# AIO® Ceiling Ducted with ERV (Gen 3)

## Installation Guide



innova

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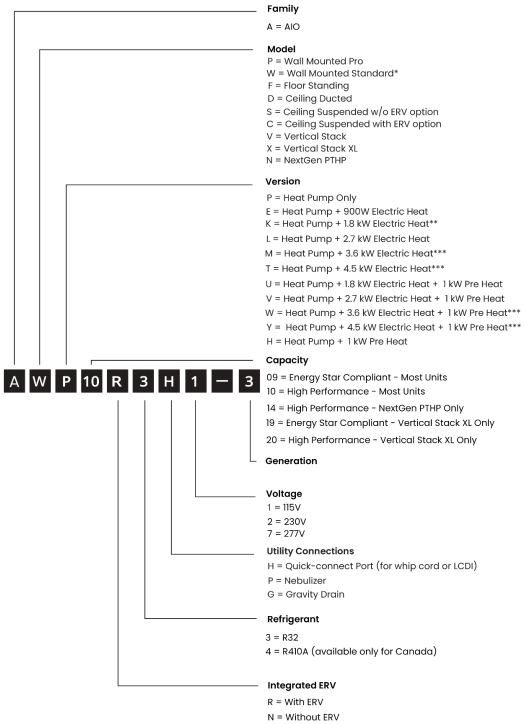
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## MODEL NUMBER NOMENCLATURE

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

**Note:** Ceiling Ducted - Mirror Version units use the suffix "-MR" in place of the generation code (e.g., "-3" or "-3SP"), indicating a mirrored (left/right reversed) unit configuration.

*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 documentation have specific meanings.

#### 1.1.1 Reference to the product

Any reference to "the unit" is meant to refer to the AIO® Ceiling Ducted with ERV (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 Mirrored unit orientation

Units with the "-MR" suffix are built in a mirrored configuration. On these units, left and right components are reversed.

Unless stated otherwise, this guide describes the standard unit. For mirrored units, reverse all left and right references.

#### 1.1.4 Bottom Service Panel

The panel on the underside of the unit, toward the rear, that protects and provides access to the fans, ERV core, and coils.

#### 1.1.5 Electrical Cover Panel

The panel on the underside of the unit, near the supply air duct, that protects and provides access to the electrical compartment containing the terminals and connections.

#### 1.1.6 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.

#### 1.1.7 Illustrations and diagrams in this guide

All illustrations and diagrams in this guide show installations using 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 a pictogram to specify the topic.

**DANGER**

The red panel with the **DANGER** title indicates a hazardous situation that, if not avoided, will result in death or serious injury.

**WARNING**

The orange panel with the **WARNING** title indicates a hazardous situation that, if not avoided, could result in death or serious injury.

**CAUTION**

The yellow panel 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 pictogram indicates information related to a fire or explosion hazard. |
|  | The lightning-bolt pictogram indicates information related to an electrical hazard. |
|  | The three vertical, S-shaped, parallel lines pictogram indicates information related to a hot surface hazard. |

| | |
|---|---|
|  | The hand pictogram indicates information related to a moving part hazard, sharp-surface hazard, or pinch-point hazard. |
|  | The slippery surface pictogram indicates information related to a slipping hazard. |
|  | The exclamation mark pictogram indicates information related to a general hazard, including lifting, handling, environmental, installation, refrigerant contact, or property-damage hazards where no more specific pictogram applies. |

**1.2.3 Annotation icons**

Annotation icons identify important installation, operation, or product information. It is essential to read each one carefully and follow the instructions stated.



The prohibition circle indicates a prohibited action or condition that could damage the unit, create an unsafe condition, or void the warranty.



The gear icon indicates critical information required for correct installation, commissioning, operation, or service.



The "i" in a circle indicates supplemental information, tips, or useful background information.

# 2. SAFETY GUIDELINES - READ BEFORE INSTALLING

This guide outlines the steps necessary to safely and securely install the AIO® Ceiling Ducted with ERV unit. 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.

Read the entire installation guide before installing the 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 R32 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 (R32). 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 R32 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, unless otherwise instructed in this guide.
- 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.
- 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 package 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.
- 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.

## ⚠CAUTION

- Do not install or store the unit in rooms with continuously operating ignition sources (e.g., open flames, gas appliances, or electric heaters).
- 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.
- 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.
- 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 have corrosion protection added to the coils.
- Failure to use corrosion protection in such environments may result in accelerated corrosion and will void corrosion-related warranty coverage.

### 2.8 Installer responsibilities

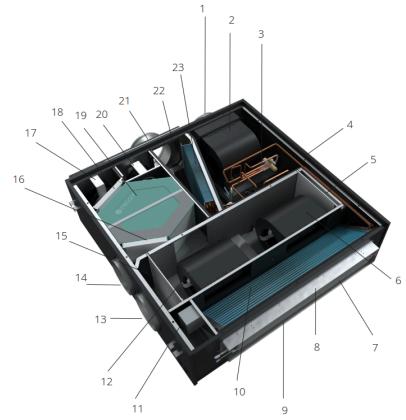
- Install the unit safely and in accordance with all applicable local and national codes and regulations.
- Ensure that you fully understand the product and the installation procedures before beginning the installation. Installation activities involve greater risk than normal system operation.
- Provide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

## 3.1 Components and structure

*Figure 2. What's Inside*




| | | | |
|---|---|---|---|
| **1** | Condenser + stale air exhaust vent | **13** | Return air vent |
| **2** | Condenser + stale air exhaust fan | **14** | ERV stale air intake vent |
| **3** | Twin rotary inverter compressor | **15** | Return air filter |
| **4** | Return air connection | **16** | ERV filter |
| **5** | Return air filter | **17** | Fresh air ECM supply fan |
| **6** | ECM supply fan | **18** | ERV filter |
| **7** | 900/1800W electric heat strip | **19** | ERV Hybrid Recovery Core |
| **8** | Supply air vent | **20** | Stale air ECM exhaust fan |
| **9** | Onboard touch controller | **21** | Condenser + fresh air intake vent |
| **10** | High-efficiency indoor coil | **22** | Condensate drain |
| **11** | Accessory Connection Block | **23** | High-efficiency outdoor coil |
| **12** | ECM supply fan | | |

- For exact dimensions, see Appendix A.
- Units are supplied with standard side-return ports. Custom factory-built bottom-return units are available.

- For instructions on changing between side-return and bottom-return configurations, refer to *AIO® Ceiling Ducted Switching Between Side and Bottom Returns.*

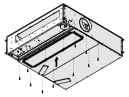
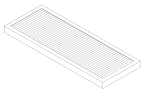
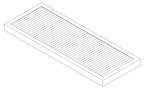
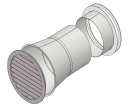
Component positions are mirrored in AIO® Ceiling Ducted - Mirror Version units.

Do not install the unit if the delivered configuration does not match your project submittals.

## 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 |
|---|---|---|
|  | Bottom return conversion kit | AHRA0014 |
|  | GWN gateway (used to connect LTCH20 and TFTH20 controllers) | GWN |
|  | GWX gateway (used to connect all controllers and BMS systems) | GWX-NC |
|  | LTCH20 (basic touch) controller | LTCH20 |
|  | TFTH20 (advanced touch) controller | TFTH20 |
|  | Replacement ERV filters for AIO® Ceiling Ducted units. MERV 13 equivalent (F7). Includes 2 filters. | AHRA0685 |
|  | Replacement MERV 3 return air filters for AIO® Ceiling Ducted units. Includes 2 filters. | AHRA0687 |
|  | 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 8C ERV | LLA/F-H Sub... |
| | Extended (Left/Right) | LLA/F-E 8C ERV | LLA/F-E - LEF... LLA/F-E - RIG... |
| | Single | LLA/F-S 8W | LLA/F-S Sub... |
| LLA/C (Concealed Flange) | Horizontal | LLA/C-H 8C ERV | LLA/C-H Sub... |
| | Extended (Left/Right) | LLA/C-E 8C ERV | LLA/C-E - LE... LLA/C-E - RI... |
| | Single | LLA/C-S 8W | LLA/C-S Sub... |
| LLA/S (Surface Mounted) | Horizontal | LLA/S-H 8C ERV | LLA/S-H Sub... |
| | Single | LLA/S-S 8W | LLA/S-S Sub... |

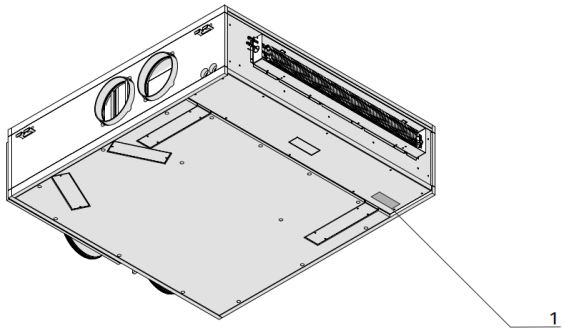
## 3.3 Unit Rating Plate

The Unit Rating Plate, attached to the bottom of the unit (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 unit and mounting template are shipped in a single carton. Other accessories are shipped separately.

