AIO® Ceiling Suspended (with ERV option)

Installation Guide



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DISCLAIMER

IMPORTANT: Installers must complete an INNOVA training session before installation. This document does not replace required training. Failure to complete training may result in improper installation and may void the warranty.

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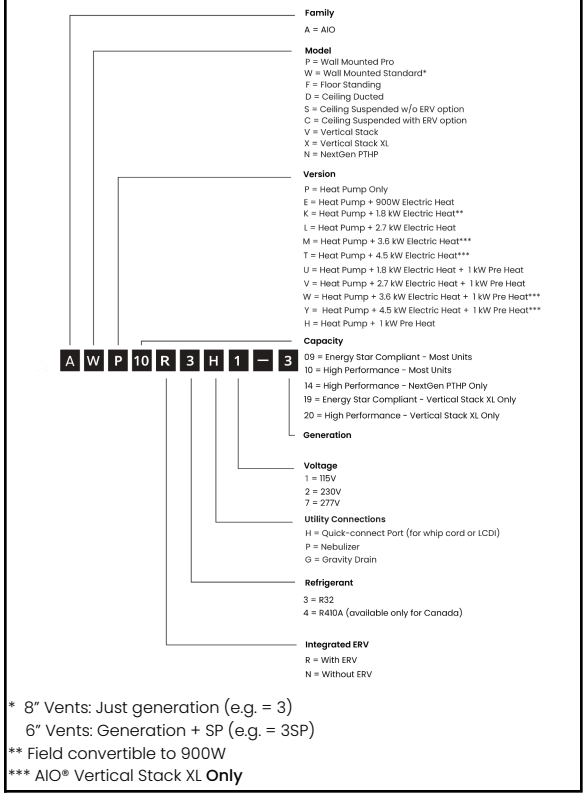
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MODEL NUMBER NOMENCLATURE

The code identifies the family, model, version, size, voltage, accessories, refrigerant type, and ERV option. See the diagram below for details.

Figure 1. AIO® nomenclature



* 8" Vents: Just generation (e.g. = 3)
6" Vents: Generation + SP (e.g. = 3SP)
** Field convertible to 900W
*** AIO® Vertical Stack XL **Only**

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1. ABOUT THIS GUIDE

This guide outlines the procedures for safely installing the unit. Following these instructions reduces the risk of equipment damage, improper installation, and potential safety hazards.

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

1.1 Documentation-specific language

Some language and symbols in this guide have specific meanings.

1.1.1 Reference to the product

Any reference to "the unit" is meant to refer to the AIO® Ceiling Suspended with ERV option (Gen 3) unit.

1.1.2 Unit orientation

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

1.1.3 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 non-expert who can safely operate the unit and perform basic diagnostics and maintenance.
- **Installer:** A 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 applicable local and national codes.
- **Service technician:** A trained and qualified HVAC professional who performs service or maintenance in compliance with Occupational Safety and Health Administration(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.

1.1.4 Illustrations and diagrams in this guide

All illustrations and diagrams in this guide represent installations utilizing INNOVA-approved accessories. Actual field installations may vary; additional components, adjustments, or modifications may be required to comply with project-specific requirements, applicable codes, and standards.

1.2 Safety notices, icons, and symbols

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

1.2.1 Safety notices

Each Safety Notice represents the level and immediacy of risk. Each warning panel displays a background color and a signal word. They may include an icon to specify the topic.

DANGER

The red notice with the **DANGER** title indicates an imminent hazard that, if not avoided, will result in death or serious injury.

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.

1.2.2 Hazard icons

The hazard icons represent the type of risk and are used in conjunction with any of the warning panels.

	The flame icon indicates information related to a fire or explosion hazard.
	The lightning-bolt icon indicates a warning related to electrical hazards.
	The three vertical, S-shaped, parallel lines icon indicates information related to a hot surface hazard.
	The hand icon indicates information about a moving part hazard and a sharp-surface hazard.
	The slippery surface icon indicates information related to a slipping hazard.
	The exclamation-mark icon indicates general hazards (environmental hazards, moving parts hazards, lifting hazards, and other categories).

1.2.3 Annotation icons

Annotations are provided throughout this guide. It is essential to read each carefully and follow the instructions stated.



Indicates important information required for proper installation and operation. Failure to follow these instructions may result in reduced system performance.



Indicates supplemental information, tips, or useful background information.

2. SAFETY GUIDELINES - READ BEFORE INSTALLING

This guide outlines the steps necessary to install the AIO® Ceiling Suspended (with ERV option) unit safely and securely. By following these instructions, installers can significantly reduce the risk of equipment damage, personal injury, and improper system operation.

The installer is responsible for ensuring that the unit is installed safely and securely, in full compliance with all applicable federal, national, state, and local codes and regulations.

The precautions in this guide supplement, rather than replace, established safety practices. In case of conflicting precautions, always follow the more stringent requirement.

Only a trained and certified HVAC installation technician may install this unit.

Follow all safety notices, warnings, and labels carefully. Failure to do so may result in property damage, serious injury, or death.

This section contains general safety notices for the unit. Because later sections refer back here, read this section in full before installing the unit.

2.1 Fire/explosion hazards

⚠ WARNING

- Do not store the unit in a room with continuously operating ignition sources (e.g., open flames, operating gas appliances, or electric heaters).
- Do not use any means to accelerate defrosting or clean the equipment other than those recommended by the manufacturer.

⚠ 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.

2.2 Refrigerant hazards

⚠ DANGER

- Flammable refrigerant is used. Only qualified HVAC technicians are authorized to handle refrigerant charging, recovery, or disposal.
- Do not pierce or burn refrigerant copper tubing. Be aware that refrigerants may not contain an odor.
- Do not puncture the refrigerant copper tubing.
- Do not expose the refrigerant copper tubing to heat sources, sparks, or open flames.
- Do not use an open flame or high-heat sources for leak detection (for example, halogen lamps); fire or explosion can result. Only use approved electronic detectors when checking for refrigerant leaks.
- Refrigerant under pressure: Use appropriate personal protective equipment (PPE) and follow all applicable OSHA safety requirements when servicing or handling the unit.

⚠ WARNING

- Do not leave refrigerant cylinders in confined spaces; always store and use them in well-ventilated areas. Keep ventilation openings clear of obstruction.

⚠ WARNING

- Do not charge, replace, or mix the R-32 refrigerant with any other refrigerant type. Using other refrigerant types may damage equipment and pose safety risks.
- Do not install units utilizing flammable refrigerants in unventilated spaces unless the space is designed to prevent refrigerant concentrations from accumulating to levels that could create a fire or explosion in the event of a leak. Note that refrigerant leaks may be odorless and difficult to detect.
- Never store or transport refrigerant cylinders in temperatures above 122 °F (50 °C).
- During storage, protect cylinders and the unit from mechanical damage, tipping, or corrosion.

⚠ CAUTION

- Leak testing must be performed after installation is complete.
- This unit comes precharged with flammable refrigerant (R-32). If the unit does not cool or heat, it may indicate a refrigerant leak. If a leak is detected, do not touch the unit. Ventilate the area, then immediately consult the building manager or the unit manufacturer.
- Refrigerants may cause cold burns.
- When handling the unit, verify that no other substance (including air) enters the refrigerant circuit other than the contained R-32 refrigerant.
- Do not release refrigerant into the atmosphere; follow environmental regulations. In the US, refrigerant handling must comply with the EPA Clean Air Act Section 608 (certified personnel, recovery, reclaim, and recycling).
- Follow all local environmental regulations for refrigerant handling and disposal.

2.3 Hot surface hazards

⚠ DANGER

- Only trained HVAC technicians may access internal components while the system is hot.
- Hot parts: Do not operate the unit with the cover removed. Certain components (compressor, coils, discharge piping, and other parts) may reach high temperatures during operation.

⚠ CAUTION

- Allow sufficient time for surfaces to cool before handling or servicing. Contact with hot parts can cause burns or damage to equipment.
- Keep flammable materials away from hot surfaces at all times.
- Use appropriate PPE (such as gloves and protective clothing) when handling or working near hot components.

2.4 Electrical hazards

⚠ DANGER

- Employ a qualified electrician to perform all electrical wiring and connections. These must comply with the National Electrical Code (NEC) and any applicable state and local codes.
- Before installation, maintenance, or servicing, disconnect power to the entire system, including remote disconnects, peripherals, third-party devices, power backup systems, and other devices operating on the network, and turn off breakers or switches located remotely, such as at the fuse box.
- Follow all OSHA-compliant lockout/tagout (LOTO) procedures.

⚠ DANGER

- Do not open access panels until the power has been fully disconnected.
- Do not tamper with or modify the unit, because this could create unsafe operating conditions.

⚠ WARNING

- A certified electrician must make all connections.
- Wiring and grounding must comply with the National Electrical Code (NEC) and all applicable state and local codes and regulations. Improper wiring or loose connections may cause overheating, fire, or electric shock.
- Connect only to a dedicated branch circuit of proper ampacity, protected by a correctly sized overcurrent device (per unit nameplate and wiring diagram).

⚠ CAUTION

- Use only standard circuit breakers and fuses rated for the unit.
- Do not connect the ground wire to gas pipes, lightning rods, or telephone ground.
- Ensure electrical panels are closed and secured before energizing equipment.
- In the event of a blackout or thunderstorm, turn the unit off and disconnect it from the power source immediately.

2.5 Moving parts hazards

⚠ DANGER

- Moving parts: Do not operate the equipment with panels, guards, or covers removed.
- 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.

⚠ CAUTION

- Only trained HVAC technicians are authorized to service the unit with the panels removed.
- Reinstall all panels before operation and keep your hands away from the fan area to prevent injury.

2.6 Handling and mechanical hazards

⚠ CAUTION

- Only a qualified HVAC professional may install this unit. The installer must be licensed, insured, or bonded, as required by state and local regulations.
- Protect control panel surfaces from being pressed with tools or sharp objects; use only your fingers to prevent damage.

⚠ CAUTION

- The unit is heavier on the right side (compressor side) and may be unbalanced when lifted.



Installation by anyone other than a trained and certified HVAC installation technician voids the unit's warranty.

⚠ CAUTION

- Edges inside the unit may be sharp; wear hand protection when handling sheet-metal parts to prevent cuts.

⚠ WARNING

- The AIO® unit is packed with plastic materials that pose a suffocation risk to small children and infants. In addition, some packing materials may have sharp edges or parts that can cause injury.
- It is the installer's responsibility to remove all packing materials from the installation site and dispose of them properly, in accordance with all relevant regulations.

⚠ CAUTION

- The unit must remain upright at all times.
- Tipping the unit — whether on its side, back, or at an angle can damage the compressor welds, causing refrigerant leaks.
- The carton must be transported upright. If it was not, notify your INNOVA representative or contractor immediately.

⚠ DANGER

- Disconnect all electrical power before making any electrical connections. This includes turning off breakers or switches located remotely, such as at the fuse box.
- Follow all OSHA-compliant lockout/tagout (LOTO) procedures.
- Employ a qualified electrician to perform all electrical wiring and connections. These must comply with the National Electrical Code (NEC) and any applicable state and local codes.
- Do not open access panels until the power has been fully disconnected.
- Do not tamper with or modify the unit, because this could create unsafe operating conditions.
- Use copper conductors only.

⚠ WARNING

The unit contains capacitors that may retain an electrical charge after the power is disconnected. To avoid electrical shock or serious injury:

- Wait at least 5 minutes after disconnecting power.
- Confirm that all indicator lights are off.
- Verify with a voltmeter that capacitors are fully discharged before service.
- Do not begin any servicing or disassembly until all conditions above are met.

⚠ WARNING

The AIO® unit contains a pressurized refrigeration system:

- Do not puncture, heat, or incinerate the unit.
- The system contains refrigerant and refrigerant oil under high pressure. Before performing any service on the refrigeration system, the refrigerant must be safely recovered to relieve system pressure.
- The type of refrigerant used in this unit is listed on the unit's nameplate.
- Use only manufacturer-approved refrigerants and additives. Use of non-approved substances may damage the unit and void the warranty.
- If refrigerant gas leaks during installation, ventilate the area immediately. Refrigerants can produce toxic gases if exposed to fire or high heat.
- Do not use an extension cord to power the unit.

