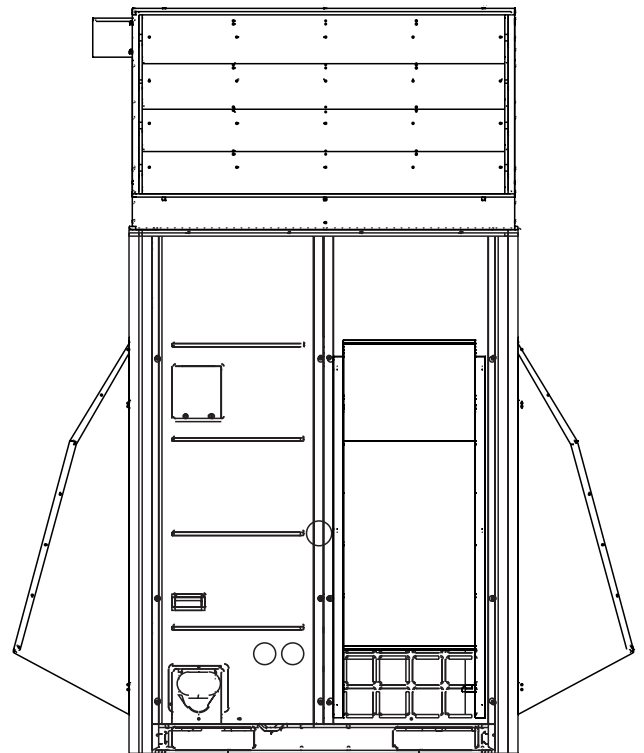




# ***MULTI V*™ 5**

## **LOW AMBIENT COOLING KIT INSTALLATION MANUAL**



**ZLABKA51A Low Ambient Cooling Kit**  
For 6-Ton Multi V 5 Outdoor Units

**ZLABKA52A Low Ambient Cooling Kit**  
For 8- to 20-Ton Multi V 5 Outdoor Units

PRVC2 Control Kit required; sold separately

## **PROPRIETARY DATA NOTICE**

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 **Do not throw away, destroy, or lose this manual.  
Please read carefully and store in a safe place for future reference.  
Content familiarity is required for proper installation.**

The instructions included in this manual must be followed to prevent product malfunction, property damage, injury, or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage. The level of seriousness is classified by the symbols described by the summary list of safety precautions on page 4.

**For other technical materials such as submittals, visit [www.lghvac.com](http://www.lghvac.com).**

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# SAFETY PRECAUTIONS

**MULTI V 5**


The instructions below must be followed to prevent product malfunction, property damage, injury or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage. The level of seriousness is classified by the symbols described below.

## TABLE OF SYMBOLS


 <b>DANGER</b>	<i>This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</i>
 <b>WARNING</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</i>
 <b>CAUTION</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</i>
<b>Note:</b>	<i>This symbol indicates situations that may result in equipment or property damage accidents only.</i>
	<i>This symbol indicates an action that should not be performed.</i>

## INSTALLATION

### DANGER

 Do not store or use fire, heat source, flammable gas, or combustibles near the product.

*There is risk of fire, explosion, physical injury, or death.*


 Do not supply power to the unit until all wiring and piping are completed or reconnected and checked.

*There is risk of physical injury or death due to electric shock.*

### WARNING

All electric work must be performed by a licensed electrician and conform to local building codes or, in the absence of local codes, with the National Electrical Code, and the instructions given in this manual.

*If the power source capacity is inadequate or the electric work is not performed properly, it may result in fire, electric shock, physical injury or death.*

 Do not install, remove, or re-install the unit by yourself (customer). Ask the dealer or a trained technician to install the unit.

*Improper installation by the user may result in fire, explosion, electric shock, physical injury or death.*

**For replacement of an installed unit, always contact an LG trained service provider.**

*There is risk of fire, electric shock, explosion, and physical injury or death.*

**Wear protective gloves when handling equipment. Sharp edges may cause personal injury.**

 Do not disassemble, modify the product, or change the settings of any protection devices.

*If the protection devices have been bypassed or are forced to operate improperly, or parts other than those specified by LG are used, there is risk of fire, electric shock, explosion, and physical injury or death.*

**Periodically check that the outdoor frame is not damaged.**

*There is a risk of explosion, physical injury, or death.*

**Replace all control box and panel covers.**

*If the cover and panel are not installed securely, dust or water may enter the outdoor unit, causing fire, electric shock, and physical injury or death.*

**Always check for system refrigerant leaks after the product has been installed or serviced.**

*Exposure to high concentration levels of refrigerant gas may lead to illness or death.*

**If the air conditioner is installed in a small space, take measures to prevent the refrigerant concentration from exceeding safety limits in the event of a refrigerant leak.** Consult the latest edition of ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) Standard 15. If the refrigerant leaks and safety limits are exceeded, it could result in personal injuries or death from oxygen depletion.

**Install the unit considering the potential for strong winds or earthquakes.**

*Improper installation may cause the unit to fall over, resulting in physical injury or death.*

**Dispose the packing materials safely.**

- Packing materials, such as nails and other metal or wooden parts, may cause puncture wounds or other injuries.
- Tear apart and throw away plastic packaging bags so that children may not play with them and risk suffocation and death.

## INSTALLATION, continued.

### ⚠ WARNING

Install the low ambient control kit in the specified location, and where rainwater cannot get to it. ⓧ Do not spill water inside the low ambient control kit.

*There is risk of fire, and physical injury or death.*

Install the unit in a safe location where nobody can step on or fall onto it, and that the area can withstand the weight of the product. ⓧ Do not install the unit on a defective stand.

*It may result in an accident that causes physical injury or death.*

### ⚠ CAUTION

Be very careful when transporting the product.