## 4.2 Carton Dimensions and Weight

The dimensions and total weight of the unit in the shipping carton are listed below:

*Table 3. Carton dimensions and weight*

| | |
|---|---|
| **Width** | 41.4" (1052 mm) |
| **Height** | 11.0" (279.4 mm) |
| **Depth for unit with preheater** | 52.2" (1327 mm) |
| **Depth for unit without preheater** | 45.7" (1161 mm) |
| **Maximum Weight** | 202.8 lb (92 kg) |



The maximum weight shown includes the unit, installed electric heating components, and packaging. Actual packaged weight varies depending on the unit configuration. See the product data sheet for the individual component weights.

**⚠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 package by the cardboard or plastic wrapping.
- Follow OSHA manual-lifting limits and the site lifting plan to prevent injury.

**⚠WARNING**

- 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

Upon receiving the unit:

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 Package

Before lifting the package:

1. Check the package 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 package 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.

**⚠CAUTION**

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

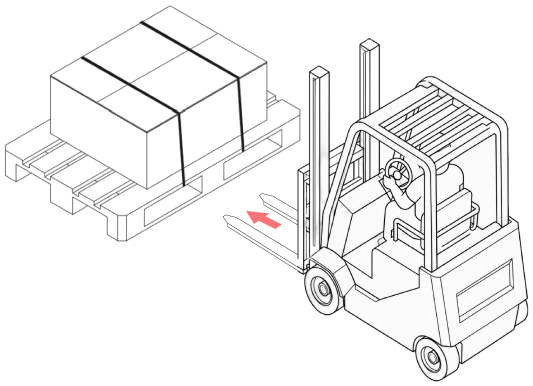
**Before lifting the package on a pallet:**

1. Confirm that the package 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 package on a pallet:**

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

*Figure 4. Lifting with a pallet*



**4.4.2 Moving the package 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 package balanced and level.
4. Clear the travel path of people and obstructions.
5. Lift the package while keeping it horizontal and right side up.
6. Move the package as close to the installation location as possible.
7. Lower the package gently into position.
8. Confirm that the package 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 package 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 package 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 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:**

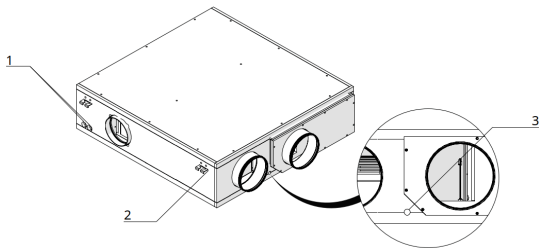
1. Remove the outer covers to inspect for underlying damage.
2. Photograph all damage and all sides of the unit to support a damage claim.
3. Clearly document the damage on the freight bill.
4. Notify your INNOVA representative or distributor.

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 5) to verify the exact locations of the electrical connections, suspension brackets, and condensate drain port.

*Figure 5. Electrical, Drainage, and Bracket Locations*




| | | | |
|---|---|---|---|
| 1 | Electrical connection passage | 3 | Condensate drain |
| 2 | Installation bracket | | |

# 5. TOOLS AND MATERIALS NEEDED

Before installation, have the following available, as applicable:

- Appropriate PPE
- Approved lifting equipment rated for the unit weight. See the product data sheet for unit-weight specifications.
- AIO® Ceiling Ducted installation template
- Ceiling support and mounting hardware specified in the project design, including:
  - Threaded rods
  - Anchors
  - Fasteners
  - Vibration isolation
- Solid (non-flexible) Ductwork, including:
  - Fittings
  - Supports
  - Insulation
  - Connectors
  - Clamps or collars
  - Sealant
- Condensate solution, including:
  - Short ¾" PVC pipe stub (to connect to the P-trap/Air trap)
  - Flexible reducing coupling
  - Code-compliant P-trap/Air 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

Before installation, confirm that the site is prepared for:

- Unit suspension and required service clearances
- Supply, return, outdoor-air intake, exhaust-air, and stale-air ductwork
- Exterior intake and exhaust openings
- Condensate drainage
- Line-voltage power and a disconnecting means
- Control and communication wiring
- A false-ceiling access hatch

## 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, return-air configuration, 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 structure can carry the 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% (1/4 in. 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 in. (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.

#### 6.1.4 Service Access

- [ ] An access hatch has been installed in the ceiling.
- [ ] The access hatch clearances provide unobstructed access to the bottom service panel, electrical cover panel, filters, connections, and condensate drain.
- [ ] Service access has been verified before the ceiling or surrounding construction is closed.

## 6.2 Louver requirements

While the louvers mentioned in Section 3.2 are highly recommended, using another custom 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 Ducted Unit.

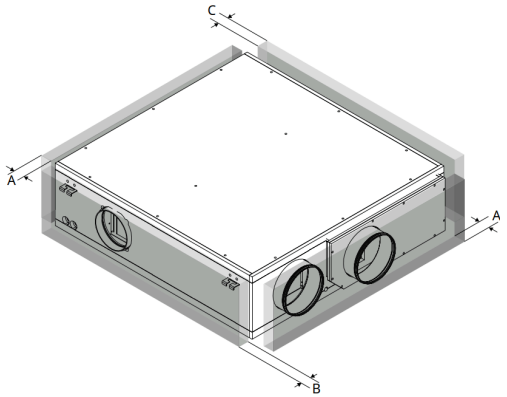
Always contact INNOVA before selecting, designing, or fabricating a custom louver. An unsuitable louver may restrict airflow, impair unit operation, and affect warranty coverage.

## 6.3 Minimum clearance requirements

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

- **Side Clearances:** Minimum 3.5 in. (88.9 mm) on all sides.

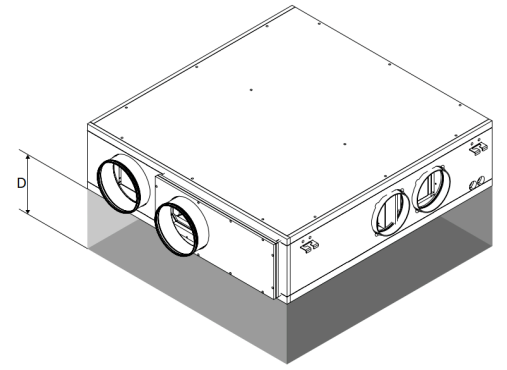
*Figure 6. Side clearance zones*




A, B, C - Minimum side clearances - 3.5" (88.9 mm)

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

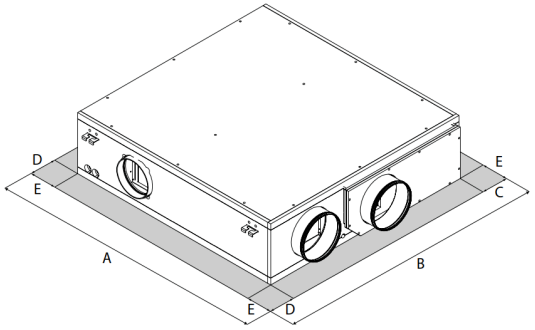
*Figure 7. Bottom clearance zone*




D - Minimum bottom clearance - 11.8" (299.7 mm)

- **False-Ceiling Access / Access Hatch:** For false-ceiling installations, provide an access hatch directly below the unit to allow qualified personnel to inspect, service, and maintain the unit without removing it from the ceiling.

*Figure 8. Access Hatch dimensions*




| Minimum hatch dimensions | | Unit without preheater | Unit with preheater |
|---|---|---|---|
| **A** | Inches (mm) | 49.3 (1251) | 55.8 (1417) |
| **B** | Inches (mm) | 45.0 (1142) | 45.0 (1142) |
| **C** | Inches (mm) | 3.5 (90) | 3.5 (90) |
| **D** | Inches (mm) | 3.5 (90) | 3.5 (90) |
| **E** | Inches (mm) | 3.5 (90) | 3.5 (90) |

**Exterior clearance**

A minimum of 36" (914 mm) clearance is required in front of the exterior louvers on the outside of the building.

