF	OFF	OFF	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
140	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
141	ON	OFF	ON	ON	OFF	OFF	OFF	ON
142	OFF	ON	ON	ON	OFF	OFF	OFF	ON
143	ON	ON	ON	ON	OFF	OFF	OFF	ON
144	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
145	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
146	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
147	ON	ON	OFF	OFF	ON	OFF	OFF	ON
148	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
149	ON	OFF	ON	OFF	ON	OFF	OFF	ON
150	OFF	ON	ON	OFF	ON	OFF	OFF	ON
151	ON	ON	ON	OFF	ON	OFF	OFF	ON
152	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
153	ON	OFF	OFF	ON	ON	OFF	OFF	ON
154	OFF	ON	OFF	ON	ON	OFF	OFF	ON
155	ON	ON	OFF	ON	ON	OFF	OFF	ON
156	OFF	OFF	ON	ON	ON	OFF	OFF	ON
157	ON	OFF	ON	ON	ON	OFF	OFF	ON
158	OFF	ON	ON	ON	ON	OFF	OFF	ON
159	ON	ON	ON	ON	ON	OFF	OFF	ON
160	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON
161	ON	OFF	OFF	OFF	OFF	ON	OFF	ON
162	OFF	ON	OFF	OFF	OFF	ON	OFF	ON
163	ON	ON	OFF	OFF	OFF	ON	OFF	ON
164	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
165	ON	OFF	ON	OFF	OFF	ON	OFF	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
166	OFF	ON	ON	OFF	OFF	ON	OFF	ON
167	ON	ON	ON	OFF	OFF	ON	OFF	ON
168	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
169	ON	OFF	OFF	ON	OFF	ON	OFF	ON
170	OFF	ON	OFF	ON	OFF	ON	OFF	ON
171	ON	ON	OFF	ON	OFF	ON	OFF	ON
172	OFF	OFF	ON	ON	OFF	ON	OFF	ON
173	ON	OFF	ON	ON	OFF	ON	OFF	ON
174	OFF	ON	ON	ON	OFF	ON	OFF	ON
175	ON	ON	ON	ON	OFF	ON	OFF	ON
176	OFF	OFF	OFF	OFF	ON	ON	OFF	ON
177	ON	OFF	OFF	OFF	ON	ON	OFF	ON
178	OFF	ON	OFF	OFF	ON	ON	OFF	ON
179	ON	ON	OFF	OFF	ON	ON	OFF	ON
180	OFF	OFF	ON	OFF	ON	ON	OFF	ON
181	ON	OFF	ON	OFF	ON	ON	OFF	ON
182	OFF	ON	ON	OFF	ON	ON	OFF	ON
183	ON	ON	ON	OFF	ON	ON	OFF	ON
184	OFF	OFF	OFF	ON	ON	ON	OFF	ON
185	ON	OFF	OFF	ON	ON	ON	OFF	ON
186	OFF	ON	OFF	ON	ON	ON	OFF	ON
187	ON	ON	OFF	ON	ON	ON	OFF	ON
188	OFF	OFF	ON	ON	ON	ON	OFF	ON
189	ON	OFF	ON	ON	ON	ON	OFF	ON
190	OFF	ON	ON	ON	ON	ON	OFF	ON
191	ON	ON	ON	ON	ON	ON	OFF	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
192	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
193	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
194	OFF	ON	OFF	OFF	OFF	OFF	ON	ON
195	ON	ON	OFF	OFF	OFF	OFF	ON	ON
196	OFF	OFF	ON	OFF	OFF	OFF	ON	ON
197	ON	OFF	ON	OFF	OFF	OFF	ON	ON
198	OFF	ON	ON	OFF	OFF	OFF	ON	ON
199	ON	ON	ON	OFF	OFF	OFF	ON	ON
200	OFF	OFF	OFF	ON	OFF	OFF	ON	ON
201	ON	OFF	OFF	ON	OFF	OFF	ON	ON
202	OFF	ON	OFF	ON	OFF	OFF	ON	ON
203	ON	ON	OFF	ON	OFF	OFF	ON	ON
204	OFF	OFF	ON	ON	OFF	OFF	ON	ON
205	ON	OFF	ON	ON	OFF	OFF	ON	ON
206	OFF	ON	ON	ON	OFF	OFF	ON	ON
207	ON	ON	ON	ON	OFF	OFF	ON	ON
208	OFF	OFF	OFF	OFF	ON	OFF	ON	ON
209	ON	OFF	OFF	OFF	ON	OFF	ON	ON
210	OFF	ON	OFF	OFF	ON	OFF	ON	ON
211	ON	ON	OFF	OFF	ON	OFF	ON	ON
212	OFF	OFF	ON	OFF	ON	OFF	ON	ON
213	ON	OFF	ON	OFF	ON	OFF	ON	ON
214	OFF	ON	ON	OFF	ON	OFF	ON	ON
215	ON	ON	ON	OFF	ON	OFF	ON	ON
216	OFF	OFF	OFF	ON	ON	OFF	ON	ON
217	ON	OFF	OFF	ON	ON	OFF	ON	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
218	OFF	ON	OFF	ON	ON	OFF	ON	ON
219	ON	ON	OFF	ON	ON	OFF	ON	ON
220	OFF	OFF	ON	ON	ON	OFF	ON	ON
221	ON	OFF	ON	ON	ON	OFF	ON	ON
222	OFF	ON	ON	ON	ON	OFF	ON	ON
223	ON	ON	ON	ON	ON	OFF	ON	ON
224	OFF	OFF	OFF	OFF	OFF	ON	ON	ON
225	ON	OFF	OFF	OFF	OFF	ON	ON	ON
226	OFF	ON	OFF	OFF	OFF	ON	ON	ON
227	ON	ON	OFF	OFF	OFF	ON	ON	ON
228	OFF	OFF	ON	OFF	OFF	ON	ON	ON
229	ON	OFF	ON	OFF	OFF	ON	ON	ON
230	OFF	ON	ON	OFF	OFF	ON	ON	ON
231	ON	ON	ON	OFF	OFF	ON	ON	ON
232	OFF	OFF	OFF	ON	OFF	ON	ON	ON
233	ON	OFF	OFF	ON	OFF	ON	ON	ON
234	OFF	ON	OFF	ON	OFF	ON	ON	ON
235	ON	ON	OFF	ON	OFF	ON	ON	ON
236	OFF	OFF	ON	ON	OFF	ON	ON	ON
237	ON	OFF	ON	ON	OFF	ON	ON	ON
238	OFF	ON	ON	ON	OFF	ON	ON	ON
239	ON	ON	ON	ON	OFF	ON	ON	ON
240	OFF	OFF	OFF	OFF	ON	ON	ON	ON
241	ON	OFF	OFF	OFF	ON	ON	ON	ON
242	OFF	ON	OFF	OFF	ON	ON	ON	ON
243	ON	ON	OFF	OFF	ON	ON	ON	ON