⚠ CAUTION

Make sure all louvers are either INNOVA-approved or comply with the specifications for required pressure drop and free area. Installation of louvers or grilles that do not meet these specifications may cause:

- Overheating of the unit.
- Water damage.
- Reduced performance.
- Voiding of the product warranty.

⚠ CAUTION

Install the unit in a location protected from impacts that could cause mechanical damage.

⚠ WARNING

This unit contains R-32 refrigerant, which is classified as A2L—low toxicity and mildly flammable. The following precautions must be followed:

- Do not release R-32 into the atmosphere. It has a Global Warming Potential (GWP) of 675.
- Install the unit in a well-ventilated area to prevent refrigerant buildup.
- Take reasonable precautions to ensure the unit is not exposed to excessive heat.
- The use of leak detectors with halogen lamps is not allowed near R-32 systems.
- Make sure the room size matches the refrigerant charge. The refrigerant concentration must remain below the Refrigerant Concentration Limit (RCL) in case of a leak. For more information, refer to ASHRAE 15, ASHRAE 34, UL 60335-2-40, and applicable state and local codes.
- Use only mechanical connectors that comply with ASHRAE 15 (Safety Standard for Refrigeration Systems). Replace sealing components and, if connectors are reused, re-fabricate flared joints.
- If required, install a leak-detection system that detects refrigerant leaks and triggers ventilation or other safety responses.
- To prevent frostbite or other injuries, wear gloves and safety goggles when handling R-32.
- Store R-32 cylinders in a cool, ventilated space, away from heat sources, direct sunlight, or anything that could cause ignition.
- Attach R-32 cylinders securely to prevent them from shifting or being damaged.

The unit is designed for indoor installation only. Only the exterior intake and exhaust grilles are rated for outdoor exposure.

- The unit must be certified either by an INNOVA technician or through the approved self-certification process before use.
- If the unit is used without certification, the warranty will not be activated.
- If the unit operates for more than 30 days without certification, the warranty will be permanently void.
- It is the installer's responsibility to ensure that certification is completed.

2.7 Installation environment hazards

⚠ CAUTION

- Do not operate the unit in or near an environment under construction or renovation. Dust and debris can enter the unit, causing malfunctions and reduced performance.
- Do not install above an elevation of 8,858 ft (2,700 m) unless specifically approved by the manufacturer — reduced air density may impair safe operation.
- Indoor installation only. Do not install outdoors or in locations exposed to rain, snow, or direct weather.
- When working at heights, follow all applicable fall protection regulations and guidelines. Use guardrails, harnesses, and barricade the area below to protect against falling objects.
- Verify the supporting structure can carry the full unit weight and operating loads, including vibration and dynamic loads.
- Install using proper anchors and fasteners, and apply the correct torque.

⚠CAUTION

- Keep the unit upright at all times; never lift it by its covers, panels, or refrigerant copper tubing.
- Protect the unit from impact, vibration, tipping, dust, and corrosive atmospheres during installation and operation.
- Maintain required service clearances and ensure ventilation openings remain unobstructed. Obstruction can cause malfunction or overheating.
- Dispose of all packaging materials safely to prevent suffocation, tripping hazards, or fire hazards.
- Follow all manufacturer instructions and applicable local building codes.

⚠WARNING

- Improper installation environments can result in fire, explosion, refrigerant leakage, equipment damage, or personal injury.
- If the unit must be operated during construction or renovation, the air filters and accessible coil surfaces must be inspected and cleaned daily before operation.
- Failure to perform daily cleaning during construction use may result in damage and will void the warranty.

⚠CAUTION

- Units installed in coastal, shoreline, or saltwater environments must be ordered with factory-installed corrosion protection.
- Failure to use a factory-protected unit in such environments may result in accelerated corrosion and will void corrosion-related warranty coverage.

2.8 Installer responsibilities

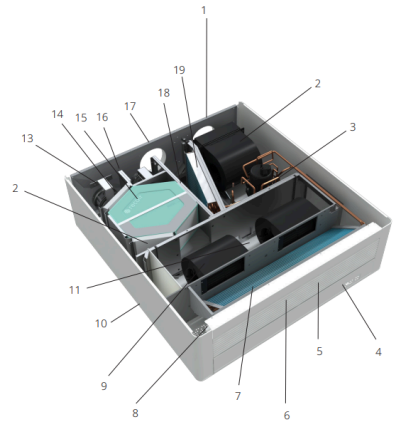
- Install the unit safely and in accordance with all applicable local and national codes and regulations.
- Ensure that you fully understand the product and the installation procedures before beginning the installation. Installation activities involve greater risk than normal system operation.
- Provide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

3. AIO® CEILING SUSPENDED (WITH ERV OPTION) OVERVIEW

3.1 Components and structure

Figure 2. AIO® Ceiling Suspended (with ERV option) components and structure



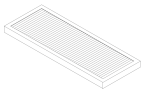
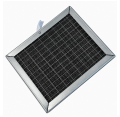
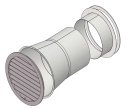
1	Condenser + stale air exhaust	**11**	Return air filter
2	ECM Condenser Fan	**12**	MERV 13 filter
3	Twin rotary inverter compressor	**13**	Fresh air ECM supply fan
4	Touch controller	**14**	MERV 13 filter
5	900/1800W electric heat strip	**15**	Hybrid recovery core
6	Supply air vent	**16**	Stale air ECM exhaust fan
7	High-efficiency indoor coil	**17**	Condenser + fresh air intake
8	Controllers	**18**	Condensate drain
9	EC supply fans	**19**	High efficiency outdoor coil
10	Return air on the bottom		

- For exact dimensions, see Appendix A.

3.2 Optional accessories

Use only factory-approved accessories to ensure optimal unit performance and preserve full warranty coverage.

Table 1. Optional accessories

Image	Name	SKU
	GWN gateway (used to connect LTCH20 and TFTH20 controllers)	GWN
	GWX gateway (used to connect all controllers and BMS systems)	GWX
	LTCH20 (basic touch) controller	LTCH20
	TFTH20 (advanced touch) controller	TFTH20
	Replacement ERV filter for AIO® Ceiling Suspended (with ERV option) units. MERV 13 equivalent (F7). Includes 1 filter.	AHRA0032
	Replacement MERV 3 return air filters for AIO® Ceiling Suspended (with ERV option) units. Includes 4 filters.	AHRA0031
	Thermaduct RLA8	RLA8

Compatible Louver Models

Table 2. Compatible Louver Models

Model Series	Configuration	Model Number	Submittal Link
LLA/F (Standard Flange)	Horizontal	LLA/F-H 8CS ERV	LLA/F-H Sub...
	Extended (Left/Right)	LLA/F-E 8CS ERV	LLA/F-E - LEF... LLA/F-E - RIG...
LLA/C (Concealed Flange)	Horizontal	LLA/C-H 8CS ERV	LLA/C-H Sub...
	Extended (Left/Right)	LLA/C-E 8CS ERV	LLA/C-E - LE... LLA/C-E - RI...

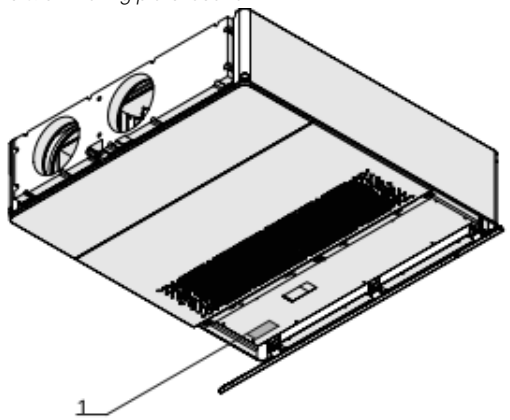
3.3 Unit rating plate

The Unit rating plate, attached to the bottom of the unit under the front lower panel (see Figure 3), provides the model number, serial number, electrical specifications, factory refrigerant charge, and compliance markings.

Before installation, verify that the unit's rating plate, configuration, and accessories match the order and project documents. Do not rely on the external carton label alone.

If the unit, configuration, or accessories do not match the order or project documents, stop the installation and contact INNOVA support or the project manager before proceeding.

Figure 3. Unit rating plate location



1	Unit rating plate

Do not remove or tamper with the rating plate. Doing so will void the product warranty.

4. RECEIVING, INSPECTING AND HANDLING THE UNIT

4.1 Shipping configuration

The following items are shipped with the unit in a single carton:

- 2 duct collars, 8" (200 mm)
- 8 self-drilling screws
- Installation templates

Other accessories are shipped separately.

4.2 Carton dimensions and weight

The dimensions and total weight of the shipping carton are shown below:

Figure 4. Carton Dimensions

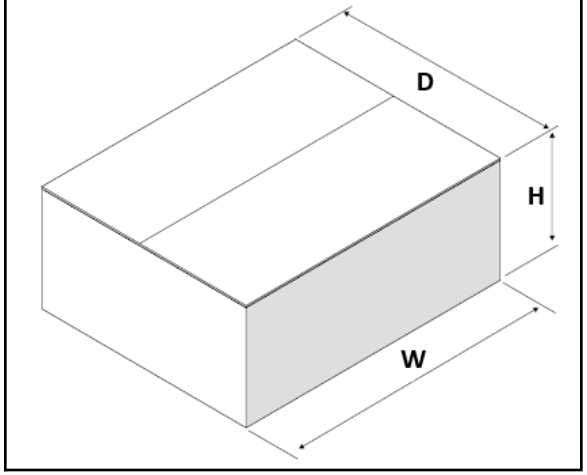


Table 3. Carton dimensions and weight

Depth (D)	43.9" (1115 mm)
Height (H)	14.8" (375 mm)
Width (W)	48.8" (1240 mm)
Weight	214 lb (97 kg)

⚠WARNING

- The unit is heavy and unbalanced.
- Always use a minimum of two people or a properly rated mechanical hoist when moving the unpacked unit.
- Only qualified personnel may operate cranes, hoists, forklifts, pallet jacks, mechanical lifts, or lifting platforms.
- Never lift the carton by the cardboard or plastic wrapping.
- Follow OSHA manual-lifting limits and the site lifting plan to prevent injury.
- When lifting the unit, do not exceed the Recommended Weight Limit (RWL) calculated using the Revised NIOSH Lifting Equation (RNLE).
- Comply with all applicable national and local regulations for heavy lifting.

4.3 Inspecting the carton

1. Check the shipping label and purchase documents to confirm that the correct unit configuration was delivered.
2. Check the entire carton and pallet for visible signs of damage, such as crushed corners, punctures, or tears.
3. Take clear photos of any packaging defects.
4. Report the damage immediately.

Damage must be reported within two weeks of delivery to remain eligible for a claim.

4.4 Moving the carton

Before lifting the carton:

1. Check the carton weight.
2. Confirm that the lifting equipment is rated for the load.
3. Use a forklift, pallet jack, mechanical lift, hoist, or approved lifting platform to move the carton around the job site or lift it into position.

⚠CAUTION

- Do not rock, tilt, roll, or overturn the unit.
- Keep the unit horizontal and right side up at all times.
- If the unit was rocked, tilted, rolled, or overturned at any stage, allow the compressor oil to settle back into place by lying the unit horizontal and right side up for at least 24 hours before powering on. Notify your INNOVA representative or contractor before proceeding.
- Do not install a damaged unit. Damage to the unit can lead to water or refrigerant leakage, electrical faults, poor performance, and/or unsafe operation.
- If damage is found, stop installation and contact INNOVA support or the project manager before proceeding.

4.4.1 Moving the carton on a pallet

When moving the unit while it is still secured to its shipping pallet, use a forklift or pallet jack.

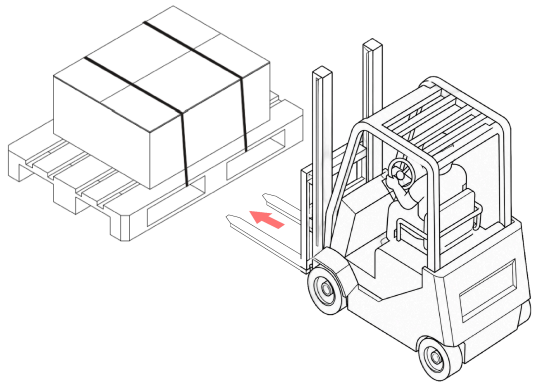
Before lifting the carton on a pallet:

1. Confirm that the carton is secure on the pallet and that all straps are tight and properly closed.
2. Clear the travel path of people and obstructions.