- ⓧ Do not attempt to carry the product without assistance.
- Some products use polypropylene bands for packaging. ⓧ Do not use polypropylene bands to lift the unit.

### Note:

ⓧ Do not store or use fire, heat source, flammable gas, or combustibles near the product.

*There is risk of product failure.*

ⓧ Do not install the product where it is directly exposed to ocean winds.

*Sea salt in the air may cause the product to corrode. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.*

When installing the unit in a low-lying area, or a location that is not level, use a raised concrete pad or concrete blocks to provide a solid, level foundation.

*This may prevent water damage and reduce abnormal vibration.*

Properly insulate all cold surfaces to prevent “sweating.”

*Cold surfaces such as uninsulated piping can generate condensate that may drip and cause a slippery floor condition and / or water damage to walls.*

Always check for system refrigerant leaks after the unit has been installed or serviced.

*Low refrigerant levels may cause product failure.*

ⓧ Do not store or use flammable gas / combustibles near the unit.

ⓧ Do not use the product for mission critical or special purpose applications such as preserving foods, works of art, or other precision air conditioning applications. The equipment is designed to provide comfort cooling and heating.

*There is risk of property damage and product failure.*

Keep the unit upright during installation to avoid vibration or water leakage.

When installing the unit near a hospital, mechanical room, or similar electromagnetic field (EMF) sensitive environment, provide sufficient protection against electrical noise.

*Inverter equipment, power generators, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate improperly. The unit may also affect such equipment by creating electrical noise that disturbs medical treatment or image broadcasting.*

Periodically check that the outdoor frame is not damaged.

*There is a risk of equipment damage.*

ⓧ Do not install the outdoor unit in a noise sensitive area.

Install the unit in a safe location where nobody can step on or fall onto it, and that the area can withstand the weight of the product. ⓧ Do not install the unit on a defective stand.

*There is a risk of unit and property damage.*

ⓧ Do not install the product in humid locations (see the product information section for ambient outdoor operation ranges).

Install the low ambient control kit in the specified location, and where rainwater cannot get to it. ⓧ Do not spill water inside the low ambient control kit.

*There is risk of product failure.*

ⓧ Do not apply force to the product.

*There is risk of product damage and failure.*

## WIRING

### DANGER

**High voltage electricity is required to operate this system. Adhere to the U.S. National Electric Code NEC and these instructions when wiring.**


*Improper connections and inadequate grounding can cause accidental injury or death.*



**Always ground the unit following local, state, and NEC codes.**  
*There is risk of fire, electric shock, and physical injury or death.*

**Turn the power off at the nearest disconnect before servicing the equipment.**  
*Electrical shock can cause physical injury or death.*

**Properly size all circuit breakers or fuses.**

*There is risk of fire, electric shock, explosion, physical injury or death.*

 **Do not share the electrical circuit with other devices.**  
*There is risk of fire, electric shock, and physical injury or death due to heat generation.*

 **Do not use damaged or loose wiring.**  **Do not modify or extend the wiring randomly. Ensure that the wiring will not be pulled nor weight be placed on the wiring during operation.**  
*There is risk of fire, electric shock, and physical injury or death.*

### WARNING

**The information contained in this manual is intended for use by an industry-qualified, experienced, certified electrician familiar with the NEC who is equipped with the proper tools and test instruments.**


*Failure to carefully read and follow all instructions in this manual can result in personal injury or death.*

**All electric work must be performed by a licensed electrician and conform to local building codes or, in the absence of local codes, with the NEC, and the instructions given in this manual.**

*If the power source capacity is inadequate or the electric work is not performed properly, it may result in fire, electric shock, physical injury or death.*

**Refer to local, state, and federal codes, and use power wires of sufficient current capacity and rating.**

*Wires that are too small may generate heat and cause a fire, and physical injury or death.*


 **Do not apply force to the wiring.**  
*There is risk of fire, electric shock, explosion, physical injury or death.*

**Secure all field wiring connections with appropriate wire strain relief.**

*Improperly securing wires will create undue stress on equipment power lugs. Inadequate connections may generate heat, cause a fire, and physical injury or death.*

**Properly tighten all power connections.**

*Loose wiring may overheat at connection points, causing a fire, physical injury or death.*

 **Do not touch the printed circuit board (PCB) when the power is connected.**  
*There is risk of fire, electric shock, explosion, physical injury or death.*


**Turn the power off at the main power box before opening the unit to check or repair electrical parts and wiring, or when cleaning / servicing.**

*Electrical shock can cause physical injury or death.*

## Note:

**The information contained in this manual is intended for use by an industry-qualified, experienced, certified electrician familiar with the NEC who is equipped with the proper tools and test instruments.**

*Failure to carefully read and follow all instructions in this manual can result in equipment malfunction and property damage.*

 **Do not supply power to the unit until all electrical wiring, controls wiring, piping, installation, and refrigerant system evacuation are completed.**  
*The system may malfunction.*

## OPERATION

### ⚠ DANGER

- ⊘ Do not provide power to or operate the unit if it is flooded or submerged.