Address	DIP Switch 1	DIP Switch 2	DIP Switch 3	DIP Switch 4	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8
244	OFF	OFF	ON	OFF	ON	ON	ON	ON
245	ON	OFF	ON	OFF	ON	ON	ON	ON
246	OFF	ON	ON	OFF	ON	ON	ON	ON
247	ON	ON	ON	OFF	ON	ON	ON	ON
248	OFF	OFF	OFF	ON	ON	ON	ON	ON
249	ON	OFF	OFF	ON	ON	ON	ON	ON
250	OFF	ON	OFF	ON	ON	ON	ON	ON
251	ON	ON	OFF	ON	ON	ON	ON	ON
252	OFF	OFF	ON	ON	ON	ON	ON	ON
253	ON	OFF	ON	ON	ON	ON	ON	ON
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON

13.2 Configuring SW2 DIP switches

The SW2 switches configure the settings and modes of the GWX gateway.

The functionality of each switch is described below.

1. **DIP Switches #1 and #2**
   DIP switches #1 and #2 control the baud rate of communication.

Table 3. Baud Communication Rate Controls

DIP #1	DIP #2	Baud
OFF	OFF	9,600
ON	OFF	19,200
OFF	ON	38,400
ON	ON	BACnet: 76,800 Modbus: 57,600

2. **DIP Switch #3**
   DIP switch #3 selects BACnet or Modbus protocol.
   - DIP switch #3 ON = BACnet protocol.
   - DIP switch #3 OFF = Modbus protocol.
3. **DIP Switches #4 and #5**
   DIP switches #4 and #5 control the heating modes.