# 7. INSTALLING THE AIO® CEILING DUCTED 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 Ducted unit:

1. Install exterior louvers or vent terminations.
2. Affix the template to the ceiling.
3. Install the ceiling support hardware.
4. Prepare a condensate drain.
5. Prepare the electrical connection.
6. Mount the unit.
7. Connect the condensate drain.
8. Connect the ductwork.
9. Connect electrical wiring and control interfaces.

## 7.1 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 installation, 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.

**To install the exterior louvers or vent terminations:**

1. Install the louvers or vent terminations according to the manufacturer's instructions.
2. Provide continuous flashing and weatherproof sealing at all exterior penetrations.
3. Seal all gaps between the wall opening, sleeve, duct, louver, or vent termination.
4. Make sure the installation prevents water intrusion into the wall assembly.
5. 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.

## 7.2 Affixing the Template to the Ceiling

Before beginning the installation, affix the template to the ceiling and mark the suspension anchor points.

**To download the template as a PDF, click the link below:**

AIO Ceiling Ducted Installation Template (V 5.0).p...

To affix the template:

1. **Verify that you have downloaded and printed the correct template.**
   If you are unsure, contact your distributor or INNOVA.
2. **Tape the template to the ceiling.**
   a. Position the template on the ceiling in the exact location you want to install the unit.
   b. Make sure the layout matches your planned ductwork runs.
   c. Make sure the front and rear faces of the unit correspond with the project drawings.
   d. Use painter's tape to affix the template to the ceiling
   e. Mark the suspension anchor points clearly.

## 7.3 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.

## 7.4 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 drain, laundry drain, or indirect waste receptor.
- **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 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 7.7.2) 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 applicable plumbing and building codes.

**Building drainage system 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.
- 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" (19.1 mm).
   - If the drainpipe is routed via an external wall, wrap it in insulation and heat tape.

**⚠ CAUTION**

Only use self-regulating heat tape or heat tape designed for use under insulation. Use of other types of heat tape may result in a fire and void the unit's warranty.

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

**To prepare an external drain:**

1. **Drill a drain hole.**
   - Bore a drain hole through the exterior wall.
   - In locations that may experience freezing conditions, the drain hole must slope downward toward the exterior at least 3.6 inches per foot (or 30%). In those locations, ensure that the drain hole and assembly allow for a downward slope of at least 3.6 inches per foot from the condensate drain under the AIO® Ceiling Ducted unit. In other locations, a ¼" per foot (or 2%) slope suffices.
   - Ensure that the drain will terminate above the maximum anticipated snow accumulation and in a location where discharged water will not create a hazard.
   - 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.

## 7.5 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 Ducted 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 at the location marked 'POWER SUPPLY (OPTIONAL)' on the installation template.
   - 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.

## 7.6 Mounting the Unit

**⚠ WARNING**

- Never leave any factory suspension 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.

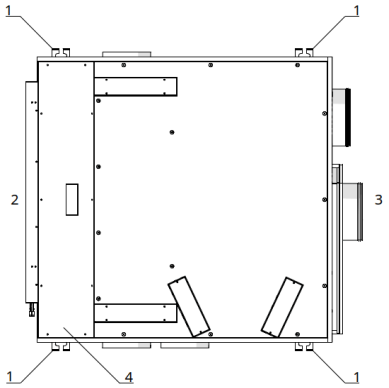
**Before lifting the unit into place, confirm that:**

- ☐ 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 configurations.

**To mount the unit:**

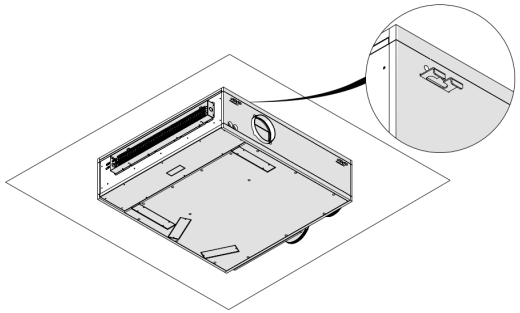
1. Using a mechanical lift, raise the unit horizontally into position against the interior ceiling structure
2. Mount the unit on the suspension rods using the pre-installed suspension brackets shown in Figures 9 and 10.
3. Use a digital level to confirm the unit is level with a slight pitch (of ⅛" per foot) towards the rear (to allow the unit to drain properly).
4. Adjust and tighten the hanging nuts.
5. Confirm that the unit is level and is supported evenly at all suspension points.

*Figure 9. Suspension brackets and side orientation*




| | | | |
|---|---|---|---|
| **1** | Installation bracket | **3** | Rear (drain) side of the unit |
| **2** | Front side of the unit | **4** | Electrical Cover Panel |

*Figure 10. Suspension brackets - side view*



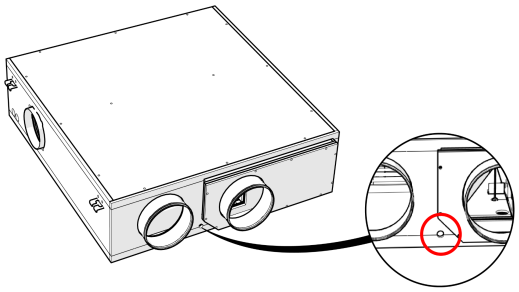
## 7.7 Connecting the condensate drain

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.

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 11).

*Figure 11. Condensate drain connection location*



To create a condensate drain connection:

1. Connect the unit and P-trap.
2. Route the drain line.
3. Insulate and protect the drain line.
4. Pre-treat the condensate drainage system.
5. Prime and test the drain.

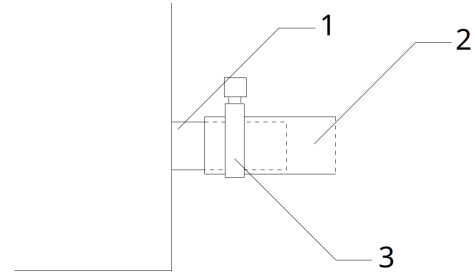
### 7.7.1 Connecting the unit and P-trap

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.

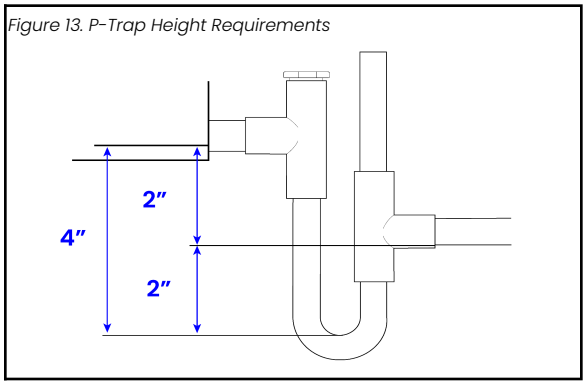
*Figure 12. Connecting PVC pipe to unit drain connection*




| | | | |
|---|---|---|---|
| **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 13.
7. Install the required cleanout and vent riser downstream of the P-trap.
8. Make sure all connections are secure and watertight.

*Figure 13. P-Trap Height Requirements*




**7.7.2 Routing the drain line**

Route the drain line from the P-trap to the drainage location prepared in Section 7.3.

- Maintain a continuous downward slope of at least ¼ in. 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 in. 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 14. Condensate drain slope*

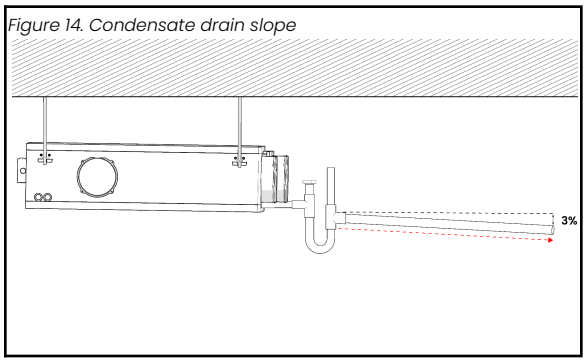
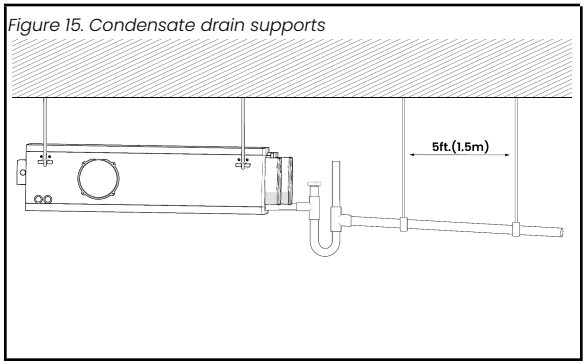



*Figure 15. Condensate drain supports*




**7.7.3 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.

**7.7.4 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.

**7.7.5 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.

## 7.8 Preparing the unit for blower-door testing (if required)

If the project requires blower-door (air infiltration/exfiltration) testing, for example for Passive House certification, perform the test after the unit is mounted and before the ductwork is connected. After the ductwork is connected, the unit can't be sealed for testing without disconnecting it.