To move the carton on a pallet:

1. Slide the forks fully under the wooden pallet base rails.
2. Raise the pallet slowly, keeping the carton horizontal and right side up.
3. Drive slowly and take wide turns to avoid rocking the load.
4. Move the carton as close as possible to the installation location before removing it from the pallet.
5. Lower the carton gently and confirm it is stable before sliding the forks out.

Figure 5. Lifting with a pallet



4.4.2 Moving the carton without a pallet:

When moving the unit without a pallet, use a mechanical lift, hoist, or approved lifting platform.

Before lifting:

1. Identify the approved support areas.
2. Position straps, forks, or lift pads so they do not crush, bend, or scratch the unit.
3. Space straps, forks, or lift pads evenly to keep the carton balanced and level.
4. Clear the travel path of people and obstructions.
5. Lift the carton while keeping it horizontal and right side up.

6. Move the carton as close to the installation location as possible.
7. Lower the carton gently into position.
8. Confirm that the carton is stable before removing the lifting equipment.

4.5 Storing the unit

If the unit needs to be stored before installation, follow these rules to protect it from weather and job-site damage:

- Keep the unit in its packaging.
- Keep the carton horizontal and right side up.
- Store the unit indoors in a closed, weather-protected area, away from possible damage.
- Keep the carton off the ground on sleepers or a pallet.
- Maintain the storage temperature between 32°F and 104°F (0°C and 40°C).
- Check the carton for the maximum number of stackable units.

4.6 Unpacking the carton

Unpack the carton as close to the installation location as possible. This limits exposure to job-site dust and debris that can damage the unit.

⚠ CAUTION

- The unboxed chassis is heavy and sharp.
- To prevent injury, wear heavy-duty, cut-resistant, non-slip work gloves when handling the unit.

To unpack the carton:

1. Remove all the staples from the carton.
2. Open the carton flaps and remove the plastic and foam packaging.
3. Clear all plastic bags, wrapping, foam, and heavy staples out of the work area.

4.7 Inspect the unit for damage

- If the carton was damaged but the unit appears physically intact, test the unit in both heating and cooling modes before installation.
- Report any irregularities or operational issues to your INNOVA representative or distributor.

After unpacking and before installation, inspect the unit for:

- Damage to the cabinet, panels, mounting brackets, duct collars, or drain connections
- Damaged or missing insulation, fasteners, or other components
- Bent or crushed refrigerant tubing, oil residue, water intrusion, or corrosion
- Any other visible damage that could affect installation, operation, drainage, electrical safety, or service access

If the unit appears damaged:

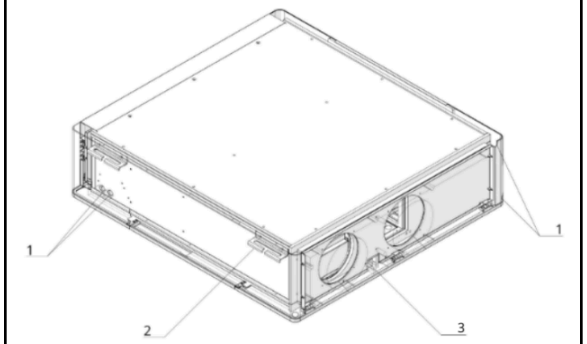
1. Remove the outer covers to inspect for underlying damage.
2. Photograph all damage and all sides of the unit to support a damage claim.
3. Clearly document the damage on the freight bill.
4. Notify your INNOVA representative or distributor.

Damage must be reported within two weeks of delivery to remain eligible for a claim.

4.8 Technical layout reference

Before lifting and mounting the unit, use the layout diagram below (Figure 6) to verify the exact locations of the electrical connections, mounting brackets, and condensate drain port.

Figure 6. Electrical, Drainage, and Bracket Locations



1	Electrical connection passage	**3**	Condensate drain
2	Mounting bracket		

5. TOOLS AND MATERIALS NEEDED

Before installation, have the following available, as applicable:

- Appropriate PPE
- Approved lifting equipment rated for the unit weight.
- Installation templates
- Ceiling support and mounting hardware specified in the project design, including:
  - Threaded rods
  - Anchors
  - Fasteners
  - Vibration isolation
- If ducting the unit, solid (non-flexible) ductwork, including:
  - Fittings
  - Supports
  - Insulation
  - Connectors (may be flexible)
  - Clamps or collars
  - Sealant
- Condensate solution, including:
  - Short ¾" PVC pipe stub (to connect to the P-trap)
  - Flexible reducing coupling
  - Code-compliant P-trap
  - ¾" PVC drainpipe
  - Drainpipe supports
  - Drainpipe insulation
  - PVC joining materials
  - Coil-safe drain treatment
  - Freeze protection where required
- Power and control wiring and conduit
- Electrical disconnects
- All related electrical components sized according to the unit rating plate, wiring diagram, and applicable codes
- Standard installation tools
- Digital level

6. SITE REQUIREMENTS AND PREPARATION



The AIO® unit supports two outdoor-air routing configurations: Ducted or ceiling-mounted flush against the exterior wall. Confirm which configuration applies to your project before proceeding.

Before installation, confirm that the site is prepared for:

- Unit suspension and required service clearances
- Outdoor-air intake and exhaust ductwork if ducting the unit
- Exterior intake and exhaust openings
- Condensate drainage
- Line-voltage power and a remote disconnect switch (double-pole for 230V units; single-pole, live-wire-only, for 115V units)
- Control and communication wiring

6.1 Pre-installation checklist

Before installing the unit, verify the following requirements.

6.1.1 Documentation and unit configuration

- [ ] Required INNOVA-approved installer training has been completed.
- [ ] Project drawings, approved submittals, unit labels, rating plate, wiring diagram, and this guide have been reviewed.
- [ ] The model, voltage, and accessories match the project documents and unit rating plate. Stop work if any information does not match.
- [ ] The installation will comply with the NEC (ANSI/NFPA 70) and all applicable local codes and ordinances.

6.1.2 Unit and installation location

- [ ] The unit has been inspected for missing or damaged components, loose wiring, and obstructed fan wheels.
- [ ] The unit can be installed indoors in a level, horizontal position near the required exterior openings.
- [ ] The ceiling space is insulated against cold weather, with all insulation securely fastened so it cannot loosen or be drawn into the unit's air openings.
- [ ] The location is protected from direct sunlight, moisture, corrosive conditions, heat sources, impact hazards, and flammable gases, vapors, or liquids.
- [ ] The installation complies with all R-32 refrigerant safety and minimum floor-area requirements.
- [ ] Factory coil protection or DiversiTech Coil Guard has been applied if the unit will be exposed to coastal, salt-air, chemical, or acidic conditions.
- [ ] The location will not amplify operating noise or direct supply airflow at a fixed bed, desk, workstation, or seating area.

6.1.3 Structure and site preparation

- [ ] A qualified professional has confirmed that the supporting ceiling structure can carry the full weight of the unit and all suspension, duct, vibration, operating, and service loads.
- [ ] Suspension and core-drilling locations are clear of concealed wiring, piping, drains, refrigerant lines, and structural elements.
- [ ] Duct routes and exterior openings are clear, accessible, and consistent with the project design. The planned condensate drain route allows a continuous downward slope of at least 2% (¼" per ft [20.8 mm/m]), with the drain outlet above the maximum expected snow accumulation.
- [ ] Exhaust air cannot recirculate into the outdoor-air intake, and each exterior louver has at least 36" (914 mm) of unobstructed clearance.
- [ ] A dedicated branch circuit provides grounded, 60 Hz, single-phase power at the voltage specified on the unit rating plate and complies with the listed MCA and MOCP.

☐ The required disconnecting means and control or communication wiring are provided. Extension cords and adapters will not be used.

6.2 Louver requirements

While the louvers mentioned in Section 3.2 are highly recommended, using another louver solution is possible.

Whenever using a custom louver solution, contact INNOVA to ensure that the louver solution being used matches the requirements of the AIO® Ceiling Suspended (with ERV option) unit.

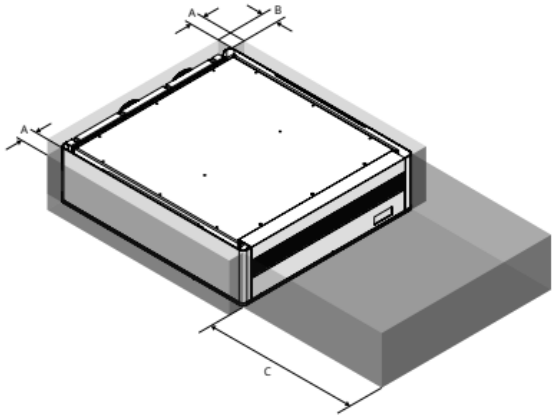
Always contact INNOVA before selecting, designing, or fabricating a custom louver. An unsuitable louver may restrict airflow, impair unit operation, and affect warranty coverage.

6.3 Minimum clearance requirements

Maintain these unblocked clearance boundaries around the chassis for system airflow, vibration isolation, and service access:

- **Side Clearances:** Minimum 1.2" (30 mm) on the sides of the unit.
- **Rear Clearance (in a ducted configuration):** Minimum 1.2" (30 mm) at the back of the unit.
- **Front Clearance:** Minimum 19.7" (500 mm) on the front side of the unit.

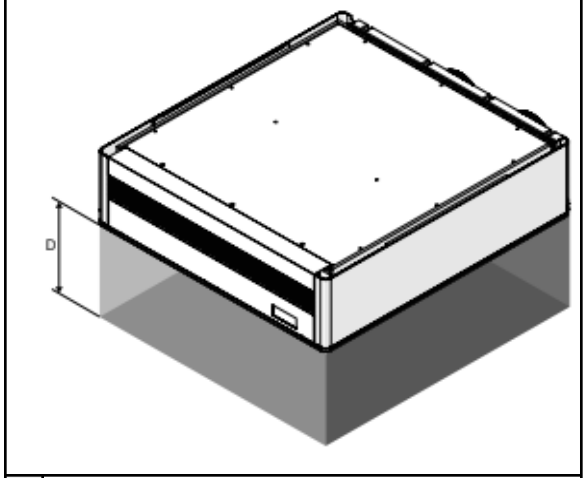
Figure 7. Unit clearances



A	1.2" (30 mm)	**C**	19.7" (500 mm)
B	1.2" (30 mm)		

- **Bottom Clearance:** Minimum 11.8" (300 mm) of clear workspace directly below the unit for inspection, service, panel removal, and maintenance.

Figure 8. Bottom clearance



D	11.8" (300 mm)

- **Top clearance:**
  Minimum 0.4" (10 mm) between the unit and the ceiling. In addition, the unit must slope slightly to the rear to enable the condensate to drain properly, as detailed in Section 7.8.
- **Exterior clearance**
  Minimum 36" (914 mm) in front of the exterior louvers on the outside of the building.

If the unit will be ceiling-mounted flush against the exterior wall, disregard the rear clearance requirement.

7. INSTALLING THE AIO® CEILING SUSPENDED (WITH ERV OPTION) UNIT

⚠ WARNING

- Verify that the ceiling support structure and all suspension hardware are rated by a qualified professional to safely carry the full unit weight, active operational vibrations, dynamic duct loads, and service loads.
- Never cut, drill into, or weaken load-bearing structural elements or building beams.
- Overhead installation creates an active falling object hazard. Securely block off, barricade, and clear the entire floor area beneath the active work zone to protect personnel and property from falling tools, hardware, or debris.

⚠ WARNING

Before drilling holes, mounting brackets, or conducting electrical work:

- Remove all flammable liquids, gases, and materials from the workspace to eliminate combustion risks.
- Confirm that no other personnel are working in unventilated areas near the system.

⚠ CAUTION

The unboxed chassis is heavy and sharp. Always wear all required PPE (including heavy-duty gloves) when installing the unit.