Table 4. Heating Mode Controls

DIP #4	DIP #5	Heating mode	External heater used when:
OFF	OFF	Internal Heat	Never
ON	OFF	Low-Temperature External Heat	Outside temp < -5°C
OFF	ON	Basic External Heat	Outside temp < 5°C
ON	ON	Invalid - no action	N/A

   - Internal mode = heating is always controlled by the AIO® unit.
   - Both External Heat modes = heat is controlled by a baseboard heater or other external heater when the outside temperature is below the listed threshold. When the outside temperature is above this threshold, heating is controlled by the AIO® unit.
   - Both External Heat modes assume an external heater and an external NTC sensor (not included) are connected to the GWX gateway. If either of these is not connected, the system will be controlled only by the AIO unit (as in Internal mode).
   - Cooling mode is controlled by the AIO® unit regardless of the heating mode selected.
   - The external heater can be operated using the LTCH20 or TFTH20 controllers.

4. **DIP Switch #6**
   DIP switch #6 controls Fresh Air mode.
   - DIP switch #6 ON = Fresh Air mode is operational.
   - DIP switch #6 OFF = Fresh Air mode is not operational.

Fresh Air mode is only activated if an external ventilation unit (such as an Energy Recovery Ventilator (ERV), Heat Recovery Ventilator (HRV), or other fresh-air system) is installed and connected to the GWX gateway, as described in Section 6.5.

5. **DIP switch #7**
   DIP switch #7 selects the type of AIO® unit.
   - DIP switch #7 ON = GWX is configured for use with an AIO® unit with the original Onboard Touch Controller, i.e., Ceiling Ducted / Suspended or Vertical Stack / Vertical Stack XL.
   - DIP switch #7 OFF = GWX is configured for use with an AIO® unit with the new Onboard Touch Controller, i.e., Wall Mounted (Gen 2+) unit.
6. **DIP switch #8**
   DIP switch #8 selects the normal configuration of the motion sensor contact for when the room is occupied.
   - DIP switch #8 is ON = Normally Closed (N.C.) contact type. Motion is detected when the contact is open.
   - DIP switch #8 is OFF = Normally Open (N.O.) contact type. Motion is detected when the contact is closed.

Ensure that the DIP switch setting matches the contact type of the connected motion detector. Incorrect configuration can cause false shutdowns of the GWX and air conditioning unit, or failure to detect motion.

13.3 JMP2 jumper

The JMP2 jumper is used to activate the termination resistor at the end of a controller daisy-chain. The jumper is shown in Figure 121 above (at the beginning of Section 13).

- Set to Termination (right side) only on the last GWX device in the communication network.
- Set to Normal (left side) on all other GWX units in the network.

Incorrect termination settings may result in communication issues across the GWX network.

14. COMMUNICATION PROTOCOLS AND REGISTERS/OBJECTS MAP

The following sections provide information about the registers/objects on the GWX gateway when used with BACnet and Modbus communication protocols, respectively. The protocol in use is defined by DIP switch #3 on SW2, as described in Section 13.2.

Registers/objects contain the current configuration of the AIO® unit. The tables below list the BACnet objects and Modbus registers, including their ID numbers, names, descriptions, units, whether or not they are writable, and minimum and maximum values for each, where applicable.

For all temperature ranges listed below, the resolution is 1°C (2.8°F).

14.1 BACnet Objects Map

The following configuration and mapping apply when the BACnet protocol is used with the GWX gateway.