To prepare the unit for blower-door testing:

1. Fit a cap on all duct collars (see Figures 16–18).
2. Seal each cap airtight with tape or sealant.
3. Perform the blower-door test according to the project requirements.
4. Remove all caps and any tape or sealant residue from the duct collars.
5. Inspect the collars, then connect the ductwork (see Section 7.9).

## 7.9 Connecting the Ductwork

**7.9.1 Duct Connection Requirements**

Before connecting the ductwork:

1. Review Figures 16–18 and identify the function, airflow direction, and size of each duct connection.
2. Inspect all factory-installed 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. Do not use flexible ductwork because it can sag, kink, restrict airflow, and increase static pressure.
- Size the outdoor air intake and exhaust duct systems so that each system does not exceed the 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.

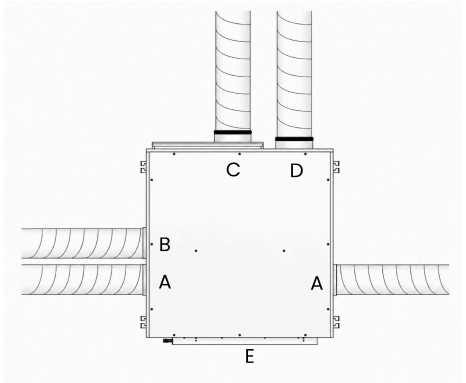
### 7.9.2 Duct Connection Configuration and Dimensions

Use the following figures and tables to identify the location, airflow direction, and dimensions of each duct connection for the standard unit configuration.

The figures below only depict the standard unit configuration with return and fresh air intake on the sides. For a Ceiling Ducted unit with a bottom return configuration, both return and stale air intake vents are combined at the bottom of the unit. See the Dimensions section for a diagram.

#### Top View

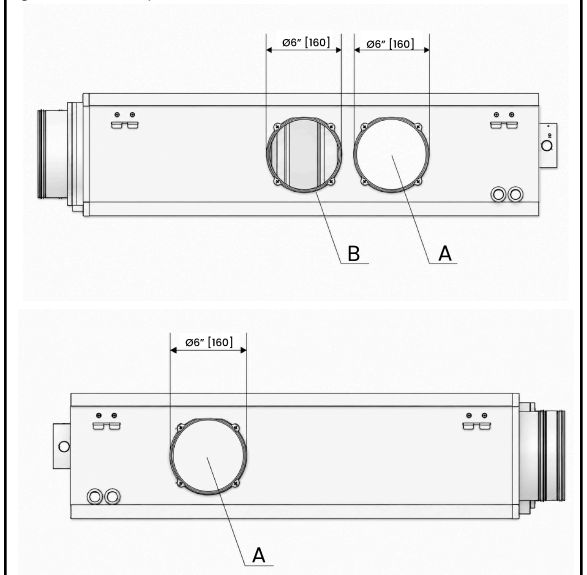
*Figure 16. Airflow port connections (top view)*




| | | | |
|---|---|---|---|
| **A** | Return air vent | **D** | Outdoor air exhaust / ERV stale air exhaust |
| **B** | ERV stale air intake | **E** | Supply air vent |
| **C** | Outdoor air intake / ERV fresh air intake | | |

#### Indoor Side

*Figure 17. Airflow port connections (side view)*




| | | | |
|---|---|---|---|
| **A** | Return air vent | **B** | ERV stale air vent |

#### Indoor Vent Dimensions

- **Air connection A:** 6" (160 mm)
- **Air connection B:** 6" (160 mm)

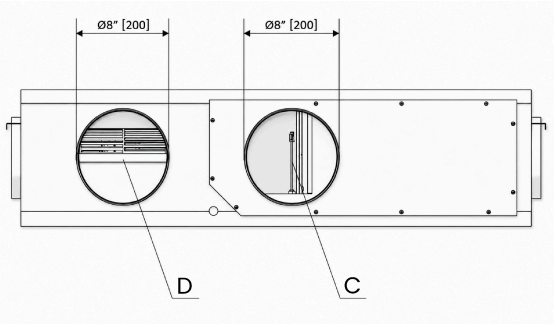
The outdoor/stale air exhaust vent (D) WC may be ducted to a bathroom or other location, provided the duct system does not exceed 0.5" WC (124.4 Pa) external static pressure.

To exhaust air through a duct leading to a bathroom exhaust, connect the stale air exhaust fan to the BOOST EXH terminal on the jumper board.

This connection boosts the exhaust fan airflow to 80 CFM, allowing the fan to move air to the final exhaust location.

**Outdoor Side**

*Figure 18. Outdoor Side*




| | |
|---|---|
| **C** | Outdoor air intake / ERV fresh air intake |
| **D** | Outdoor air exhaust / ERV stale air exhaust |

**Outdoor Vent Dimensions**

- **Air connection C:** 8" (200 mm)
- **Air connection D:** 8" (200 mm)

## 7.10 Connecting Electrical Wiring and Control Interfaces

**⚠ DANGER**

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

### 7.10.1 Electrical Safety Prerequisites

**⚠ DANGER**

- When the AIO® Ceiling Ducted 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.

**⚠ DANGER**

- 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.

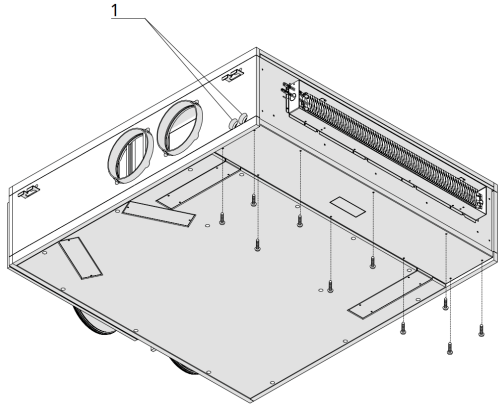
### 7.10.2 Accessing the Electrical Compartment

To hardwire the AIO® Ceiling Ducted 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:**

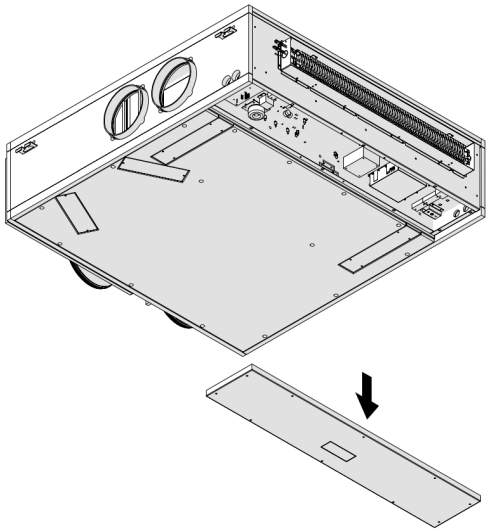
1. Remove the 10 fixing screws on the Electrical Cover Panel.

*Figure 19. Removing the Electrical Cover Panel Fixing Screws*




2. Remove the Electrical Cover Panel.

*Figure 20. Removing the Electrical Cover Panel*



### 7.10.3 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 21 below 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:

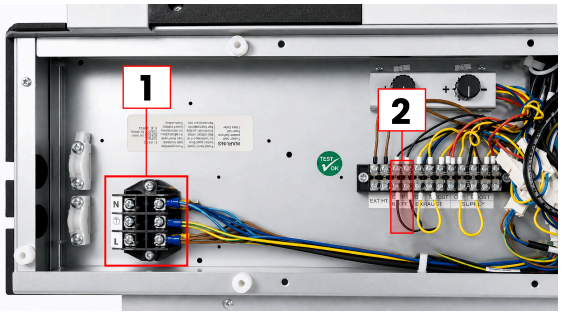
*Table 4.*

| 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 21. 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 Ceiling Ducted with ERV 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.