To install the AIO® Ceiling Suspended (with ERV option) unit:

1. Attach the installation templates.
2. Drill the exterior wall.
3. Install exterior louvers or vent terminations.
4. Install the ceiling support hardware.
5. Prepare a condensate drain.
6. Prepare the electrical connection.
7. Prepare the unit.
8. Mount the unit on the ceiling.
9. Connect the condensate drain.
10. Connect the ductwork.
11. Connect electrical wiring and control interfaces.

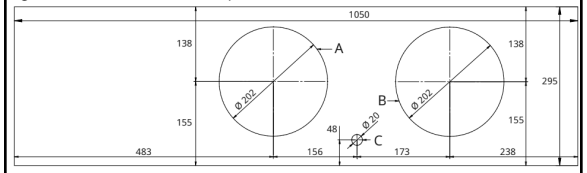
7.1 Attaching the installation templates

The unit comes with two paper templates for marking the holes required for installation:

- a template for the exterior air vents
- a template for the unit's ceiling mounting holes

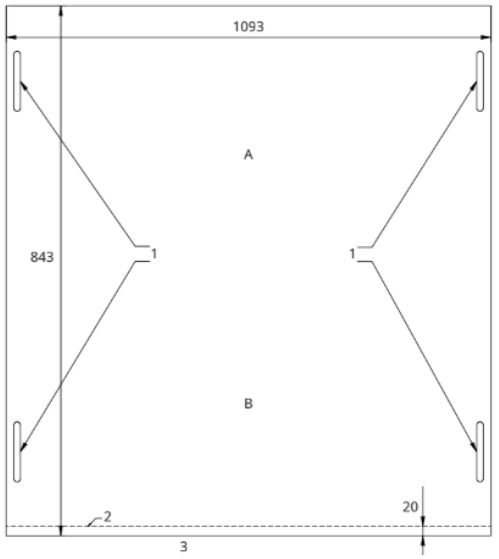
Before mounting the unit, attach the templates in the correct positions (on the exterior-facing wall and on the ceiling) with adhesive tape.

Figure 9. Exterior Wall Template



A	Outdoor air exhaust	**C**	Condensate drain hole
B	Outdoor air intake		

Figure 10. Ceiling Template



A	Front side of the unit	**2**	Rear edge
B	Rear side of the unit	**3**	Insulation
1	Eyelets for the Ø 0.31" (8 mm) anchors.		

To attach the templates:

1. **Verify that you have the correct templates.**
   If you are unsure, contact your distributor or INNOVA support.
2. **Tape the templates to the exterior wall and ceiling.**
   a. Position the exterior wall template at the exact location where the wall openings will be.
   b. Position the ceiling template on the ceiling at the exact location where the unit will be installed.
   c. If ducting the unit, ensure the templates align with your planned ductwork runs.
   d. Ensure the front and rear faces of the unit align with the project drawings.
   e. Tape both templates in place.
   f. Clearly mark the suspension anchor points on the ceiling template.

7.2 Drilling the exterior wall

In both ducted and non-ducted configurations, 8" (200 mm) holes must be drilled through the exterior wall for outdoor-air intake and exhaust.

To drill the holes:

1. Drill guide holes at the marked locations on the exterior wall template.



Only drill the condensate drain hole if an external condensate drain will be used. See Section 7.5 for instructions.

2. Using a core drill, drill through the wall at each guide hole with a slight downward pitch (2°–4°) toward the exterior. This helps prevent water from entering the unit through the vent openings.



To minimize dust and debris in the room, use the core drill together with a vacuum system.

⚠WARNING

- Work carefully near the exterior wall surface to avoid damaging the surrounding plaster.
- Take precautions to ensure that debris does not fall on people or objects below.

7.3 Installing exterior louvers or vent terminations

Install the exterior louvers or vent terminations according to the project drawings, approved louver documentation, and applicable codes.

Before installing the louvers, check that:

- The exterior wall openings are clean and free of drilling debris.
- The intake and exhaust openings match the planned duct layout.
- The selected louvers or vent terminations are approved for the project.
- There are no obstructions in front of the intake or exhaust openings.
- The installation location meets all required clearances from other exhaust sources, air intakes, doors, windows, and property lines.

When installing the exterior louvers or vent terminations:

- Follow the manufacturer's installation instructions.
- Provide continuous flashing and weatherproof sealing at all exterior penetrations.
- Seal all gaps between the wall opening, sleeve, duct, louver, or vent termination.
- Make sure the installation prevents water intrusion into the wall assembly.
- Make sure the intake and exhaust paths remain separated and unobstructed.

⚠CAUTION

- Poorly sealed exterior openings can allow water, outside air, insulation, or debris to enter the building or duct system.
- Seal and weatherproof all exterior penetrations before operating the unit.

7.4 Installing the ceiling support hardware

Install the ceiling support hardware according to the project drawings, the anchor manufacturer's instructions, and all applicable codes. The support assembly must include vibration isolators suitable for the unit's weight and application.

⚠CAUTION

- Inadequate vibration isolation may transmit vibration and structure-borne noise through the building and may loosen or damage mounting components.
- Hand-tighten fasteners using appropriate manual tools unless a torque value is specifically provided. Over-tightening may damage panels, brackets, threaded components, or suspension hardware.

7.5 Preparing a condensate drain

⚠CAUTION

- Never drain into a tank or container.
- Do not crush, pinch, kink, or sag the drain line.
- Failure to follow these requirements may void warranty coverage.

Before mounting the unit, prepare a route from the unit's condensate drain connection to one of the following:

- **Building drainage system (recommended):** Route the condensate to an approved indoor drainage location, such as a floor or laundry drain.
- **Direct outdoor discharge:** Route the condensate through an exterior wall to an approved outdoor discharge location.

⚠CAUTION

Use direct outdoor discharge only when connection to a building drainage system is impractical. Discharged condensate may freeze or promote algae growth, creating a slipping hazard.

For all discharges:
Make sure that the planned drain route:

- Accommodates a P-trap/Air trap installed within 6" (152 mm) of the unit drain connection.
- Allows the drain line to slope at least the required slope continuously (see Section 7.9.2) toward the drainage location.
- Provides sufficient space for the required vent riser and cleanout.
- Does not contain sags, rises, or other low points that could retain water.
- Is accessible for inspection and cleaning.
- The building drainage connection and exterior wall penetration must comply with all applicable plumbing and building codes.

Installation requirements:

- The drainage relies on gravity only. For this reason, the PVC drain pipe must slope downward at least ¼" per foot (2%) along its entire length or more, depending on drainage location.
- For direct outdoor discharge in locations that may experience freezing conditions, maintain a continuous downward slope of at least 3.6" per foot (30%) to prevent condensate from collecting and freezing in the drain pipe.
- Pipes running in or along exterior walls must be wrapped with self-regulating heat tape and insulated to prevent freezing.

⚠CAUTION

- Any portion of the condensate drain hose that may be exposed to warm, humid air should be insulated with closed-cell, vapor-impermeable insulation to prevent surface condensation.
- Uninsulated drain tubes may experience condensation due to the temperature differential between cold condensate and ambient room air, resulting in dripping water that can damage interior finishes and flooring.

To prepare an in-the-wall drain:

1. **Install a drainpipe in the wall.**
   - Employ a qualified plumber.
   - The drainpipe must have a minimum inner diameter of ¾" (19 mm).
   - If the drainpipe is routed via an exterior wall, wrap it in insulation and heat tape.

⚠WARNING

Only use self-regulating heat tape or heat tape designed for use under insulation. Use of other types of heat tape may cause a fire and could void your warranty.

2. **Test the drain.**
   - Pour water into the drainpipe.
   - Check for leaks.

To prepare an external drain:

1. **Drill a drain hole.**
   a. Bore a drain hole through the exterior wall. The drain hole must have a downward slope toward the exterior of at least 2% (¼" per foot), or at least 30% (3.6" per foot) in locations that may experience freezing conditions.
   b. Ensure that the drain will terminate above the maximum anticipated snow accumulation and in a location where discharged water will not create a hazard.
   c. Additional drain protection can be provided by inserting a drain pipe into the drain hole and using it as a sleeve for the drain hose.
2. **Insert the rubber drain hose through the drain hole or pipe.**
3. **Test the drain.**
   a. Pour water into the drain pipe.
   b. Check for leaks.

7.6 Preparing the electrical connection

⚠WARNING

- Only a qualified electrician may prepare the electrical connection.
- Follow all applicable codes and the instructions below. Incorrect wiring may result in electric shock, fire, serious injury, or death.

The AIO® Ceiling Suspended (with ERV option) unit does not include an attached power cord. The unit must be hardwired to the building power supply through a code-compliant junction box.

To prepare the hardwired connection:

1. **Mount a junction box behind the unit.**
   - Install the junction box near the electrical connection passage (on the right side of the unit).
   - Follow all applicable requirements for flush, surface, or recessed mounting.
2. **Wire the junction box.**
   - Verify that power has been disconnected at the circuit breaker.
   - Route the electrical cable from the breaker panel to the junction box. Make sure the cable is rated for the unit's electrical load. See the product data sheet for electrical specifications.
   - Terminate the wires inside the junction box using listed connectors.
   - Install the junction-box cover to maintain enclosure integrity.
3. **Install a code-compliant disconnect switch.**
   - Use a double-pole disconnect for 230V units.
   - Use a single-pole disconnect for 115V units that disconnects only the live (hot) wire.
4. **Install surge protection.**
   - Connect the unit to a dedicated surge-protection device or a building-wide surge-protection system.
   - Failure to provide surge protection may result in equipment damage and void the warranty.

⚠CAUTION

- Do not connect the unit to a ground-fault circuit interrupter (GFCI) unless required by applicable codes. A GFCI may trip unnecessarily during normal unit operation.
- Contact INNOVA support if your local code requires this and you experience nuisance tripping.

7.7 Preparing the unit

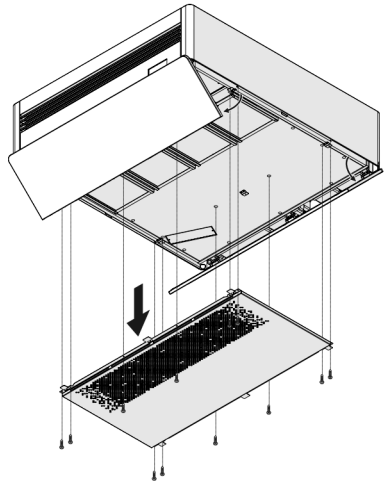
7.7.1 Lower and Side Panel Removal

Before positioning the unit, the central lower panel and the side panels must be removed.

To remove the central lower panel:

1. Open the front and rear lower panels; both are hinged and swing outward.
2. Remove the 12 screws from the central lower panel.
3. Remove the central lower panel.

Figure 11. Removing the central lower panel

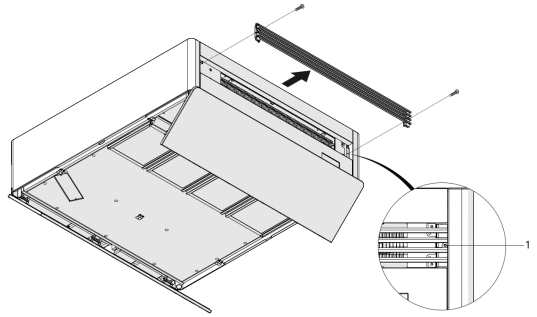


Keep the screws removed in each step separate.

To remove the side panels:

1. Remove the front grille by unscrewing the two screws — one at each end of the grille.

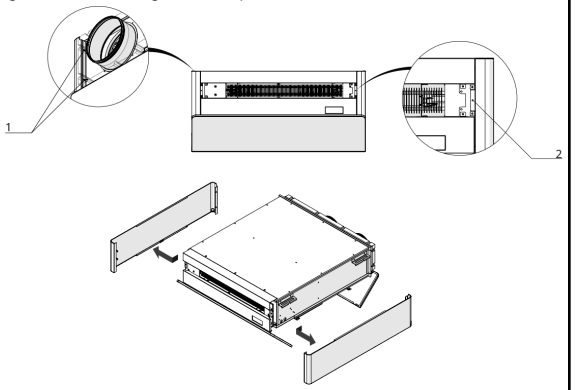
Figure 12. Removing the front grille



1	Front grille screw hole

2. Remove the side covers by unscrewing one screw at the front and two screws at the rear of each panel (three screws per panel, six total).