14.1.1 BACnet general operation objects

Table 5. BACnet general operation parameter objects

ID #	Name	Description	Unit	R/W	Min.	Max.
AV.0	Mode	Operation Mode: • Heating = 0 • Cooling = 1 • Standby = 2 • Dehumidification = 3 • Fan Only = 4 • Auto = 5	–	R/W	–	–
AV.1	Set Point	Temperature Set Point	°C	R/W	16°C	31°C
			°F		61°F	88°F
AV.2	Fan Mode	Fan Speed: • Auto = 0 • Low = 1 • Med. = 2 • High = 3 • Boost=4	–	R/W	–	–
AV.3	Louver/ Swing Mode (Flap)	• Swing = 0 • Stop = 7	–	R/W	–	–
AV.4	Night Mode	Night/Sleep mode: • Disabled = 0 • Enabled = 1	–	R/W	–	–
AV.5	Min. Temp. setting in Cool mode	Minimum value of temp. set point in Cooling mode	°C	R/W	16°C	22°C
			°F		61°F	72°F
AV.6	Max. Temp. setting in Cool mode	Maximum value of temp. set point in Cooling mode	°C	R/W	23°C	31°C
			°F		73°F	88°F
AV.7	Min. Temp. setting in Heat mode	Minimum value of temp. set point in Heating mode	°C	R/W	16°C	22°C
			°F		61°F	72°F
AV.8	Max. Temp. setting in Heat mode	Maximum value of temp. set point in Heating mode	°C	R/W	23°C	31°C
			°F		73°F	88°F
AV.9	Set Back Adjustment in Heat mode	Setpoint adjustment that may be applied in Heating mode*	Not yet available			
AV.10	Set Up Adjustment in Cool mode	Setpoint adjustment that may be applied in Cooling mode*	Not yet available			
BO.0	Reserved	No function	–	-	–	-
BO.1	Reserved	No function	–	-	–	-
BO.2	Reserved	No function	–	-	–	-
NP.0	Network Port	Network port settings	See Table 6 below			
AI.0	Ambient Temp.	Room Air Temperature	°C	R	N/A	
			°F			

ID #	Name	Description	Unit	R/W	Min.	Max.

* These setpoint adjustments represent the number of degrees that the setpoint should be automatically raised (in cooling mode) or lowered (in heating mode) internally under specific conditions defined by the BMS, such as at night, when the space is not occupied, etc. Currently these objects exist but are not yet implemented in the gateway logic.

14.1.2 BACnet Network Port Settings

Table 6 describes all of the Network Port settings that are included in BACnet object NP.0.

Table 6. BACnet Network Port settings (NP.0)

Object Name	Description	R/W	Values/Range
Object_Name	Fixed string	R	"Network Port"
Network_Type	BACnet MS/TP	R	2
Network_Number	Local network identifier	R	0
APDU_Length	Maximum message size	R	480 (bytes)
MAC_Address	Set via SW1 DIP switches. See Section 13.1.1	R	0-127
Link_Speed	Baud communication rate set via SW2 DIP switches 1-2. See Section 13.2	R	9600, 19200, 38400, 76800
Max_Master	Highest master MAC address considered during token passing	R/W	0-127
Max_Info_Frames	Maximum number of info frames transmitted before passing token	R/W	1-255

14.1.3 BACnet alarms and indicators

Table 7. BACnet alarm and issue indicator objects

ID #	Name	Bit	Display	R/W	Description
AI.1	ALARMS2	5	E8	R	Discharge temperature probe fault
AI.2	ALARMS1	0	E1	R	Room temperature probe
					fault
		1	E2	R	Indoor heat exchanger temperature probe fault
		2	E3	R	Outdoor heat exchanger temperature probe fault
		3	E4	R	Outdoor temperature probe fault
		4	E5	R	Indoor fan failure
		5	E6	R	Outdoor fan failure
		6	E7 disp	R	Display communication failure
		7	E7 drv	R	Driver communication failure
AI.3	MISC_IN	0,1	OF	R	Condensate pan overflow: • overflow = 11 • normal_op = xx
		2	CP	R	Unit activation external contact • unit_off = 1 • unit_on = 0

14.2 Modbus Registers Map

The following parameters and mapping apply when the Modbus protocol is used with the GWX gateway.

14.2.1 Modbus communication parameters

- Serial communication: 9600 baud, 8 data bits, no parity, 1 stop bit (9600-8-N-1)
- Protocol: Modbus RTU
- Modbus address: 1 (set using DIP switches)
- Valid Modbus address range: (2-255). Refer to Section 13.1.2.
- Supports Modbus function codes:
  - FC03: Read holding register (maximum register for single request: 1)
  - FC04: Read input register (maximum register for single request: 1)
  - FC06: Write a single register
- Minimum time between Modbus commands: 250 ms