*There is risk of fire, electric shock, physical injury or death.*

**Periodically verify the equipment mounts have not deteriorated.**

*If the base collapses, the unit could fall and cause physical injury or death.*

### ⚠ WARNING

- ⊘ Do not allow water, dirt, or animals to enter the unit.
- There is risk of unit failure, fire, electric shock, physical injury or death.*

- ⊘ Do not operate the unit with the panel(s) or protective cover(s) removed; keep fingers and clothing away from moving parts.
- The rotating, hot, cold, and high-voltage parts of the unit can cause physical injury or death.*

**Periodically, check power cord and plug for damage.**

*Cord must be replaced by the manufacturer, its service agent, or similar qualified persons in order to avoid physical injury and / or electric shock.*

- ⊘ Do not open the inlet grille of the unit during operation.
- There is risk of physical injury or death.*

**Securely attach the covers.**

*Non-secured covers can result in fire or electric shock due to dust or water.*

### ⚠ CAUTION

**To avoid physical injury, use caution when cleaning or servicing the air conditioner.**

### Note:

**Clean up the site after servicing is finished, and check that no metal scraps, screws, or bits of wiring have been left inside or surrounding the unit.**

- ⊘ Do not use the product for mission critical or special purpose applications such as preserving foods, works of art, or other precision air conditioning applications. The equipment is designed to provide comfort cooling and heating.
- There is risk of property damage.*

- ⊘ Do not allow water, dirt, or animals to enter the unit.
- There is risk of unit failure.*

- ⊘ Do not open the inlet during operation.
- There is risk of unit failure.*

- ⊘ Do not operate the unit with the panel(s) or protective cover(s) removed; keep fingers and clothing away from moving parts.
- Non-secured covers can result in malfunction due to dust or water in the service panel.*

- ⊘ Do not block the inlet or outlet.
- It may cause product malfunction.*

**If gas leaks out, ventilate the area before operating the unit.**  
*Leaking gas may cause fire, electric shock, explosion, physical injury or death if the unit is mounted in an enclosed, low-lying, or poorly ventilated area and the system develops a refrigerant leak.*

- ⊘ Do not operate the disconnect switch or touch the product with wet hands.

*There is risk of fire, electric shock, physical injury or death.*

- ⊘ Do not operate the unit with the panels or guards removed. ⊘ Do not insert hands or other objects through the inlet or outlet with the unit is plugged in. ⊘ Do not touch the electrostatic filter, if the unit includes one.
- The unit contains sharp, rotating, hot, and high voltage parts that can cause personal injury and / or electric shock.*

- ⊘ Do not use unspecified power wiring or damage the power wiring.

*There is risk of fire, electric shock, physical injury or death.*

**Only authorized persons should operate the low ambient kit.**  
*There is risk of fire, electric shock, physical injury or death.*

**Use only a soft cloth to clean the low ambient kit components.** ⊘ Do not use wax, thinner, or strong detergents.  
*Strong cleaning products may damage the surface, or may cause its appearance to deteriorate.*

**Provide power to the compressor crankcase heaters at least six (6) hours before operation begins.**

*Starting operation with a cold compressor sump(s) may result in severe bearing damage to the compressor(s). Keep the power switch on during the operational season.*

**Periodically verify the equipment mounts have not deteriorated.**

*If the base collapses, the unit could fall and cause property damage.*

- ⊘ Do not turn off the main power switch after operation has been stopped.

*Wait at least five (5) minutes before turning off the main power switch, otherwise it may result in product malfunction.*

**Only authorized persons should operate the low ambient kit.**  
*There is risk of product failure.*

# SPECIFICATIONS

**MULTI V 5**

## ZLABKA51A Low Ambient Cooling Kit

### For 6-Ton Multi V 5 Outdoor Units

**Compatible Outdoor Units:**

ARUM072BTE5 / ARUM072DTE5

**Standard Features:**

- Allows operation down to -9.9°F in cooling, and down to 14°F in synchronous mode in Heat Recovery mode.
- Damper operator has spring return, normally open actuator.

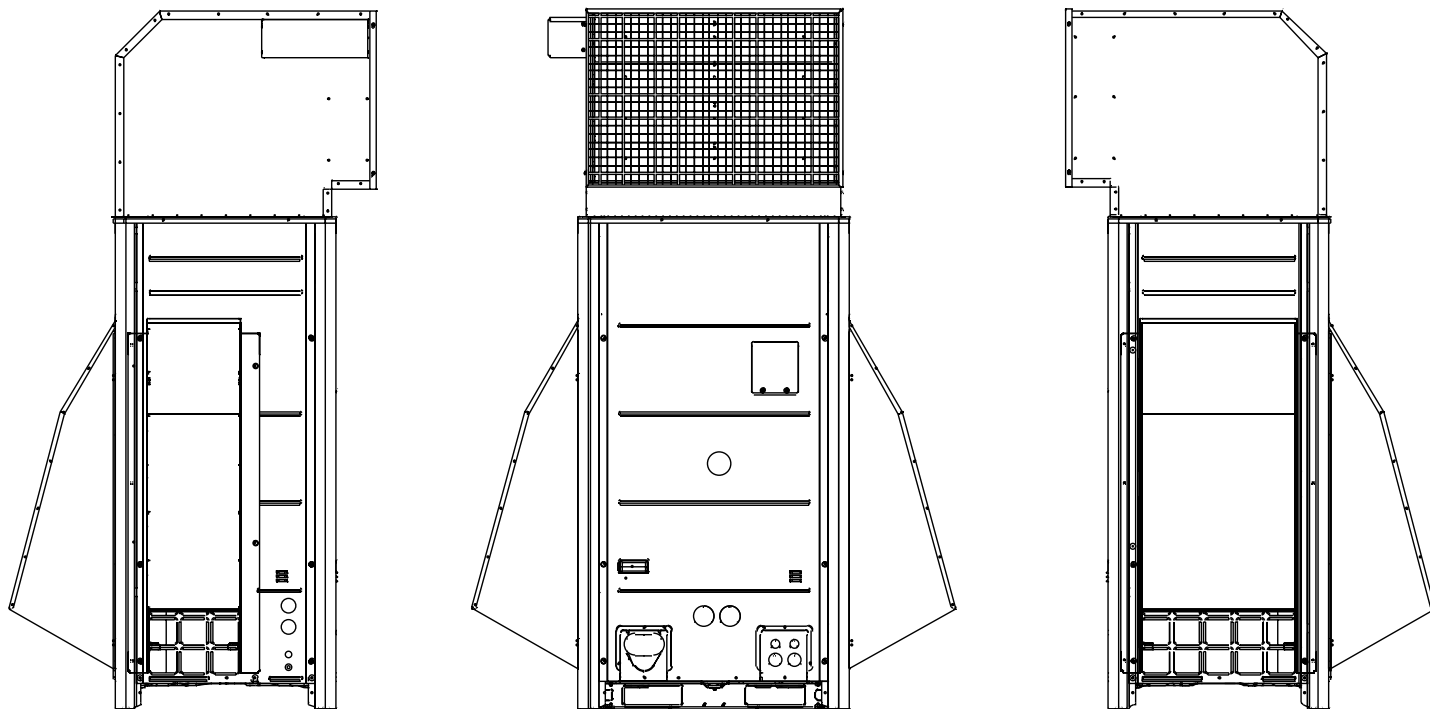
**Color:** Warm Gray**Material:** 20 Gauge Sheet Metal**Each Kit Includes:**