Figure 13. Removing the side panels



1	Rear screw holes	**2**	Front screw holes

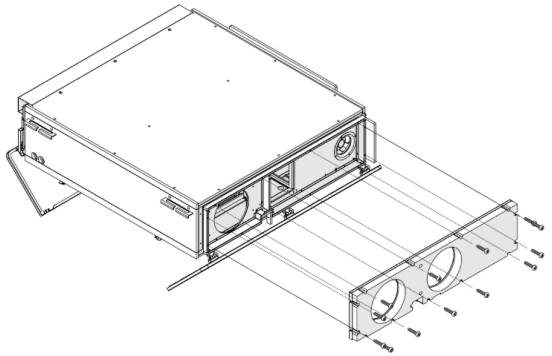
7.7.2 Duct Collar Installation

Duct collars are only required if the AIO® unit's external air connections will be ducted. If the unit will instead be ceiling-mounted flush against the exterior wall, skip this section and continue with 7.8 Mounting the unit on the ceiling.

To install the duct collars:

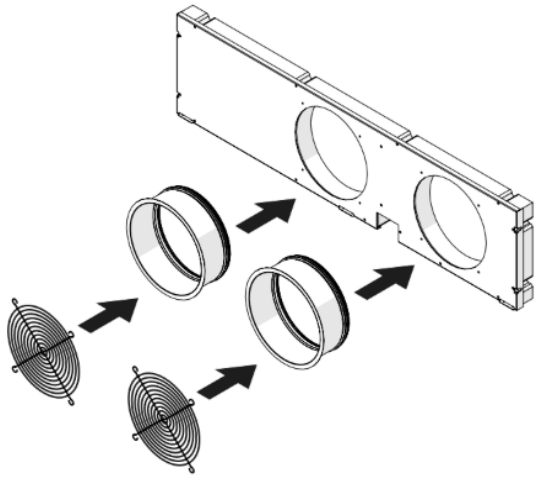
1. Remove the rear panel of the unit by unscrewing the 13 screws holding it in place.

Figure 14. Removing the rear panel



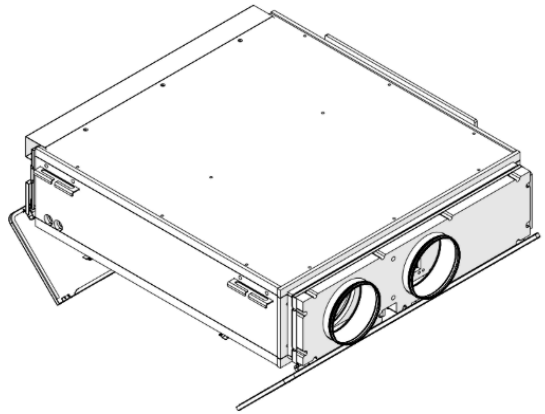
2. Remove the two anti-intrusion grilles from the panel by unscrewing the four screws holding each grille in place.
3. Install the duct collars on the inner side of the panel, with each collar passing through the panel, using the provided screws.
4. Reinstall the anti-intrusion grilles.

Figure 15. Installing the duct collars



5. Reinstall the rear panel on the unit.

Figure 16. Unit with duct collars installed



7.8 Mounting the unit on the ceiling

⚠WARNING

- Never leave any factory mounting bracket or channel unsupported or unbolted during positioning.
- Keep personnel clear while the unit is raised into position. Do not work under the unit until it is fully supported and secured.

⚠CAUTION

- Do not install the unit in a vertical orientation. Keep the unit horizontal and right side up at all times.
- Do not rock, tilt, roll, or overturn the unit during installation. If the unit was rocked, tilted, rolled, or overturned at any stage, lay it horizontal and right side up for at least 24 hours before powering on to allow the compressor oil to settle back into place.

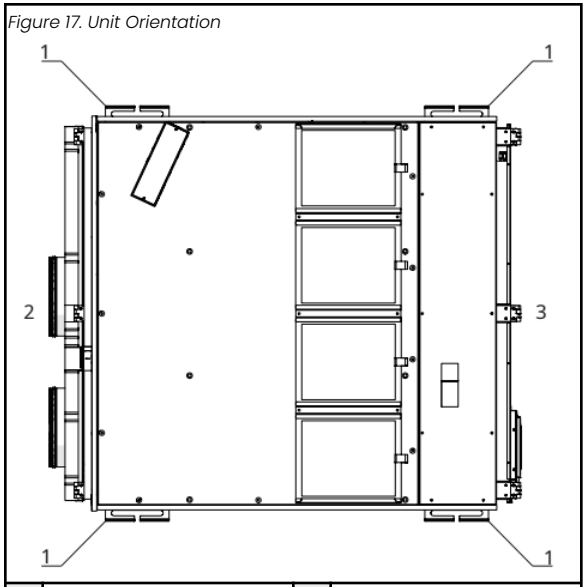
Before lifting the unit into place, confirm that:

- ☐ The ceiling anchors are fully installed, and the suspension hardware is rated for the unit weight and service loads.
- ☐ The threaded rods are straight, correctly positioned, and align precisely with the factory bracket channels.
- ☐ The work area directly below the unit is completely blocked off and clear of personnel.
- ☐ The unit orientation, service access boundaries, electrical connection side, and condensate drain location match the project drawings.
- ☐ The planned ductwork runs align with the unit's vent configuration.

To mount the unit:

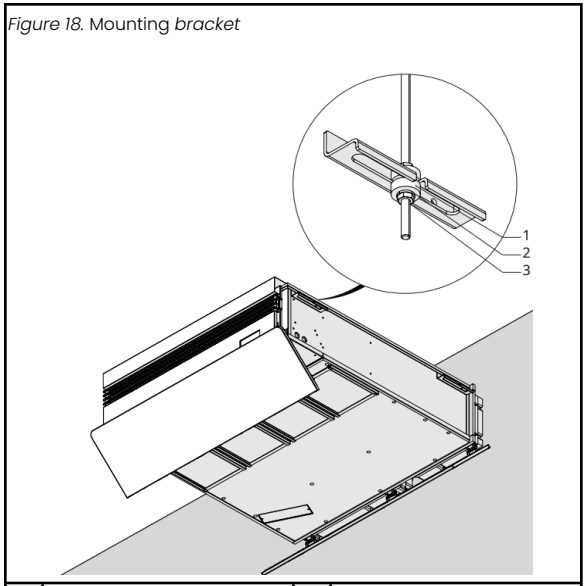
1. Using a mechanical lift, raise the unit horizontally into position beneath the ceiling, aligned with the threaded rods.
2. If mounting the unit flush against the exterior wall, push the unit towards the outer wall to create a seal on the air ducts. If the wall behind the unit is not completely flat, use insulating material to achieve a level surface. If ducting the unit, skip this step and continue with Step 3.
3. Mount the unit on the suspension rods using the pre-installed mounting brackets shown in Figures 17 and 18.
4. Use a digital level to confirm the unit is level with a slight pitch of ⅛" per foot (10.4 mm/m) towards the rear to allow the unit to drain properly.
5. Adjust and tighten the hanging nuts.
6. Confirm that the unit is level (on the horizontal axis) and is supported evenly at all suspension points.
7. Reinstall the side panels, front grille, and central lower panel removed in Section 7.7, using the original screws.
8. Close the hinged front and rear lower panels of the unit.

Figure 17. Unit Orientation



1	Mounting brackets	**3**	Indoor Side
2	Outdoor Side		

Figure 18. Mounting *bracket*



1	Vibration isolator	**3**	Nut
2	Washer		

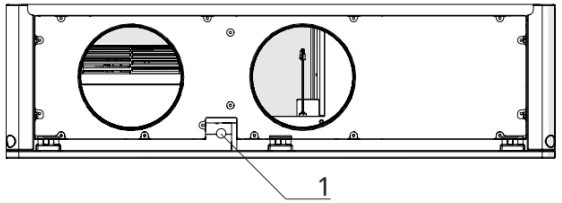
7.9 Connecting the condensate drain

Perform this procedure only after the unit has been mounted.

- The P-trap described in this section prevents the unit's negative pressure from drawing air through the condensate drain and interfering with drainage. A properly installed air trap (waterless condensate trap) that performs the same function may be used instead.
- If a P-trap or air trap is not installed, negative pressure may cause the drain pan to overflow into the building.

A ¾" (19 mm) OD condensate drain connection is located on the rear panel of the unit between the outdoor intake and exhaust vents (see Figure 19).

Figure 19. Condensate drain connection location



1	Condensate drain Ø 0.75" (19 mm)

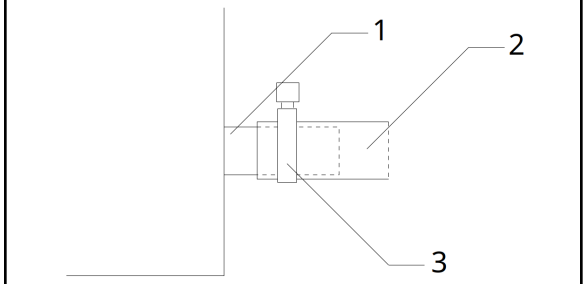
7.9.1 Connecting the unit and P-trap

Because the unit operates under negative pressure, a properly configured P-trap is required for condensate to drain correctly.

To connect the unit and P-trap:

1. Install a short ¾" PVC pipe stub in the P-trap inlet using the joining method specified for the piping material.
2. Slide the smaller end of an appropriately sized flexible reducing coupling over the unit's condensate drain connection.
3. Slide the larger end of the coupling over the PVC pipe stub connected to the P-trap.
4. Position the coupling so that both the unit connection and PVC pipe are fully seated inside it.
5. Tighten the coupling's stainless-steel clamps to the coupling manufacturer's specified torque.
   - Do not overtighten the clamp on the unit connection.
   - Do not deform the connection or place stress on it.

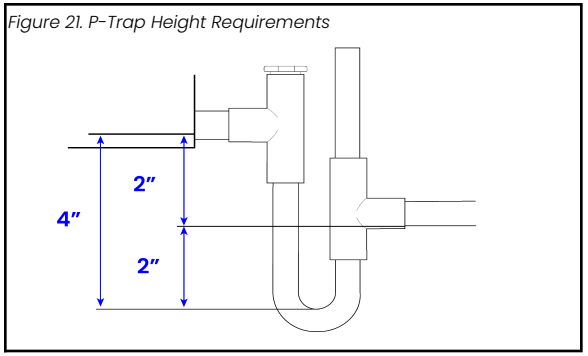
Figure 20. Connecting PVC pipe to unit drain connection



1	Factory drain connection	3	Flexible reducing coupling
2	Field-installed PVC drain pipe		

6. Install the P-trap within 6" (152 mm) of the unit drain connection and configure it to the dimensions shown in Figure 21.
7. Install the required cleanout and vent riser downstream of the P-trap.
8. Make sure all connections are secure, watertight, and insulated.

Figure 21. P-Trap Height Requirements



7.9.2 Routing the drain line

When connecting, avoid crushing or pinching the condensate drain hose.

Route the drain line from the P-trap to the drainage location prepared in Section 7.5.

- Maintain a continuous downward slope of at least ¼" per foot (2% or 20.8 mm/m).
- For direct outdoor discharge in locations that may experience freezing conditions, maintain a continuous downward slope of at least 3.6" per foot (30% or 300 mm/m).
- Do not allow the drain line to rise, sag, kink, or form an additional trap.
- Support the drain line at least every 5 ft (1.5 m).