14.2.2 Modbus general operation registers

Table 8. Modbus general operation holding registers

Reg.#	Name	Description	Unit	R/W	Min.	Max.
1	Mode	Operating Mode: • Heating = 0 • Cooling = 1 • Standby = 2 • Dehumidification = 3 • Fan Only = 4 • Auto = 5	-	R/W	-	-
5	Owner Set Point	Temperature Set Point from BMS	°C	R/W	16°C	31°C
			°F		61°F	88°F
6	Fan mode	• Fan Speed: • Auto = 0 • Low = 1 • Med. = 2 • High = 3	-	R/W	-	-
7	Louver/ Swing Mode (Flap)	• Swing = 0 • Stop = 7	-	R/W	-	-
8	Night	Night mode: • Disable = 0 • Enabled = 1	-	R/W	-	-
9	Low Set Point Limit °C	16°C - 24°C	°C	R/W	16°C	24°C
10	High Set Point Limit °C	25°C - 31°C	°C	R/W	25°C	31°C
11	Low Set Point Limit °F	61°F - 75°F	°F	R/W	61°F	75°F
12	High Set Point Limit °F	76°F - 88°F	°F	R/W	76°F	88°F
13	Fahrenheit display	• No = 00 • Yes = 01	-	R (*)	-	-
				R/W (**)		

Reg.#	Name	Description	Unit	R/W	Min.	Max.
14	LOCK	Key lock: • No = 00 • Yes = 01 • Reserved = 10, 11	-	R (*) R/W (**)	-	-
4098	Unit Set Point	Actual Temp. Set Point on unit	°C	R	10°C	40°C
4099	Mode + Level Status	Operating mode status: • Auto = 0000 • Cooling = 0001 • Dehum = 0010 • Heating = 0100 • Fan_only = 0110 Power level status: • Auto = 0000 • Low = 0001 • Med. = 0010 • High = 0011 • Boost = 0100	-	R	-	-
4101	Unit status (*)	• Bit 0: 1 = On, 0 = Standby • Bit 1: Night mode active • Bit 4: 1 = Fresh air mode active • Other bits: Reserved	-	R	-	-
4129	Ambient	Room Temperature	°C	R	N/A	N/A

For some registers, the R/W setting depends on the type of onboard touch controller in the unit.

(*) Indicates setting for AIO® units with the original onboard touch controller, i.e., Ceiling Ducted/ Suspended, and Vertical Stack (standard and XL).

(**) indicates setting for AIO® units with the new onboard touch controller, i.e., Wall Mounted (Gen 2+).

14.2.3 Modbus alarms and indicators

Table 9. Modbus alarm and issue indicator registers

Reg,#	Name	Bit	Display	R/W	Description
4121	ALARMS2	5	E8	R	Discharge temperature probe fault
4142	ALARMS1	0	E1	R	Room temperature probe fault
		1	E2	R	Indoor heat exchanger temperature probe fault
		2	E3	R	Outdoor heat exchanger temperature probe fault
		3	E4	R	Outdoor temperature probe fault
		4	E5	R	Indoor fan failure
		5	E6	R	Outdoor fan failure
		6	E7 disp	R	Display communication failure
		7	E7 drv	R	Driver communication failure
4145	MISC_IN	0,1	OF	R	Condensate pan overflow: • overflow = 11 • normal_op = xx
		2	CP	R	Unit activation external contact • unit_off = 1 • unit_on = 0

15. WARRANTY TERMS AND CONDITIONS

Controllers and gateways carry a two-year warranty.

15.1 Exclusions and limitations

The above-noted warranty shall not cover:

- Any damage resulting from improper voltage supplied to the AIO® unit.
- Damage to a controller or gateway where there is a corrosive atmosphere containing any damaging chemical, such as chlorine or fluorine.
- Failure of the controller or gateway due to acts of God, natural disasters, power failures, interruptions, brownouts or power spikes, or due to incorrect or inadequate electrical service, or failure of internet services or home networks.
- Damages or personal injury caused directly or indirectly by failure or malfunction of the controller or gateway as a result of any cause, including natural disasters, accidents, misuse, improper wiring, or installation.