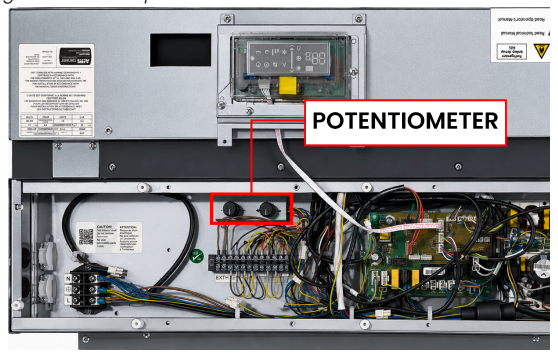
**To install a dry-contact interface:**

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 19 and 20).
2. **Terminate and secure the interface wiring:**
   a. Connect the dry contact device wiring directly to the CP terminals as shown in Figure 21.
   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.

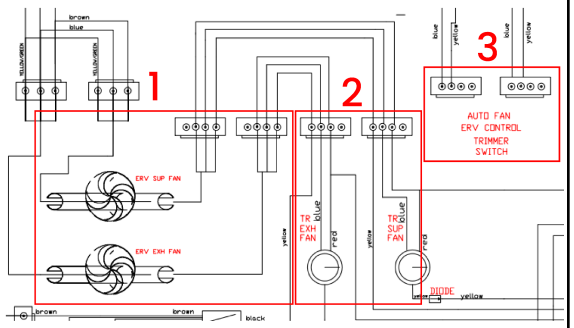
*Figure 22. ERV fan potentiometer*



**To enable independent control:**

1. Disconnect power to the unit and wait at least five minutes before accessing the electrical components.
2. Refer to Figure 23 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 23. ERV connections*




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

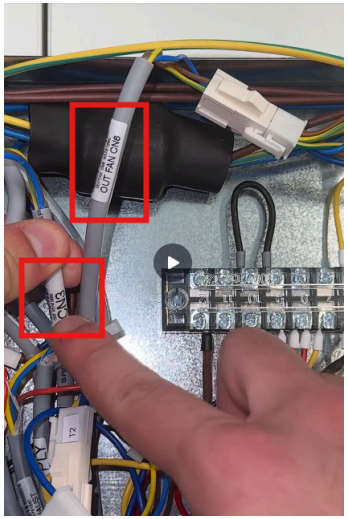
## 8.3 Independent power of the ERV fans

By default, the ERV receive their power from the unit's control board. Thus, the ERV fans only operate when the unit is powered on. However, for various applications (such as Passive House testing) the ERV fans must be isolated from unit power and operate constantly. Follow the procedure below to allow the ERV fans to run constantly.

**To enable independent ERV power:**

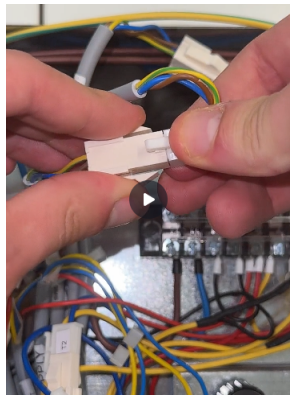
1. Ensure that the ERV fans are being controlled by the potentiometer (see Section 8.2).
2. Remove the two screws attaching the onboard touch controller to its metal frame and set them aside.
3. Remove the four screws attaching the controller frame to the unit chassis and set them aside.
4. Locate the two wires labelled CN3 and CN6.

*Figure 23. CN3 and CN6 connections*



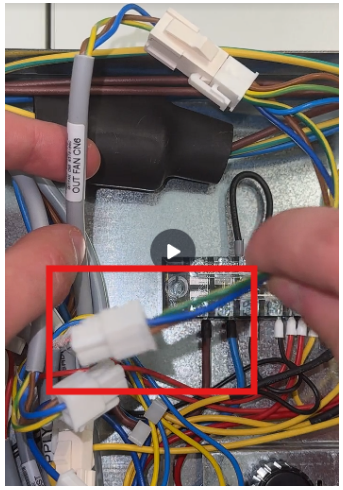

5. Remove the CN3 male connector from the female connector.

*Figure 23a.*



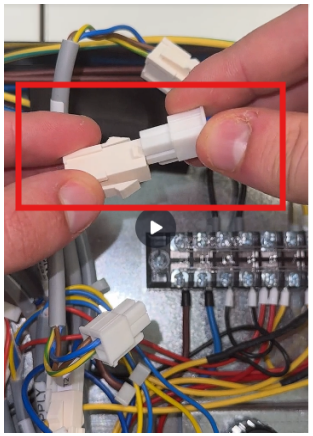
6. Locate the male connector branching off from the main CN6 cable.

*Figure 23b.*



7. Connect the male connector from the CN6 cable to the female connector from the CN3 cable.

*Figure 23c.*



8. Reinstall the controller and its metal frame to the unit, and close up the unit.

# 9. STARTUP AND CONFIGURATION

**⚠ WARNING**

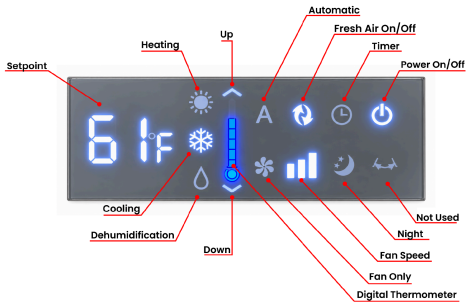
Hazardous voltage may be present even when the unit is powered off. To prevent severe electrical shock or equipment damage, disconnect all power supplies at the circuit breaker or disconnect switch before opening or servicing the unit.

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 24) is located underneath the unit. Use the controller to change settings, select airflow programs, and run testing cycles.

*Figure 24. Onboard touch controller*




The following table contains 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 |
| Fresh Air On/Off ( ) | Turns the ERV fans on or off. When on, the fans bring fresh air into the conditioned space. |

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 and 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, 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 Dehumidify 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 systems.

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.

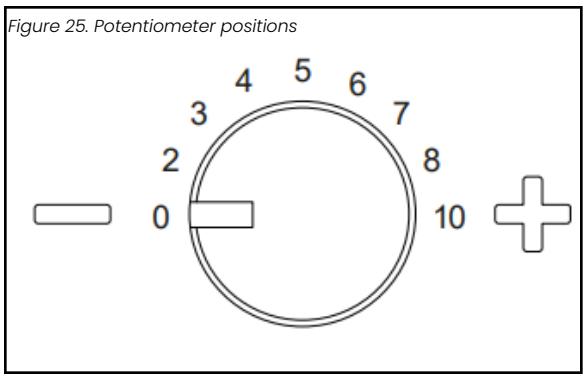
### 9.2.5 Configuring the ERV airflow settings

- 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 22), 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 22).
3. Rotate the adjustment knobs to increase or decrease ERV airflow until the specific target fresh air airflow is reached (see Figure 25 for the knob settings and Figure 61 in Appendix C for the fan curves in each setting).

*Figure 25. Potentiometer positions*




After adjusting the ERV airflow, measure the fresh-air and stale-air airflows as described in Section 9.2.6 and confirm that they match the project specifications.

### 9.2.6 Measuring the ERV airflow

**⚠ WARNING**

During this procedure, the ERV fans are running while the filter opening is open. The rotating fresh-air fan impeller can catch fingers, tools, or the probe cable. Keep hands and loose items clear of the fan opening.

Measure the ERV airflow with only the ERV fans running. This isolates the ERV airflow from the condenser fan, which shares the outdoor vents (callouts 1 and 21, Figure 2).

Before you begin:

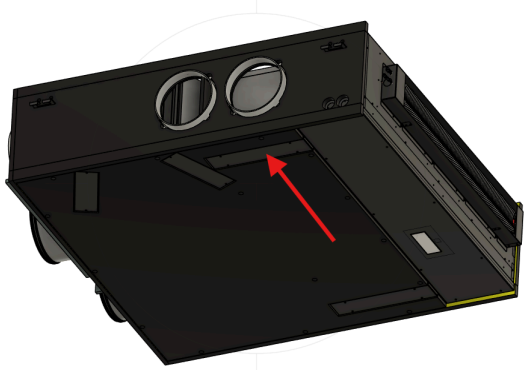
- Enable independent power of the ERV side (see Section 8.3).
- Make sure the unit is connected to power, but not powered on. The ERV fans should still be running.
- Have an anemometer, HVAC tape, and a cone or shroud (to surround the anemometer probe) ready.