- Right wind baffle.
- Left wind baffle.
- Rear wind baffle.
- Top discharge elbow with motorized damper and 24V damper actuator.
- (50) #10 x 1/2" self-drilling hex-head screws.
- Conduit connector (for routing of actuator control and power wiring down to outdoor unit electrical box).

**Required Accessories (sold separately):**

Control Kit - PRVC2.

Figure 1: ZLABKA51A Low Ambient Cooling Kit for 6-Ton Multi V 5 Outdoor Units.

**Note:**

See the "Placement and Clearances" section for guidance on outdoor unit installation location requirements.



## ZLABKA52A Low Ambient Cooling Kit For 8- to 20-Ton Multi V 5 Outdoor Units

### Compatible Outdoor Units:

ARUM096BTE5 / ARUM096DTE5  
ARUM121BTE5 / ARUM121DTE5  
ARUM144BTE5 / ARUM144DTE5  
ARUM168BTE5 / ARUM168DTE5  
ARUM192BTE5 / ARUM192DTE5  
ARUM216BTE5 / ARUM216DTE5  
ARUM241BTE5 / ARUM241DTE5

### Standard Features:

- Allows operation down to -9.9°F in cooling, and down to 14°F in synchronous mode in Heat Recovery mode.
- Damper operator has spring return, normally open actuator.

**Color:** Warm Gray

**Material:** 20 Gauge Sheet Metal

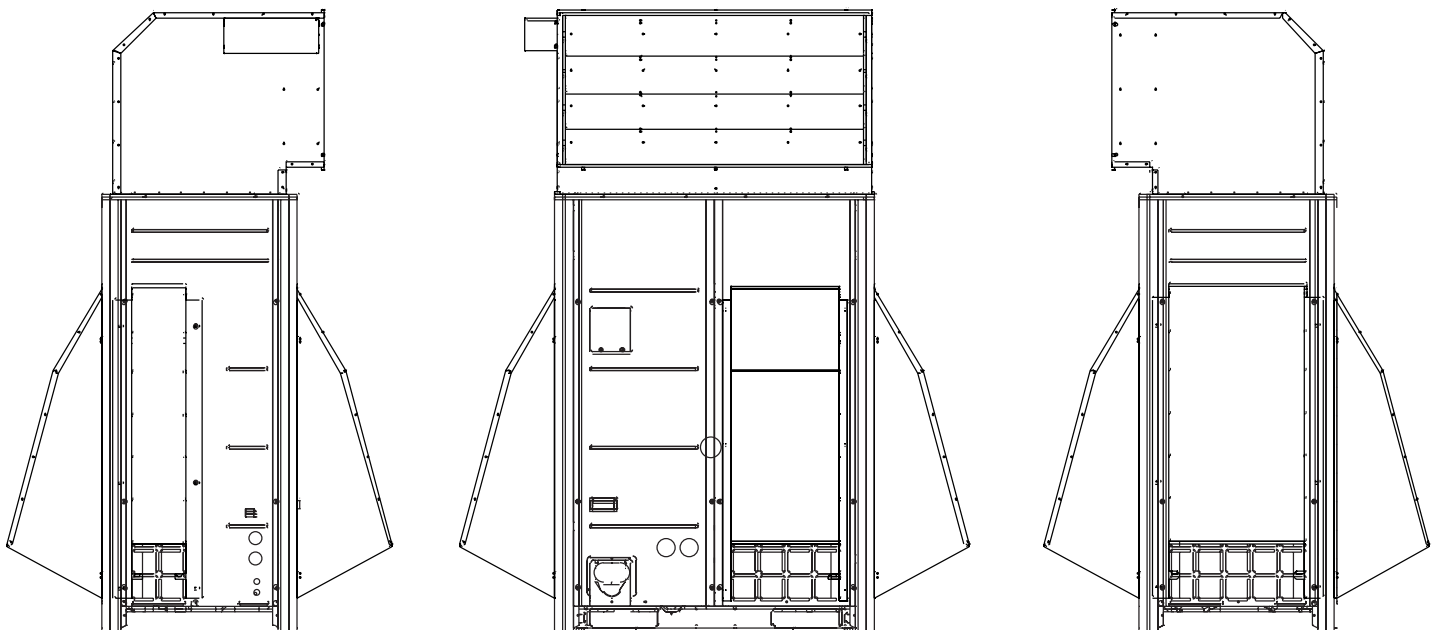
### Each Kit Includes:

- Right wind baffle.
- Left wind baffle.
- Rear wind baffle.
- Top discharge elbow with motorized damper and 24V damper actuator.
- Front wind baffle (8- to 20-ton units only)
- (50) #10 x 1/2" self-drilling hex-head screws.
- Conduit connector (for routing of actuator control and power wiring down to outdoor unit electrical box).