Figure 22. Condensate drain slope

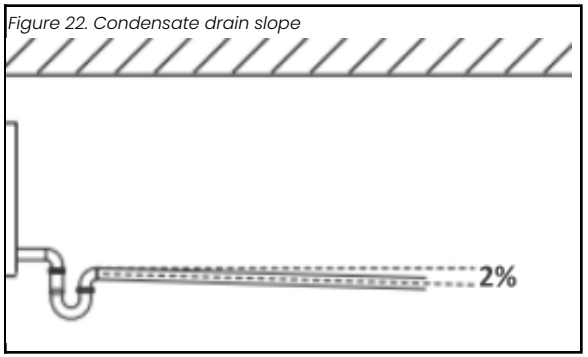
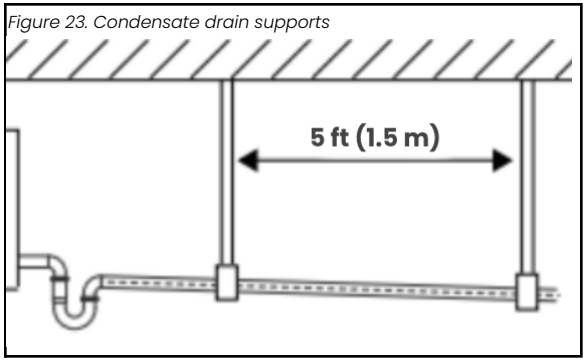


Figure 23. Condensate drain supports



7.9.3 Insulating and protecting the drain line

Insulate the entire drain line with closed-cell, vapor-impermeable insulation. Extend the insulation to the unit drain connection.

Where any portion of the drain line may be exposed to freezing temperatures, install approved freeze protection.

⚠ WARNING

Only use self-regulating heat tape or heat tape designed for use under insulation. Use of other types of heat tape may cause a fire and could void your warranty.

7.9.4 Pre-treating the condensate drainage system

Before testing the drain, treat the drain pan, collection-box wells, and internal drain lines with a coil-safe drain treatment to help reduce biofilm growth. Apply the product according to the manufacturer's instructions.

Approved products include Nu-Calgon PowerZyme and Viper Pan & Drain Treatment, or an equivalent coil-safe product.

7.9.5 Priming and testing the drain

Prime the P-trap and verify that the completed drainage system drains properly without leaks.

1. Slowly pour enough clean water into the unit drain pan to fill the P-trap.
2. Continue pouring water and verify that:
   - Water drains freely.
   - No water backs up into the unit.
   - All connections are secure and leak-free.

7.10 Connecting the ductwork

This section applies only if the unit will be ducted. If the unit is mounted flush against the exterior wall, skip this section and continue with Section 7.11.

7.10.1 Duct Connection Requirements

Before connecting the ductwork:

1. Review Figures 24 and 25 to identify the function, airflow direction, and size of each duct connection.
2. Inspect all duct collars. Make sure each collar is properly positioned, securely fastened, and free of gaps before installing any ductwork.
3. Correct any loose, damaged, or improperly installed collar before proceeding.

Once the collars have been located and inspected, connect the ductwork according to the project drawings and applicable codes, ensuring that the following requirements are met:

- Use properly sized rigid ductwork. Avoid flexible ductwork, which can sag, kink, restrict airflow, and increase static pressure. A short flexible connector may be used at the unit's duct collars.
- Size the outdoor air intake and exhaust duct systems so that the pressure drop of each system does not exceed the unit's total available external static pressure at the required airflow (refer to the fan curves in Appendix C).
- Include the resistance of all ducts, fittings, dampers, louvers, and other components when calculating external static pressure.
- Insulate the ductwork with a continuous vapor barrier to prevent heat transfer and condensation.
- Seal all duct joints and penetrations against air leakage, including the insulation vapor-barrier seams.
- Support the ductwork independently. Do not allow its weight to rest on the unit or duct collars.
- Balance and commission the completed duct system in accordance with the project requirements.

⚠CAUTION

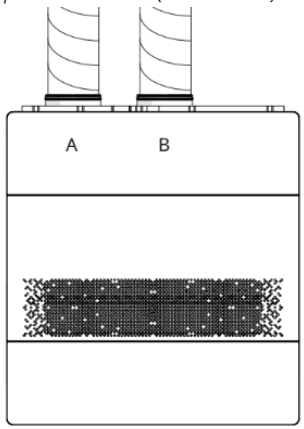
Do not operate the unit with loose, damaged, or leaking duct connections. Air leakage can reduce performance, cause condensation, draw unfiltered air into the system, or allow exhaust air to re-enter the building.

7.10.2 Duct Connection Configuration and Dimensions

Use the following figures to identify the location, airflow direction, and dimensions of each duct connection.

Bottom View

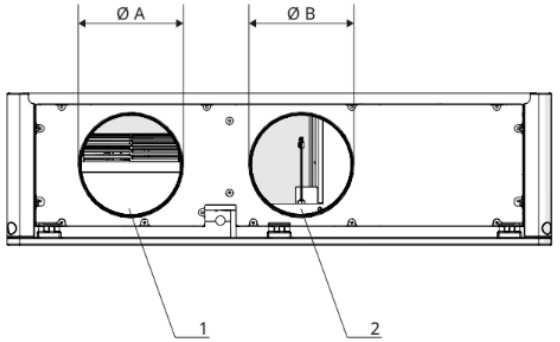
Figure 24. Airflow port connections (bottom view)



A	Outdoor air intake / ERV fresh air intake	**B**	Outdoor air exhaust / ERV stale air exhaust

Outdoor Side View

Figure 25. Airflow port connections (outdoor side view)



1	Outdoor air intake / ERV fresh air intake	**2**	Outdoor air exhaust / ERV stale air exhaust

Outdoor Vent Dimensions

- **Air connection A:** 8" (200 mm)
- **Air connection B:** 8" (200 mm)

7.11 Connecting electrical wiring and control interfaces

⚠DANGER

For safety and proper unit operation, do not make electrical connections to the unit until the AIO® unit has been mounted and the condensate drain and ductwork have been installed.

7.11.1 Electrical Safety Prerequisites

⚠DANGER

- When the AIO® unit is in the OFF state, voltage may still be present at the electrical controls.
- Contact with live electrical parts will cause severe injury, shock, or electrocution.
- Completely isolate the circuit and ensure zero voltage is present before removing the Bottom Service Panel or Electrical Cover Panel.

Before opening the Electrical Cover Panel or Bottom Service Panel, verify that:

- ☐ The entire system is powered off, including any remote breakers or switches at the fuse box.
- ☐ All remote disconnects, switches, peripherals, third-party controls, and backup power sources are disconnected.
- ☐ All OSHA-compliant Lockout/Tagout (LOTO) procedures have been completed.
- ☐ Absence of voltage has been verified with a voltmeter before touching any internal electrical components.

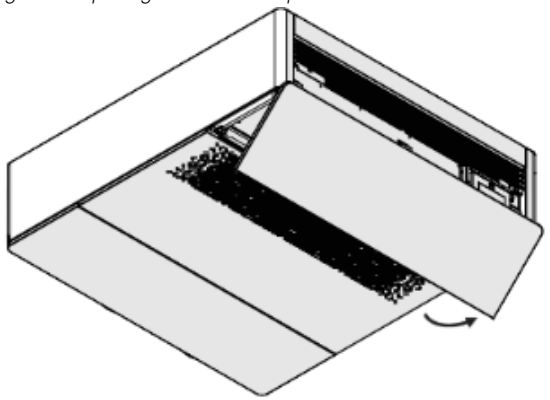
7.11.2 Accessing the Electrical Compartment

To hardwire the AIO® unit to the junction box, the electrical terminals must be accessed. These terminals are in a compartment located beneath the Electrical Cover Panel.

To open the Electrical Cover Panel:

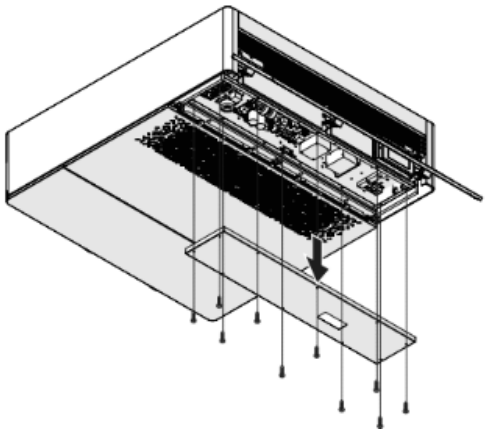
1. Open the front lower panel; it is hinged and swings outward.

Figure 26. Opening the front lower panel



2. Remove the 10 screws on the Electrical Cover Panel.

Figure 27. Removing the Electrical Cover Panel



7.11.3 Connecting the power supply

Once the electrical compartment is accessed, the unit can be hardwired to the junction box. To hardwire the unit:

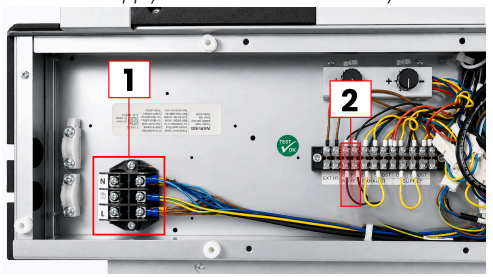
1. Refer to the terminals shown in the wiring diagram in Appendix B and in Figure 28 for the appropriate wiring locations.
2. In the wiring diagram, the unit power terminals are labeled L and N for both voltage configurations. Connect the power-supply conductors as shown in the following table:

Table 4. Power-supply conductors connections

Supply voltage	L terminal	N terminal
115 V	Hot	Neutral
230 V	L1	L2

3. Connect the equipment grounding conductor to the terminal marked with the ground symbol.
4. Secure all field wiring using listed strain-relief fittings.
5. Route and secure the wiring so that it cannot place stress on the terminals or become pinched, damaged, or caught beneath the Electrical Cover Panel.
6. Reinstall the Electrical Cover Panel before energizing the unit.

Figure 28. Power supply and remote on-off wire layout



1	Unit power supply	2	CP Terminals

⚠ WARNING

- Do not energize the unit with the Electrical Cover Panel removed.
- Do not leave exposed conductors, loose wires, or unsecured wiring inside the electrical compartment.
- Do not start the unit until a licensed electrician checks and approves all electrical connections.
- After completing the interconnecting and power wiring, verify that all conductors are properly routed and secured so they do not place excessive strain on the terminals, electrical components, or access panels.

8. SPECIAL CONFIGURATIONS

8.1 Connecting a Dry Contact (CP Terminals)

The AIO® Ceiling Suspended (with ERV option) unit supports integration with dry contact devices (voltage-free switch inputs used to control unit operation), such as:

- Remote on/off controls
- Occupancy sensors
- Hotel key-card switches
- Open-window switches
- Fire alarm interfaces

When the dry contact connected to the CP input opens, the unit turns off automatically, the display locks out manual control, and the **CP** symbol flashes on the onboard touch controller display. This indicates that the system is locked out by an external device.

⚠ WARNING

The CP terminals are designed for voltage-free dry contact only.

- Do not connect 115 V or 230 V line voltage to the CP terminals.
- Do not splice or connect the CP input in parallel with other control boards.
- Do not use shared control voltage on the CP input.
  - Use separate, isolated relay contacts for each unit or control device.
  - Line voltage can damage the control board, create a fire or electric shock hazard, and void warranty coverage.

To minimize electrical interference, use solid conductor wire for runs of up to 30 ft (9.14m). For longer runs up to project limits, use shielded solid four-conductor 18 AWG cable.

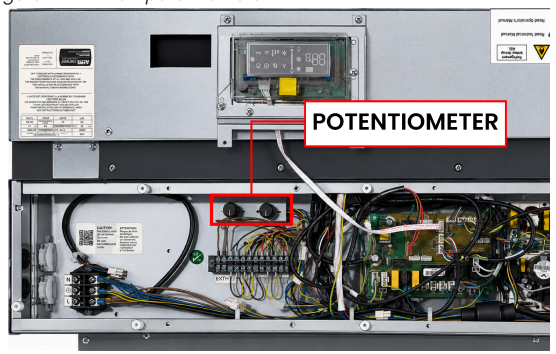
To install a dry-contact interface:

1. **Prepare the system and circuit enclosure**
   a. Power off and disconnect the power supply, and lock out/tag out the branch circuit.
   b. Wait at least 5 minutes and test with a voltmeter to verify zero voltage is present.
   c. Carefully open the Electrical Cover Panel (see Figures 26 and 27).
2. **Terminate and secure the interface wiring:**
   a. Connect the dry contact device wiring directly to the CP terminals as shown in Figure 28.
   b. Secure the wiring so it cannot pull on the terminal block or control board.
   c. Reinstall the Electrical Cover Panel before powering on the unit.
3. **Test the dry contact operation and display**
   a. Reconnect the power supply and energize the unit.
   b. Activate and deactivate the connected dry contact device.
   c. Verify that the dry contact functions properly, then reinstall the Electrical Cover Panel.