- The fresh air airflow can only be measured for side return units, not for bottom-return units.
- The cone/shroud separates the fresh air leaving the ERV from the return air in the indoor air chamber. Without it, the anemometer measures a mix of fresh air and return air, so the reading is wrong.

**To measure the fresh-air airflow (side-return units):**

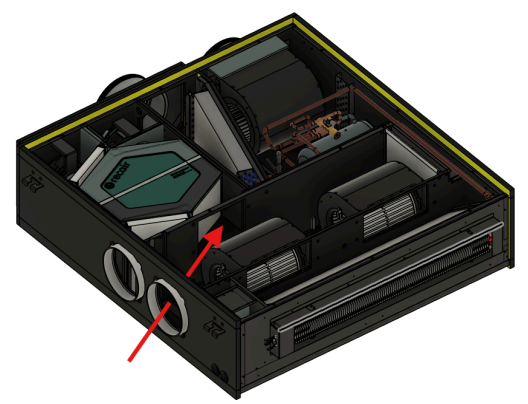
1. Remove the left return air filter (shown in Figure 26).

*Figure 26. Left return air filter location*



2. Fit a cone or shroud over the anemometer probe.
3. Insert the probe into the duct slot.
4. Position the open end of the shroud over the opening between the indoor air chamber and the ERV chamber (see Figure 27). Make sure it covers the whole opening and sits flush against the edges.

*Figure 27. Opening between the indoor air and ERV chambers*

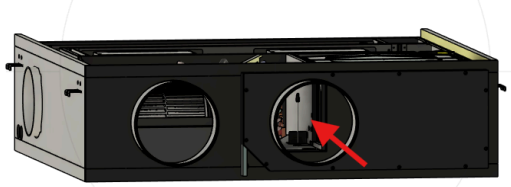


5. Record the air velocity and convert it to airflow (see Appendix A for the vent's cross-section).
6. Remove the probe and shroud, and reinstall the left return air filter.

**To measure the stale-air airflow:**

1. Insert an anemometer probe into the Condenser + fresh air intake vent (see Figure 28).

*Figure 28. Condenser + fresh air intake vent*



2. Tape around the probe to seal the opening, so that fresh air is not drawn in through the vent during measurement.
3. Record the air velocity and convert it to airflow (see Appendix A for the vent's cross-section).
4. Remove the probe and tape from the vent.

**After measuring:**

1. Compare the measured airflows with the project specifications. If needed, adjust the potentiometers (see Section 9.2.5) and measure again.
2. Reinstall all panels.
3. Disable independent control by reinserting the ERV connections into the unit-controlled terminals (see Section 8.2).
4. Wait five minutes before operating the unit.

### 9.2.7 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.

### 9.2.8 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 codes 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.

### 9.2.9 Configuring the unit for a bottom-ducted return

While the Ceiling Ducted unit can work both with a side or a bottom return, the unit comes factory-configured for a side return. To view the instructions to convert the unit to a bottom return, click the link below:

AIO Ceiling Ducted Switching Between Side and ...

## 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 disconnect switch. |
| | The CP remote on/off contact is open. | If the CP input is used, close the remote on/off contact. |
| 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 Ducted Unit 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.
- Make sure that the customer has all the required documentation (user guide and troubleshooting manual).
- 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

## A.1 Standard Configuration - Without Preheater

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

AIO Ceiling Ducted with ERV Dimensions (V 5.0).p...

*Figure 29. Unit Dimensions*

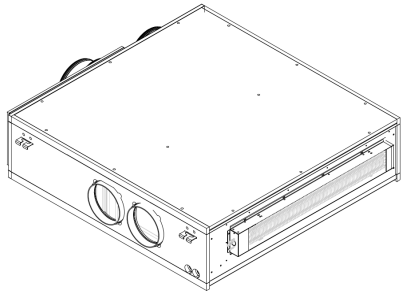


*Figure 30. Unit Dimensions (Top view)*

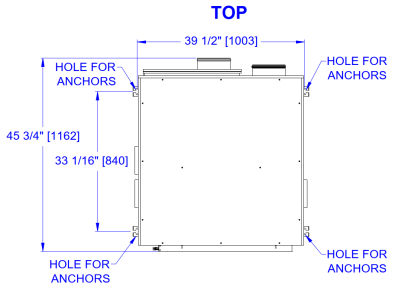



*Figure 31. Unit Dimensions (Left View)*

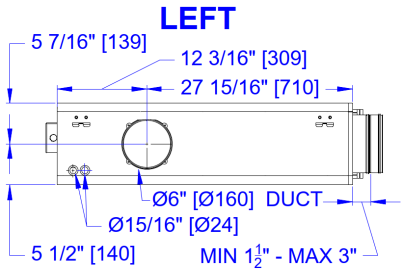



*Figure 32. Unit Dimensions (Front View)*

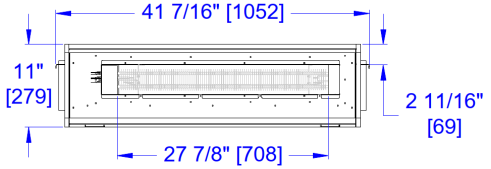



*Figure 33. Unit Dimensions (Right View)*

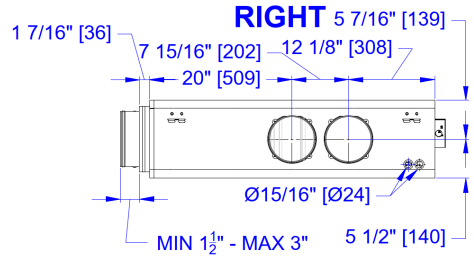



*Figure 34. Unit Dimensions (Bottom View)*

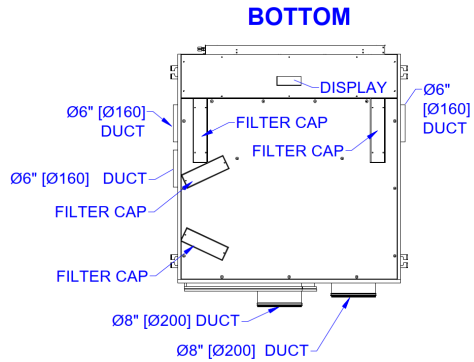
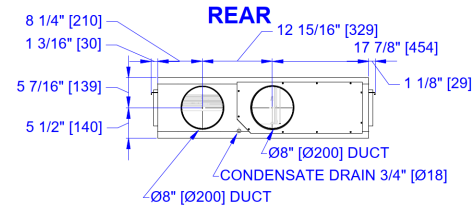



*Figure 35. Unit Dimensions (Rear View)*



## A.2 Mirrored Configuration - Without Preheater

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

AIO Ceiling Ducted (Mirror Version Gen 3) Dimens...