### Required Accessories (sold separately):

Control Kit - PRVC2.

Figure 2: ZLABKA52A Low Ambient Cooling Kit for 8-20 Ton Multi V 5 Outdoor Units.



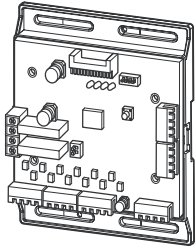
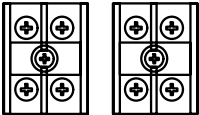
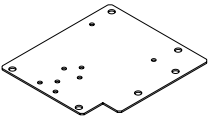
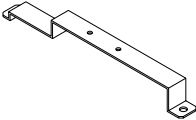
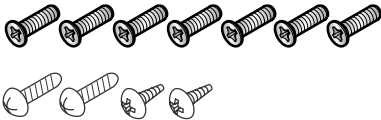
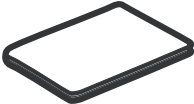
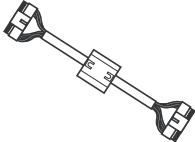

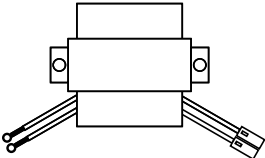

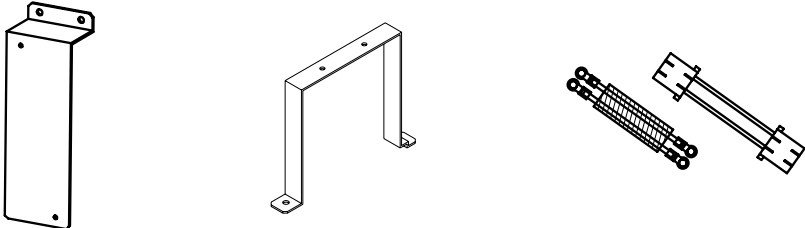
### Note:

See the "Placement and Clearances" section for guidance on outdoor unit installation location requirements.

PRVC2 Control Kit allows connection of Multi V 5 outdoor units to ZLABKA51A and ZLABKA52A Low Ambient Cooling Kits.

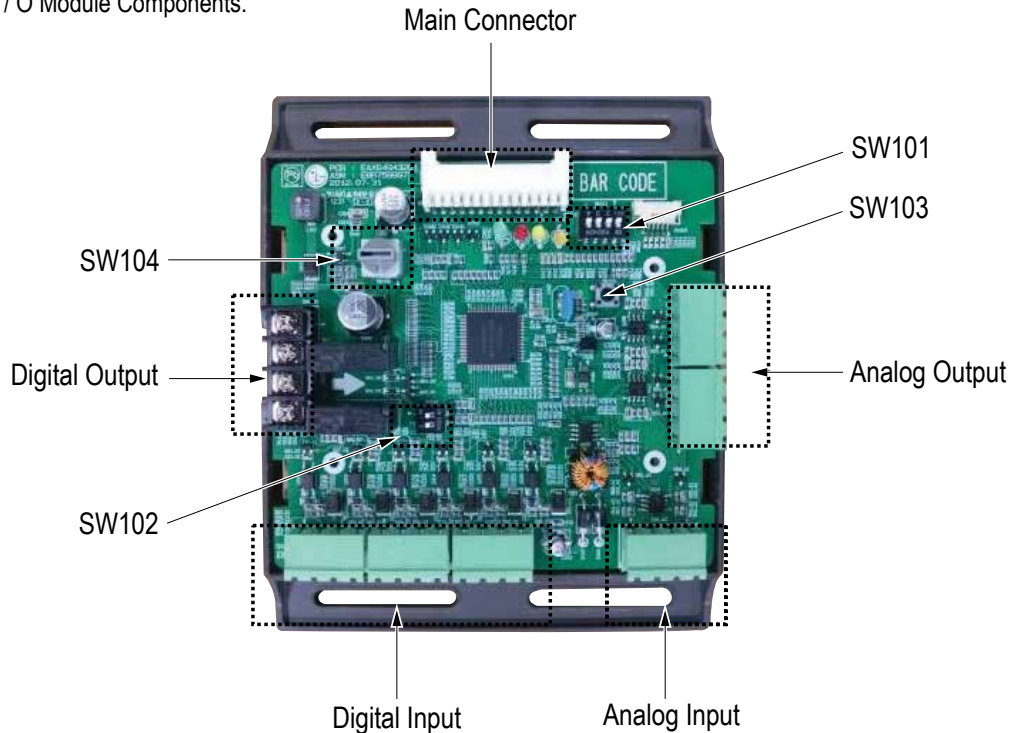
PRVC2 Control Kit Parts (included)

Table 1: PRVC2 Control Kit Parts.

 <p>Low Ambient Control I / O Module</p>	 <p>Terminal Block Assemblies (Two [2])</p>
 <p>Plate</p>	 <p>Bracket (For 8- to 20-Ton Large Frame Outdoor Units Only)</p>
 <p>Screws (Various Types; Eleven [11])</p>	 <p>Manual</p>
 <p>I / O Module Harness</p>	 <p>Tie (Two [2])</p>
 <p>Transformer</p>	 <p>Clamp</p>
<p>Included parts, but not for use with Multi V 5.</p> 	

## PRVC2 I / O Module

Figure 3: PRVC2 I / O Module Components.



Main Connector: Power input / communication connection to outdoor unit.

SW104: Rotary switch for setting the demand control step.

Digital Output: Operation and error status relay output (250V, 1A).

SW102: DIP switch for setting internal functions.

Digital Input: Dry contact input.

Analog Input: DC0~10V analog signal input.