8.2 Independent control of the ERV side

By default, ERV fans operate in relation to the unit supply fan. When independent control is enabled, the ERV fans are controlled directly by the potentiometer and no longer follow the unit control logic.

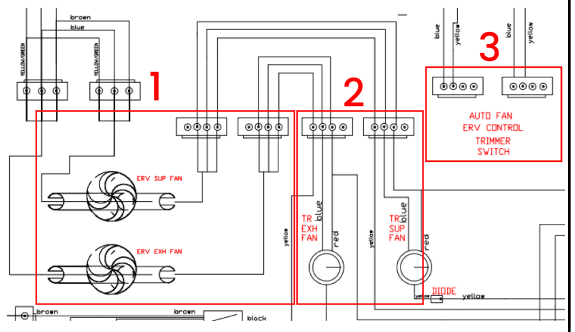
Figure 29. ERV fan potentiometer



To enable independent control:

1. Disconnect power to the unit and wait at least 5 minutes before accessing the electrical components.
2. Refer to Figure 30 and identify the following connections:
   - ERV supply and exhaust fan connections
   - Potentiometer-controlled terminals marked TR SUP FAN and TR EXH FAN
   - Unit-controlled terminals marked AUTO FAN ERV CONTROL TRIMMER SWITCH
3. Disconnect the ERV supply fan wires from the unit-controlled terminals and connect them to TR SUP FAN
4. Disconnect the ERV exhaust fan wires from the unit-controlled terminals and connect them to TR EXH FAN.
5. Verify that all connections are secure before restoring power to the unit.

Figure 30. ERV connections



1	ERV fan connections
2	Potentiometer-controlled terminals
3	Unit-controlled terminals

9. STARTUP AND CONFIGURATION

⚠WARNING

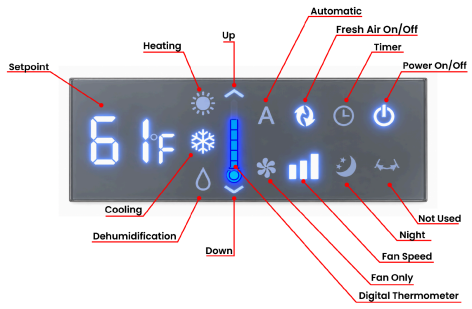
Hazardous voltage may be present even when the unit is powered off. To prevent severe electrical shock or equipment damage, disconnect all power supplies at the circuit breaker or disconnect switch before opening or servicing the unit.

After the unit has been physically installed and electrically connected, it must be started up and commissioned before it is ready for use. This chapter covers the initial power-on procedure, system verification, and menu configuration.

9.1 Onboard Touch Controller Overview

The onboard touch controller (see Figure 31) is located on the front of the unit. Use the controller to change settings, select airflow programs, and run testing cycles.

Figure 31. Onboard touch controller



The following tables contain a brief description of the keys used during commissioning:

Key	Description
Up arrow	Increases setpoint temperature; scrolls upward through menu items
Down arrow	Decreases setpoint temperature; scrolls down through menu items
Fan speed	Cycles through fan speed levels (for example: Low, Medium, High, and Auto)
Heating	Activates or deactivates Heating Mode.
Cooling	Activates or deactivates Cooling Mode.
Dehumidification	Activates or deactivates Dehumidification Mode.
Timer	Sets the auto-off timer
Night	Activates or deactivates Night mode
A (Auto / Alert)	Used for Auto temperature changeover, menu access, and displaying active alerts
Power	Turns the unit on or off; used for menu access and confirmation

The order and content of menu items may vary depending on the installed firmware (FW) version. Always verify the firmware version before making configuration changes.

9.2 Commissioning the unit

To commission the unit, follow the steps below:

1. Power on the unit.
2. Check basic unit operation.
3. Check fan speed operation.
4. Configure the unit airflow settings.
5. Configure the ERV airflow settings.
6. Ensure the unit is air-balanced.
7. For units with electric heaters only: Configure the unit's electric heaters.

9.2.1 Powering on the unit

When powering on the unit for the first time:

1. Turn on the disconnect switch or circuit breaker.
2. Press the **Power On/Off key** (⏻) on the Onboard Touch Controller. The screen will light up, and the unit will enter standby mode.
3. Check the display:
   - If the display operates normally, continue with the commissioning procedures below.
   - If an error code or the CP lockout appears, do not continue commissioning until the condition has been resolved. See Section 9.3 or contact INNOVA support.

9.2.2 Checking basic unit operation

Operate the unit in Cooling and Heating, and Fan-only modes. In each mode, verify that the unit starts, operates without abnormal noise or vibration, and produces the expected airflow and discharge-air temperature.

9.2.3 Checking fan speed operation

The supply fan speed can be adjusted from the Onboard Touch Controller while the unit is operating in Fan-only, Cooling, Heating, or Auto mode.

In Dehumidification mode, the unit controls fan operation automatically.

To check fan speed operation:

1. Make sure the unit is operating.
2. Press the **Fan Speed key** ( ) to cycle between fan speeds (Low, Medium, High, and Auto).
3. Verify that the fan responds correctly at each setting.

9.2.4 Configuring the unit airflow settings

Correct airflow is required for proper unit operation and capacity. During commissioning, select the airflow program appropriate for the external static pressure of the installed duct system.

The unit provides eight airflow programs. Each program establishes the indoor and outdoor fan settings shown in the following table.

Table 5. Indoor and outdoor fan settings

Program	Description	Indoor Side	Available Indoor Pressure (in. WC / Pa)	Outdoor Side	Available Outdoor Pressure (in. WC / Pa)
P1	IN LOW/ OUT LOW	LOW	0.1 / 25	LOW	0.1 / 25
P2	IN MED / OUT LOW	MED	0.3 / 75	LOW	0.1 / 25
P3	IN HIGH / OUT LOW	HIGH	0.5 / 125	LOW	0.1 / 25
P4	IN LOW / OUT MED	LOW	0.1 / 25	MED	0.3 / 75
P5	IN MED / OUT MED	MED	0.3 / 75	MED	0.3 / 75
P6	IN HIGH / OUT MED	HIGH	0.5 / 125	MED	0.3 / 75
P7	IN LOW / OUT HIGH	LOW	0.1 / 25	HIGH	0.5 / 125
P8	IN HIGH / OUT HIGH	HIGH	0.5 / 125	HIGH	0.5 / 125

Programs P5 and P6 are suitable for most applications. For bathroom-exhaust applications, use P8 unless the project airflow calculations or balancing results require a different setting.

To select an airflow program:

1. On the onboard touch controller, press and hold the **Fan Speed key** ( ) button until **P1** flashes on the display.
2. Select the desired program using the **up and down arrows** ( ).
3. Wait for the controller to save the selection and exit the menu automatically.
4. During system balancing, verify that the selected program provides the required airflow.

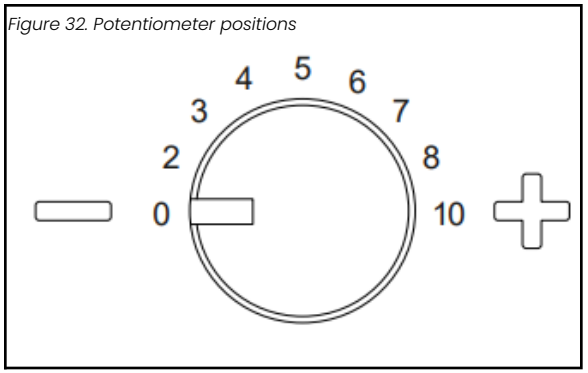
9.2.5 Configuring the ERV airflow settings

- Units equipped with an ERV require ventilation airflow adjustment during commissioning to establish the correct air exchange rate for indoor air quality and occupant comfort.
- The ERV fans control the amount of outdoor air brought into the system. The supply fan distributes that air through the ductwork.
- The ERV fan speed is controlled using the trimmer kit (potentiometer - see Figure 29), which sets the ventilation airflow rate.

To adjust ERV airflow:

1. Activate the ERV fans by pressing the **Fresh Air On/Off key** ( ).
2. Locate the potentiometers in the Electrical Compartment (see Figure 29).
3. Rotate the adjustment knobs to increase or decrease ERV airflow until the specific target fresh air airflow is reached (see Figure 32 for the knob settings and Figure 41 in Appendix C for the fan curves in each setting).

Figure 32. Potentiometer positions



After adjusting the ERV airflow, measure the fresh-air and stale-air airflows and confirm that they match the project specifications.

9.2.6 Ensuring the unit is air-balanced

- All units must be properly air-balanced by a qualified air-balancing professional.
- Air balancing must be performed after installation and before final commissioning.
- A formal air balancing report must be completed and made available.
- Failure to perform air balancing properly may result in poor performance, system issues, and voiding of the warranty.

9.2.7 For units with electric heaters only: Configuring the unit's electric heaters

In cold climates where outdoor temperatures drop below freezing, configure units with supplemental electric heat to use the electric resistance heating. This improves heat pump operation in extreme low ambient conditions and helps stop ice formation on the outdoor coil.

⚠CAUTION

Do not activate the low-ambient resistance-heat setting on standard Heat Pump Only models (Version code P). The following procedure applies only to units factory-equipped with supplemental electric heat strips (Version code K, E, L, U, or V).

To configure low ambient resistance heat mode:

1. Power on the unit.
2. Press and hold the Heating icon ( ) for 10 seconds until **"Fh"** appears on the display.
3. Press and hold the Heating icon ( ) again for 5–10 seconds until **"Fo"** appears on the display.
4. Press and hold the Heating icon ( ) a third time for 5–10 seconds until **"rE"** (resistance heat mode) appears on the display.
5. Release the key and wait for the menu to automatically save and exit.

9.3 Commissioning Troubleshooting & Diagnostics

Use the following table to identify and resolve common issues that may arise during the commissioning process.

Table 6. Commissioning Troubleshooting & Diagnostics

Issue	Possible cause	Corrective action
Any fault occurs during commissioning	Installation or commissioning issue	Power off the unit and disconnect power before removing the Bottom Service Panel or Electrical Cover Panel. Verify that all installation, wiring, drainage, ductwork, and commissioning procedures have been completed correctly.
Onboard Touch Controller display is off	Power is not supplied to the unit.	Verify that building power is available at the unit.
	The circuit breaker has tripped.	Reset the circuit breaker. If it trips again, stop troubleshooting and contact INNOVA support or a qualified service technician.
	The disconnect switch is OFF.	Turn the disconnect switch ON.
	The unit fuse is blown.	Have a qualified service technician inspect the unit and replace the fuse, if necessary.
	Control wiring is loose or connected incorrectly.	Verify that the control wiring is secure and connected correctly.
Unit does not turn on	Building voltage is not present at the unit.	Verify that the supply voltage is present and matches the unit nameplate.
	The circuit breaker or disconnect switch is OFF.	Turn on the circuit breaker and the disconnect switch.
	The CP remote on/off contact is open.	If the CP input is used, close the remote on/off contact. If the CP input is not used, ensure the factory-supplied jumper wire (used to close the CP terminals) is firmly attached.
No communication with the Onboard Touch Controller	The display cable is loose or disconnected.	Verify that the display cable is securely connected.
	RS485 or control-wiring polarity is incorrect.	Verify and correct the wiring polarity.
	Communication wiring is damaged.	Inspect the wiring and replace any damaged sections.
	Communication wiring is routed too close to power wiring.	Separate communication wiring from power wiring as required.
Low airflow during commissioning	Filters are dirty or installed incorrectly.	Clean or replace the filters and reinstall them correctly.
	Ductwork is blocked, crushed, kinked, or otherwise restricted.	Remove the restriction or repair the affected ductwork.
	Supply, return, intake, or exhaust openings are obstructed.	Clear all airflow openings.
	Duct connections are loose or leaking.	Secure and seal all duct connections.
	The incorrect airflow program is selected.	Select the airflow program appropriate for the installed duct system and required external static pressure.
	The system has not been air-balanced.	Have a qualified testing, adjusting, and balancing professional balance the system.
Condensate does not drain.	The condensate drain line does not have the required continuous downward slope.	Correct the drain-line routing and slope.
	The P-trap/Air trap is missing, incorrectly installed, or not primed.	Install the P-trap/Air trap correctly and prime it with water.
	The drain line is blocked, kinked, sagging, trapped, or routed with low points.	Clear the blockage or correct the drain-line routing.
	A drain joint is loose or leaking.	Secure and seal the affected joint.
	Water does not drain freely during the commissioning drain test.	Correct the drainage issue and repeat the drain test before operating the unit.