For additional information and any product inquiries, contact:

innova.co | **USA:** 216-710-1000 **Canada:** 416-739-1000

APPENDIX A: GLOSSARY

Term	Meaning
AI (Analog Input)	A BACnet object type used to represent a measured analog value, such as room temperature.
AV (Analog Value)	A BACnet object type used to represent an analog value or setting, such as temperature setpoint or fan mode.
BACnet	A communication protocol used by building automation and building management systems to exchange information with HVAC and other building equipment.
BACnet object	A named data point in a BACnet device that represents a system value, status, or control setting.
Baud rate	The communication speed of a serial network, expressed in baud.
Binary address	A numerical address represented by ON/OFF values. On the GWX, DIP-switch positions are combined to set the network address.
BMS (Building Management System)	A centralized system used to monitor and control building equipment, including HVAC systems.
BO (Binary Output)	A BACnet object type representing an output with two states, typically ON/OFF.
Contactor	An electrically operated switch used to control power to equipment or a load.
Daisy-chain	A wiring arrangement in which devices are connected sequentially from one device to the next rather than each being connected separately to a central point.
Deadband	A range between the ON and OFF thresholds in which no change of state occurs, used to prevent rapid cycling.
Device Object Instance Number	The unique identifier assigned to a BACnet device.
DIP switch	A small ON/OFF switch on a circuit board used to configure hardware settings.
Dry contact	An electrically isolated switch or relay contact that does not supply voltage of its own.
ERV	Energy Recovery Ventilator
FC (Function Code)	A Modbus command number that specifies the operation to perform. For example, FC03 reads holding registers and FC06 writes a single register.
Holding register	A Modbus data location that can contain a setting or operating value and, depending on the register, may be readable and writable.
HRV	Heat Recovery Ventilator
Input register	A Modbus data location used for information that is read by another device.
Jumper	A removable or repositionable connector on a circuit board used to select a hardware configuration.
MAC address (BACnet)	The local network address assigned to a BACnet device.
Modbus	A communication protocol used to exchange data between controllers and other devices in an automation system.
Modbus register	A numbered data location in a Modbus device that represents a system value, status, or control setting.
Modbus RTU (Remote Terminal Unit)	The serial form of the Modbus communication protocol used by the GWX gateway.
N.C. (Normally Closed)	A contact that is closed in its normal state and opens when the connected device is activated.
N.O. (Normally Open)	A contact that is open in its normal state and closes when the connected device is activated.
NP (Network Port)	A BACnet object representing a device's network communication port.
NTC thermistor	A temperature-sensitive resistor whose resistance decreases as temperature increases.
Pilot-duty relay	A relay intended to control another control device, such as a contactor or relay coil, rather than directly switching a high-power load.
R	Read-only. The value can be read but cannot be changed through the communication protocol.
R/W	Read/write. The value can be read and can also be changed through the communication protocol.
RS-485	A serial communication electrical standard commonly used for connecting multiple controllers or devices on the same network.
Termination resistor	A resistor installed at the end of an RS-485 communication network to help prevent signal reflections and communication errors.

APPENDIX B: REVISION HISTORY

Rev	Date	Revised By	Changes
A	2026-03-26	Leah Kuber	Create a single document for all AIO® units.
B	2026-04-29	Leah Kuber	Add BACnet objects configuration
C	2026-07-30	Yossi Myhill; Leah Kuber	Add clarifications re external sensor, cables in Wall Mounted Gen 3 units, voltage settings, and images of DIP switches
D	2026-08-03	Leah Kuber	Minor technical corrections; also add section 13.5 for connecting to 3rd party thermostat
E	2026-08-30	Leah Kuber	Add clarifications re hardwiring procedure, voltage switch preset, and Modbus registers.
F	2026-09-23	Leah Kuber	Add information about wiring for dual power sources in section 3 and section 6, including updating the beginning of section 3, reorganizing and updating section 6, and moving sections 13.4 and 13.5 to section 6.
G	2026-10-18	Leah Kuber	Corrections and clarifications throughout the document following external review, including significant clarifications to section 14 and addition of glossary in Appendix A.

With over 20 years of experience in the climate comfort sector, we have a clear goal: growth through innovation. Our team is laser-focused on the conception, development, and production of innovative heating, ventilation, and air conditioning solutions. This mission has developed through bringing together technical skills, creativity, technology, design, Italian passion, and a global vision to achieve the best energy efficiency and performance.

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Installation Guide