Analog Output: DC0~10V analog signal output.

SW103: Reset switch.

SW101: DIP switch for setting operating functions.

### General Specifications

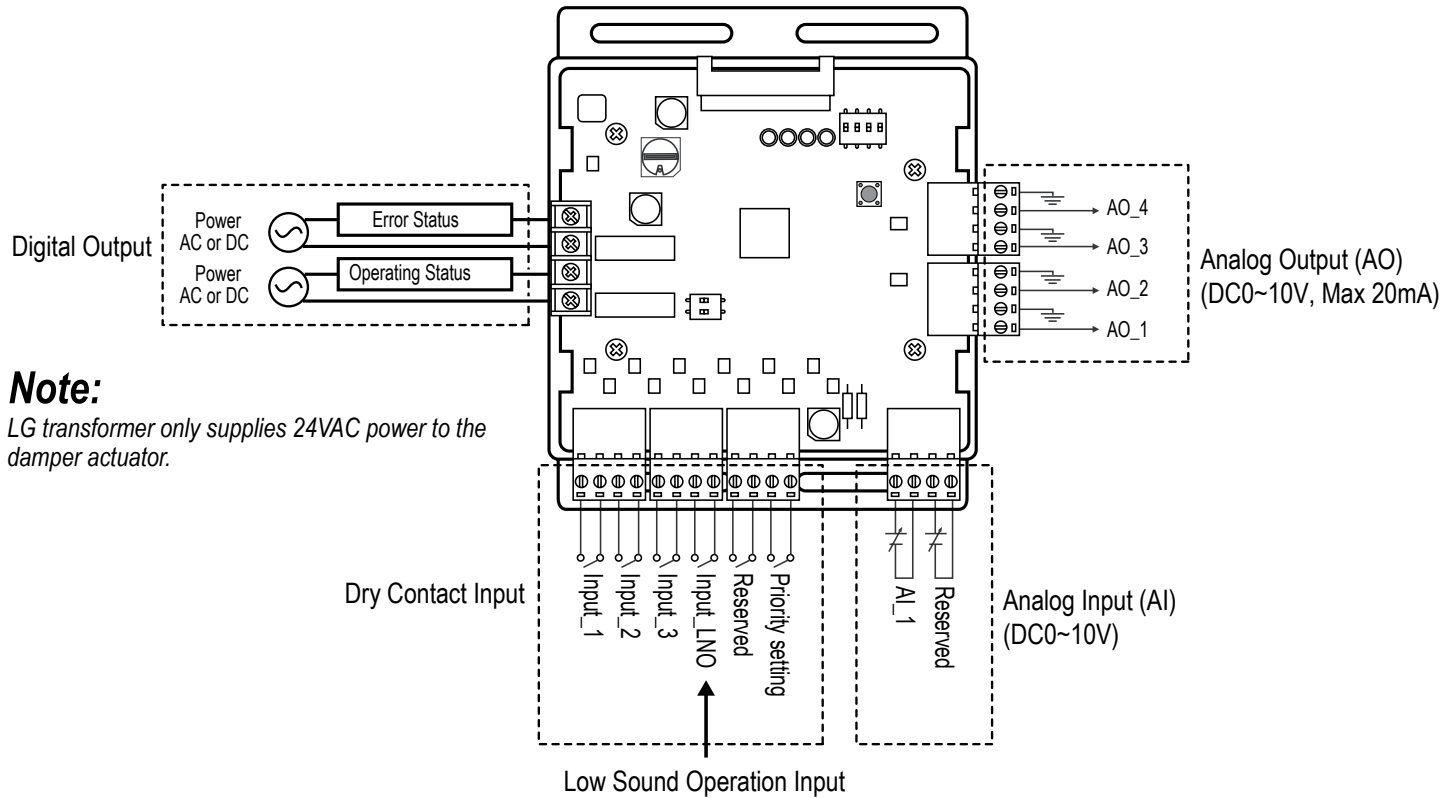
- Ambient installation conditions : -10°F (-23°C) ~ +115°F (+46°C).
- LG supplied transformer is 24VAC; however, the signal from the I / O Module to the damper actuator is 0~10V.
- Power (AC / DC 24V) and Signal (DC 0~10V) Line Specifications: AWG 22 (1/32 in. [0.644 mm], 0.016 Ω/ft. [0.053 Ω/m]).

# SPECIFICATIONS

**MULTI V 5**

## PRVC2 Control Kit I / O Module Inputs / Outputs

Figure 4: PRVC2 I / O Module Inputs / Outputs.



### Note:

LG transformer only supplies 24VAC power to the damper actuator.