*Figure 36. Unit Dimensions*

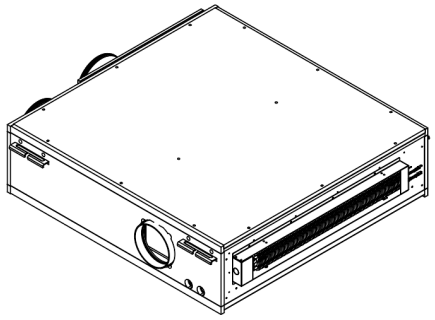


*Figure 37. Unit Dimensions (Top View)*

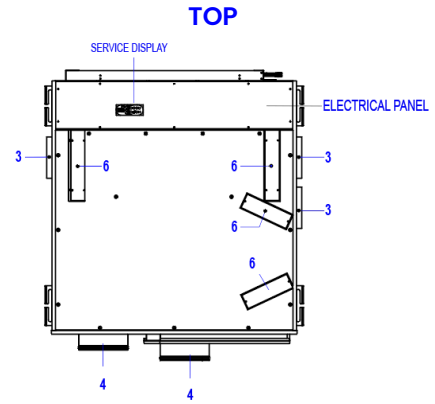



*Figure 38. Unit Dimensions (Left View)*

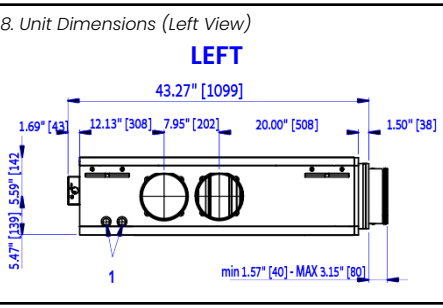



*Figure 39. Unit Dimensions (Front View)*

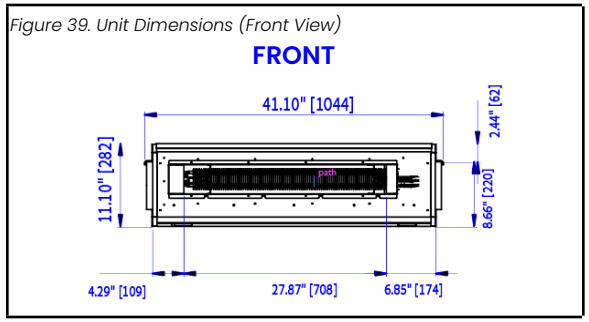



*Figure 40. Unit Dimensions (Right View)*

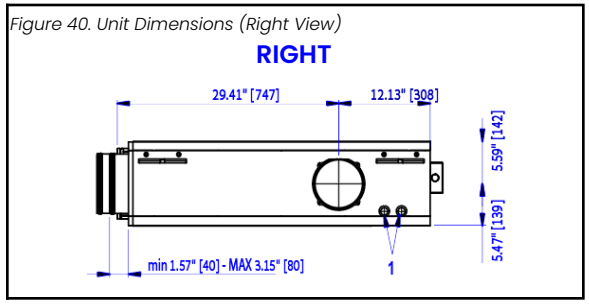



*Figure 41. Unit Dimensions (Bottom View)*

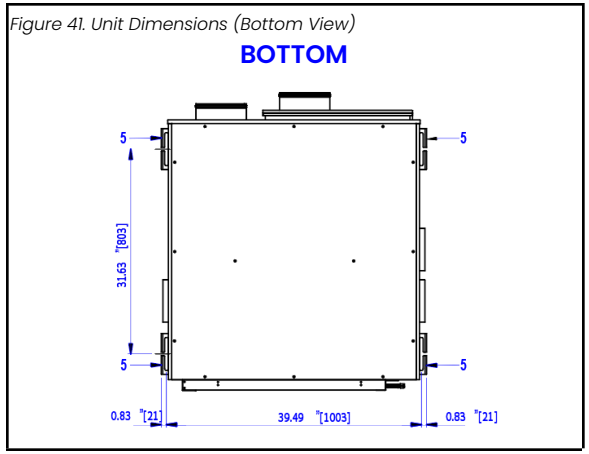
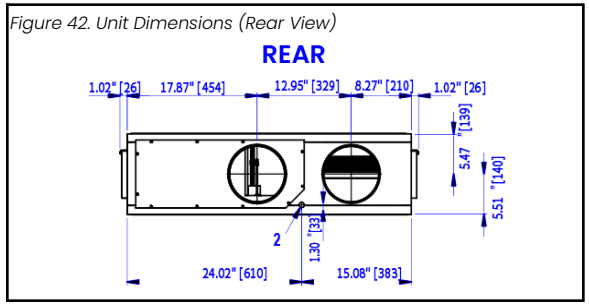



*Figure 42. Unit Dimensions (Rear View)*

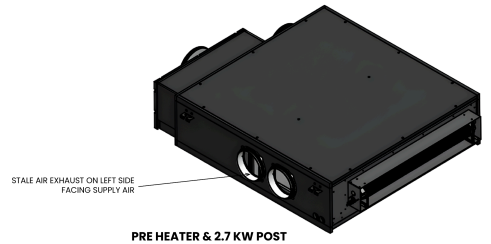



## A.3 Standard Configuration - With Preheater

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

AIO Ceiling Ducted with ERV (Gen 3) and Preheat...

*Figure 43. Unit Dimensions*




| | | | |
|---|---|---|---|
| 1 | Power Supply | 4 | Ø7 7/8" (200) MALE DUCT |
| 2 | Condensate Drain Ø11/16"(18) | 5 | Hole for Anchors |
| 3 | Ø6 5/16" (160) MALE DUCT | 6 | Filter Cap |

*Figure 44. Unit Dimensions (Top View)*

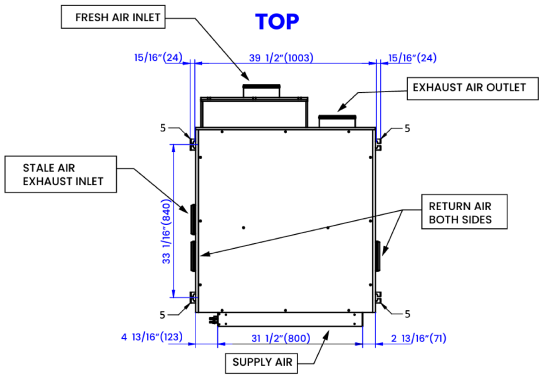


*Figure 45. Unit Dimensions (Left View)*

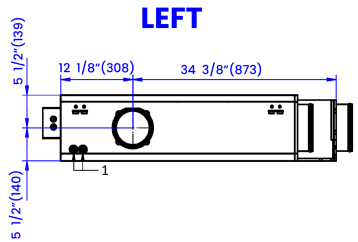



*Figure 46. Unit Dimensions (Front View)*

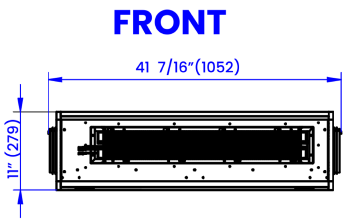



*Figure 47. Unit Dimensions (Right View)*

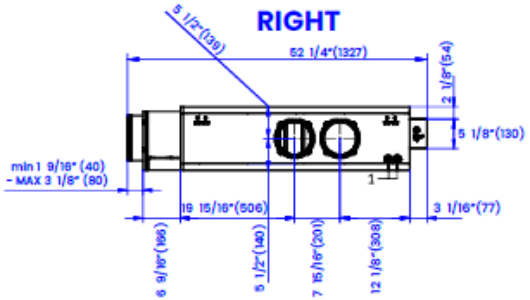



*Figure 48. Unit Dimensions (Bottom View)*

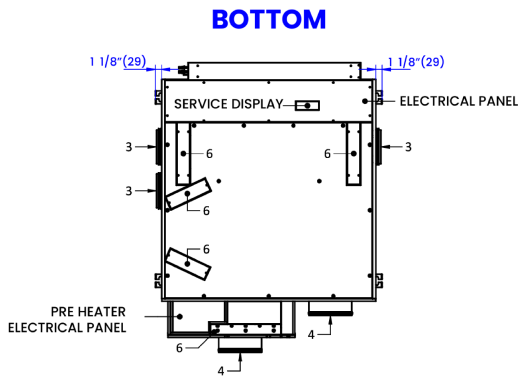
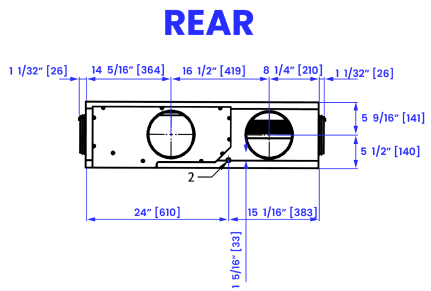



*Figure 49. Unit Dimensions (Rear View)*




## A.4 Mirrored Configuration - With Preheater

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

PDF AIO Ceiling Ducted with ERV and Preheater (Gen ...