If an issue cannot be resolved using this table, stop troubleshooting and contact INNOVA support.

9.4 Error codes during commissioning

If an error code appears during commissioning, record the code and check the related item below.

Table 7. Error codes during commissioning

Code	Meaning	Commissioning check
E1	Room temperature sensor fault	Check sensor connection.
E2	Indoor coil / IPT sensor fault	Check sensor connection.
E3	Outdoor air temperature sensor fault	Check sensor connection.
E4	Outdoor coil / OPT sensor fault	Check sensor connection.
E5	Indoor fan motor fault	Check fan wiring and obstruction.
E6	Outdoor/condenser fan motor fault	Check fan wiring and obstruction.
E7	Fault between the main controller board and the controller.	Check onboard touch controller display and communication wiring.
E8	Compressor discharge sensor fault	Check sensor connection.
CP	CP remote on/off contact open	Verify CP contact is closed or correctly wired.

If the code does not clear after checking the installation-related items, stop commissioning and contact INNOVA support or a qualified service technician.

10. TESTING THE UNIT

After completing the installation and commissioning procedures, test the heat pump and ERV to verify proper operation before leaving the job site.

To test the unit:

1. Before energizing the unit, verify that the supply voltage is within the unit's specified operating range and that the unit is properly grounded.
2. Turn on the unit, select Cooling mode, and set the controller to its lowest temperature setting. Verify that cool air discharges from the supply grille.
3. Operate the unit continuously in Cooling mode for 20 minutes. During this period:
    - Verify that condensate flows freely through the drainage system and that all drain connections are leak-free.
    - Measure and record the operating voltage and running current. Verify the measurements against the applicable unit electrical specifications.
4. Select Heating mode and set the controller to its highest temperature setting. Verify that warm air discharges from the supply grille.
5. Cycle through the Low, Medium, High, and Auto fan-speed settings. Verify that the supply fan responds correctly at each setting.
6. For units equipped with an ERV, verify that the outdoor air intake and exhaust fans operate correctly and that the required ventilation airflows have been achieved.
7. If an optional wall-mounted controller, such as the LTCH20 or TFTH20, is installed, use the controller to verify proper communication and operation.
8. Verify that the supply, return, outdoor air intake, and exhaust openings are free of obstructions, including drapes, furniture, construction debris, and structural elements.
9. After completing all operational, drainage, and electrical checks, continue with Section 11.

11. SELF-CERTIFYING THE INSTALLATION

Before handing the unit over to the customer, complete the steps in the AIO® Ceiling Suspended Self-Certification Guide and submit the required photographs to INNOVA. (If you need the Self-Certification Guide, contact INNOVA support.) INNOVA must review and approve the installation before the warranty can be activated.

12. CUSTOMER HANDOFF

After commissioning and self-certifying the unit, perform the following final steps:

- Explain the following to the customer:
    - Basic unit operation.
    - How to use the onboard and/ or wall controller.
    - How to identify alarms or error codes.
    - Routine maintenance requirements.
    - Filter cleaning or replacement requirements.
    - When to contact a qualified service technician.
- If the unit is installed in a salty, chemical, or acidic environment, apply a protective coil coating, such as DiversiTech Coil Guard, to protect the coil surfaces from corrosion and ensure long-term performance.
- If the unit is installed on a construction site, protect it with tight plastic wrap and do not operate it until all dust and debris in the air have been removed.
- Remove all packaging materials and wipe off any dust or debris from the unit using a damp cloth.

APPENDIX A - DIMENSIONS

To view the dimensions as a high-resolution PDF, click the link below:

AIO Ceiling Suspended (with ERV option) Dimensi...

Figure 33. Dimensions

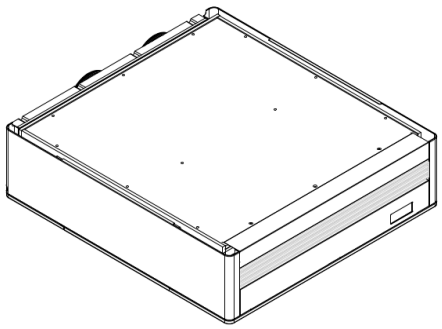


Figure 34. Top view

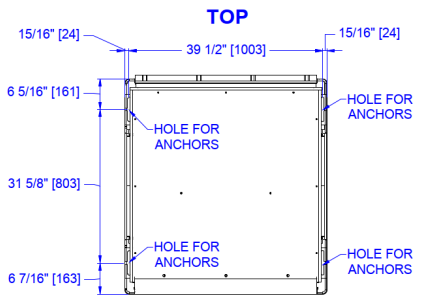


Figure 35. Left view

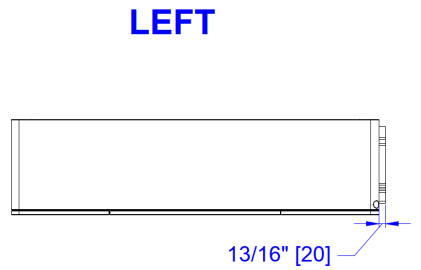


Figure 36. Front view

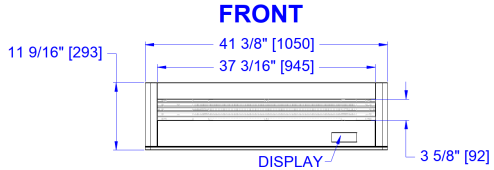


Figure 37. Right view

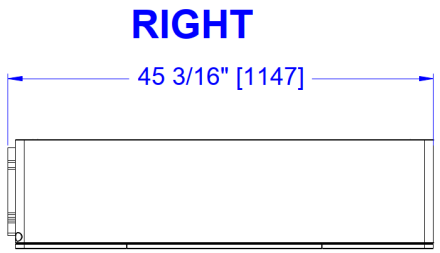


Figure 38. Bottom view

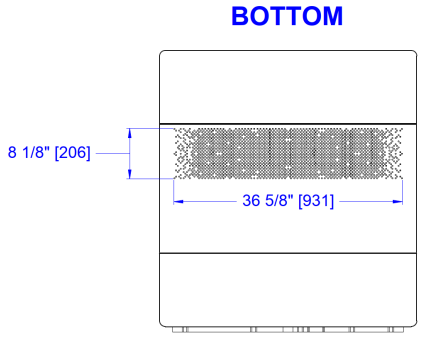
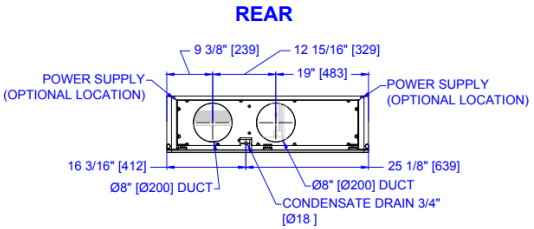


Figure 39. Rear view

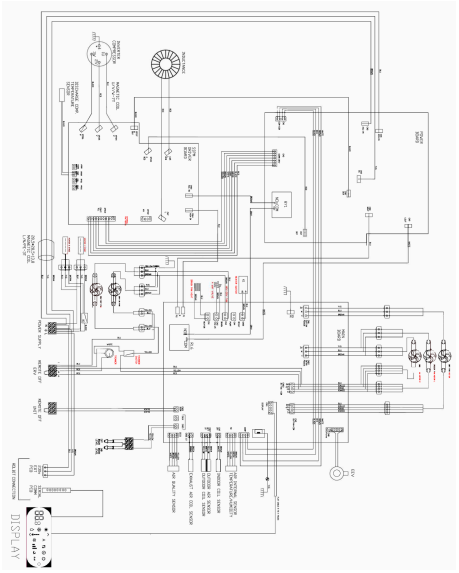


APPENDIX B - WIRING DIAGRAM

To view the diagram as a high-resolution PDF, click the link below:

AIO Ceiling Suspended (with ERV option) Wiring D...

Figure 40. Wiring diagram



APPENDIX C - FAN CURVES

The following graphs illustrate airflow versus external static pressure at low, medium, and high fan speeds.

Figure 41. Outdoor fan performance curves

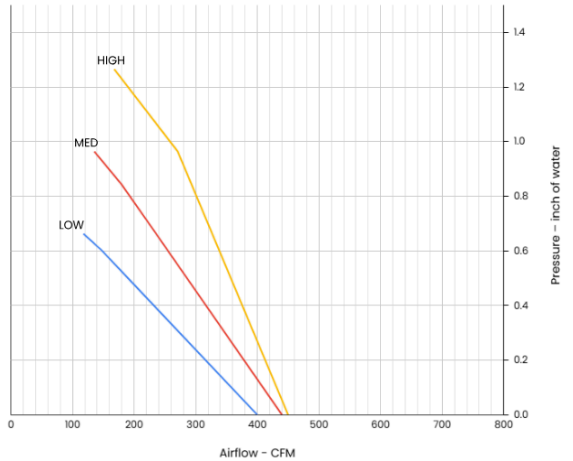
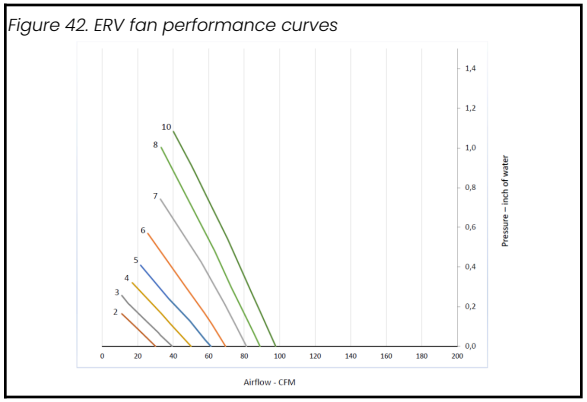


Figure 42. ERV fan performance curves



APPENDIX D - WARRANTY

For detailed warranty terms and conditions, click the link below:

AIO Warranty Terms and Conditions - 2026 - INN...

APPENDIX E - GLOSSARY

Term	Definition
BMS	Building Management System. A centralized system used to monitor and control building equipment. The unit may communicate with a BMS through dry contacts or an optional Modbus or BACnet gateway.
CFM	Cubic feet per minute. A unit used to measure airflow rate.
CP	Remote On-Off Contact. A low-voltage dry-contact input used to enable or disable unit operation through an external device, such as a fire-alarm system, window switch, or hotel key-card system. The contact must be closed for the unit to operate.
ERV	Energy Recovery Ventilator. An integrated ventilation system that introduces filtered outdoor air, exhausts stale indoor air, and transfers sensible and latent energy between the two airstreams.
GWP	Global Warming Potential. A measure of how much heat a greenhouse gas traps in the atmosphere relative to carbon dioxide. R-32 has a GWP of 675 based on the 100-year assessment commonly used for refrigerant ratings.
in. WC / Pa	Inches of water column/pascals. Units of pressure (in. w.c. = U.S. customary; Pa = SI) used to express the external static pressure of ductwork, louvers, and other airflow-system components.
P-Trap	A plumbing fitting installed in the condensate drain line to maintain a water seal. The seal prevents air from entering through the drain line and interfering with condensate drainage.
Potentiometer	An adjustable control, also known as a trimmer, used to calibrate the ERV supply and exhaust fan speeds. The potentiometers are located inside the Electrical Compartment.

APPENDIX F - REVISION HISTORY

Rev	Date	Revised By	Changes
2.0	2026-05-20	Yossi Myhill	Base version
2.1	2026-09-09	Abraham Benjamin	Complete revision

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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MADE IN ITALY

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AIO® Ceiling Suspended (with ERV option)
Installation Guide