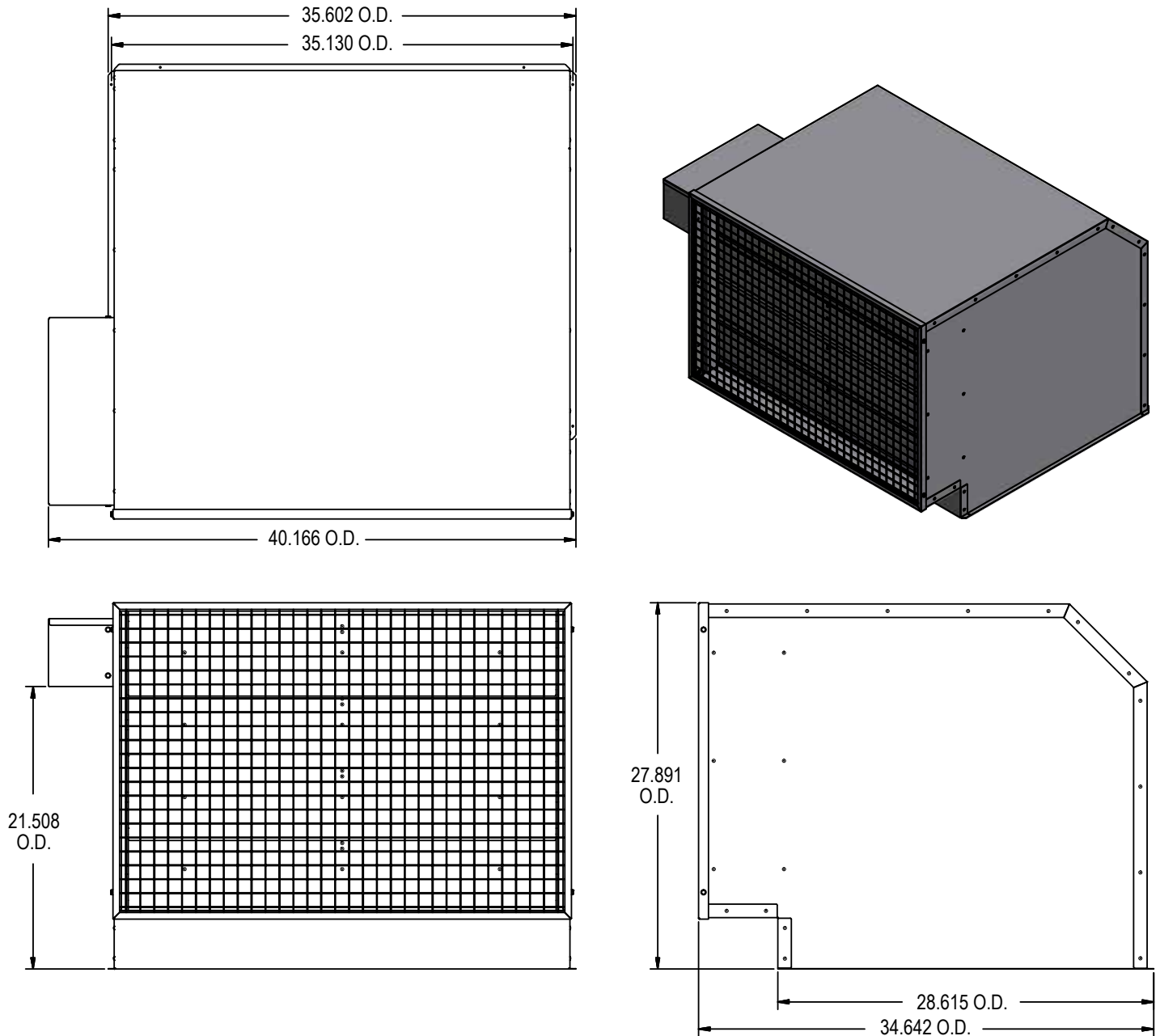
1. Dry Contact Input: Connection for non-voltage contact signal for three-step demand control.
  - Priority Setting: Use "Priority Setting" contact signal to set command priorities(s). (External Commands from DDC versus Commands from LG Central Controllers.)
    - Closed: Central controller has priority over the external signal.
    - Opened: External signal has priority over the central controller.
2. Analog Input: Connection for analog input signal for ten-step demand control.
3. Analog Output: Connect analog output signal for controlling third-party devices. (Example: Damper Actuator for the Low Ambient Kit.)
4. Digital Output: Connection for status display devices.

### ⚠ WARNING

**Turn off power before installation. Turn power on only after wiring is completely finished.**  
Electrical shock can cause physical injury or death.

**ZLABKA51A Low Ambient Cooling Kit Top Discharge Elbow**  
For 6-Ton Multi V 5 Outdoor Units

Figure 5: ZLABKA51A Low Ambient Cooling Kit Top Discharge Elbow.



# DIMENSIONS



## ZLABKA51A Low Ambient Cooling Kit Side Wind Baffles For 6-Ton Multi V 5 Outdoor Units

Figure 6: Left Side Wind Baffle for ZLABKA51 Low Ambient Cooling Kit.