*Figure 50. Unit Dimensions*




| | | | |
|---|---|---|---|
| **1** | Power Supply | **4** | Ø7 7/8" (200) MALE DUCT |
| **2** | Condensate Drain Ø11/16"(18) | **5** | Hole for Anchors |
| **3** | Ø6 5/16" (160) MALE DUCT | **6** | Filter Cap |

*Figure 51. Unit Dimensions (Top View)*

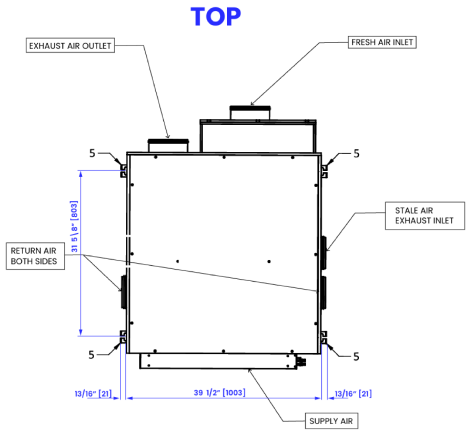


*Figure 52. Unit Dimensions (Left View)*

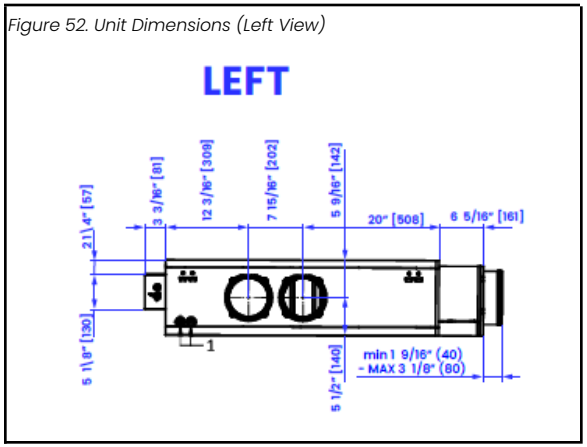



*Figure 53. Unit Dimensions (Front View)*

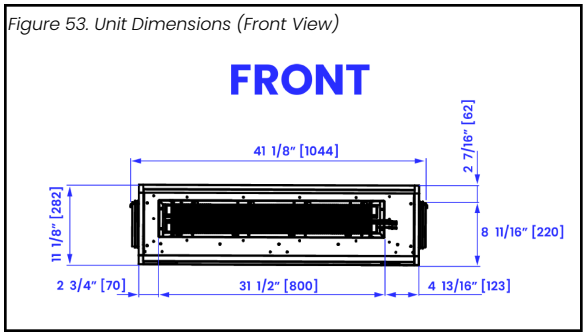



*Figure 54. Unit Dimensions (Right View)*

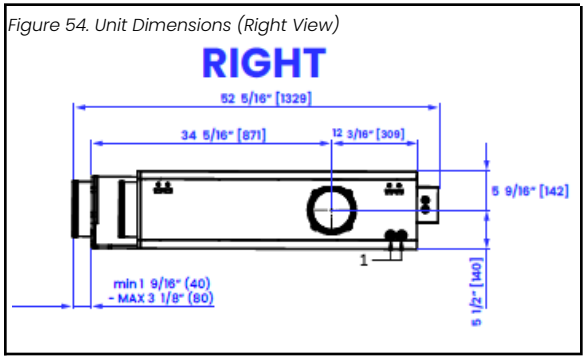



*Figure 55. Unit Dimensions (Bottom View)*

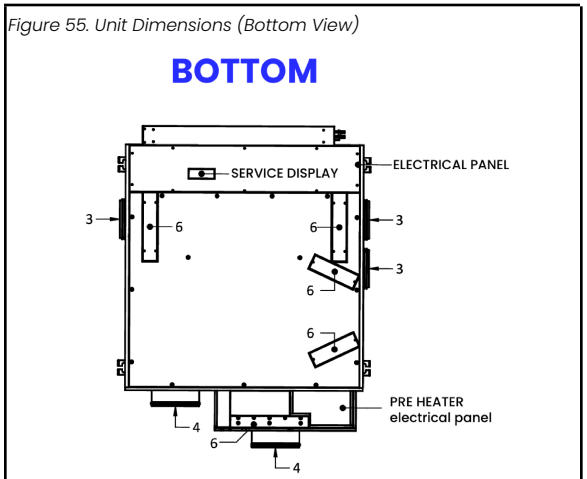
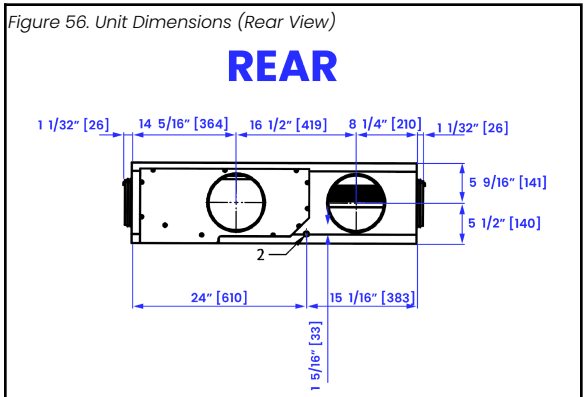



*Figure 56. Unit Dimensions (Rear View)*



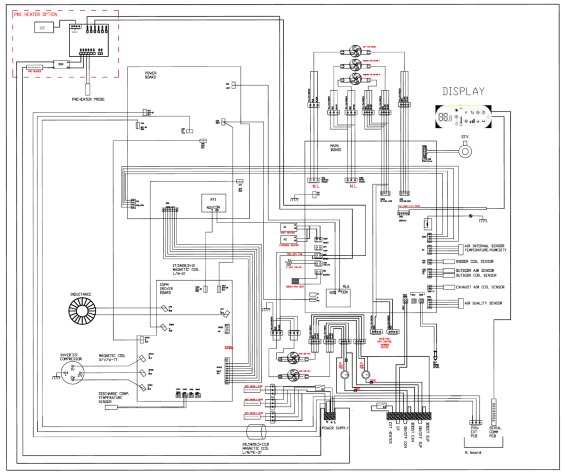

# APPENDIX B - WIRING DIAGRAM

## B.1 Manufactured before January, 2026

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

AIO Ceiling Ducted Wiring Diagram (Pre-Jan 202...

*Figure 57. AIO® Ceiling Ducted Wiring Diagram (Pre-January 2026)*

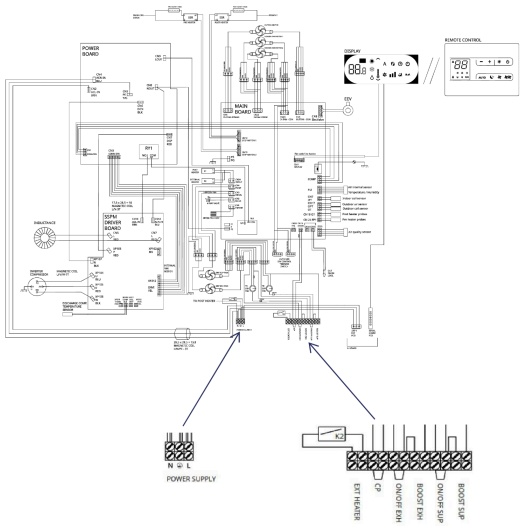


## B.2 Manufactured after January, 2026

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

AIO Ceiling Ducted Wiring Diagram (Post-Jan 20...

*Figure 58. AIO® Ceiling Ducted Wiring Diagram (Post-January 2026)*




# APPENDIX C - FAN CURVES

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

*Figure 59. Indoor fan performance curves*

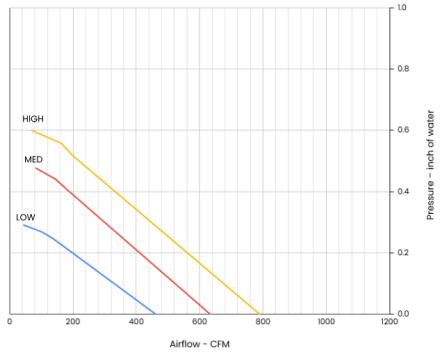



*Figure 60. Outdoor fan performance curves*

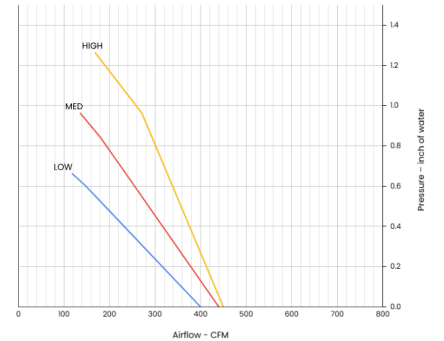
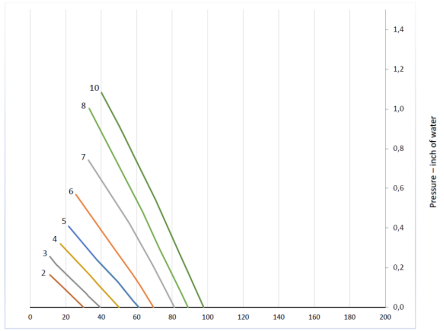



*Figure 61. ERV fan performance curves*




# APPENDIX D - WARRANTY

For detailed warranty terms and conditions, click on 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 | May 21, 2026 | Yossi Myhill | New base version |
| 2.1 | 3 Aug 2026 | Yossi Myhill | Complete revision |
| 2.2 | Oct 13, 2026 | Yossi Myhill | Added Section 9.2.6 |

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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AIO® Ceiling Ducted with ERV (Gen 3)
**Installation Guide**