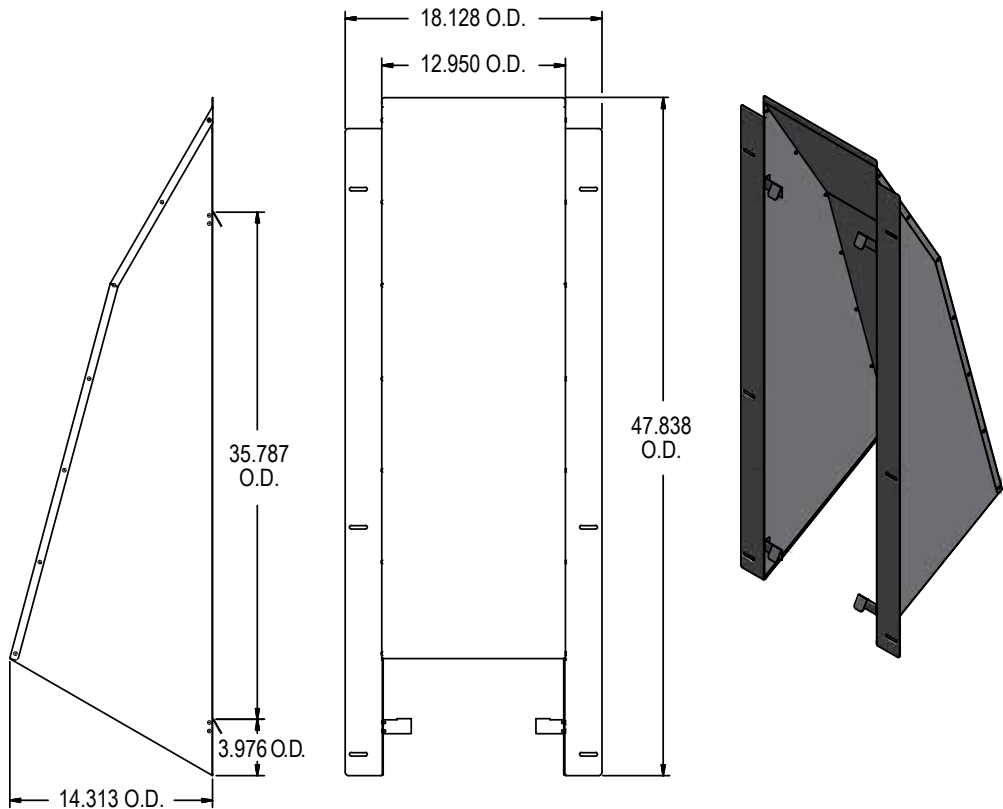
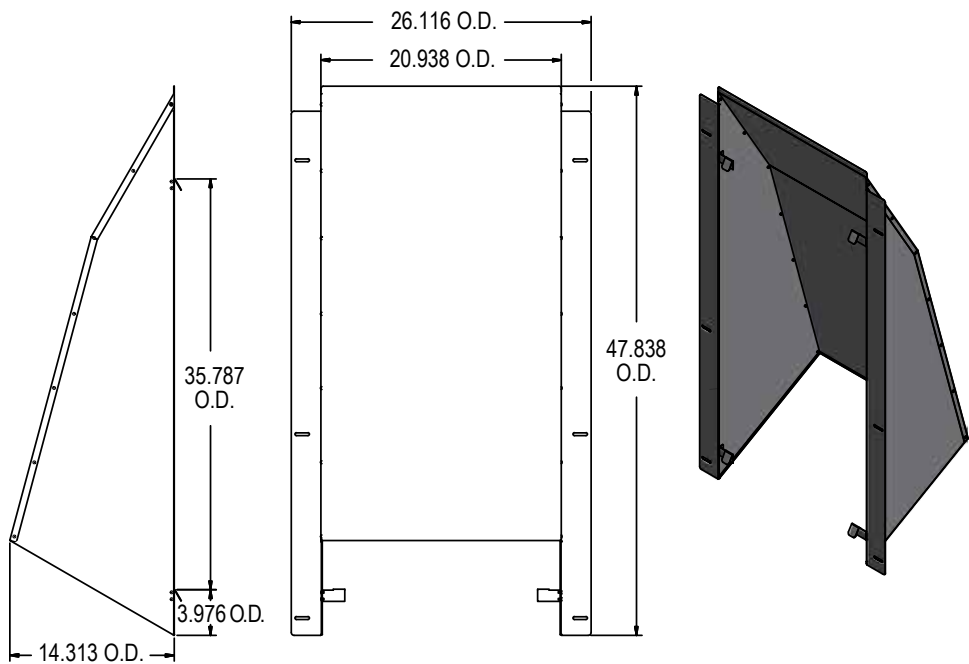
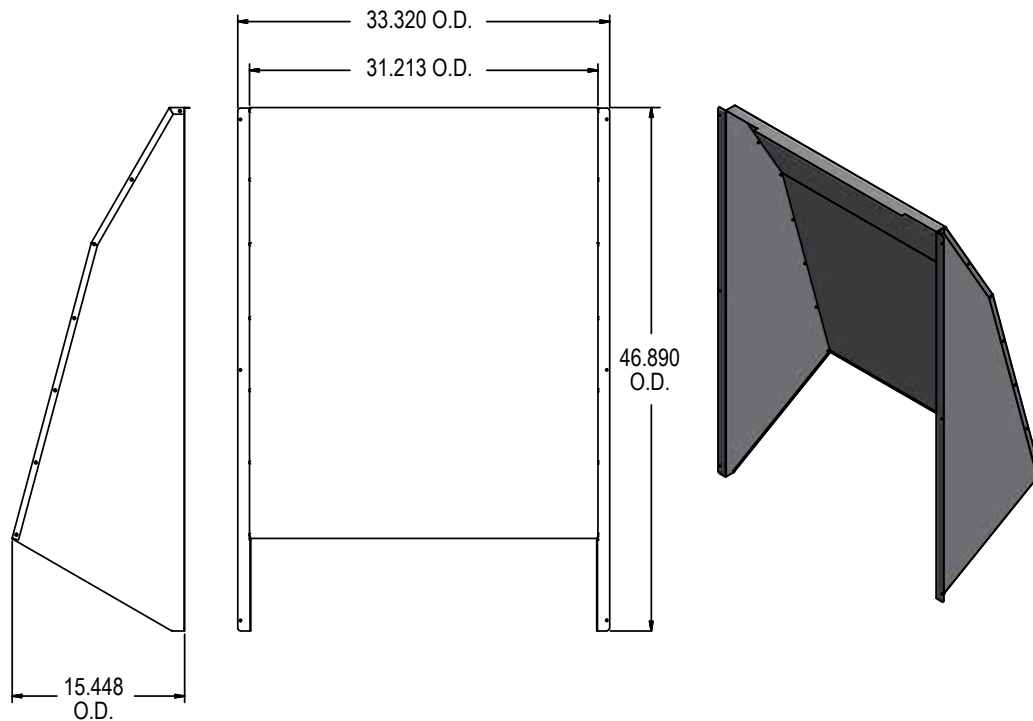


Figure 7: Right Side Wind Baffle for ZLABKA51 Low Ambient Cooling Kit.



**ZLABKA51A Low Ambient Cooling Kit Rear Wind Baffle**  
**For 6-Ton Multi V 5 Outdoor Units**

Figure 8: Rear Wind Baffle for ZLABKA51 Low Ambient Cooling Kit.

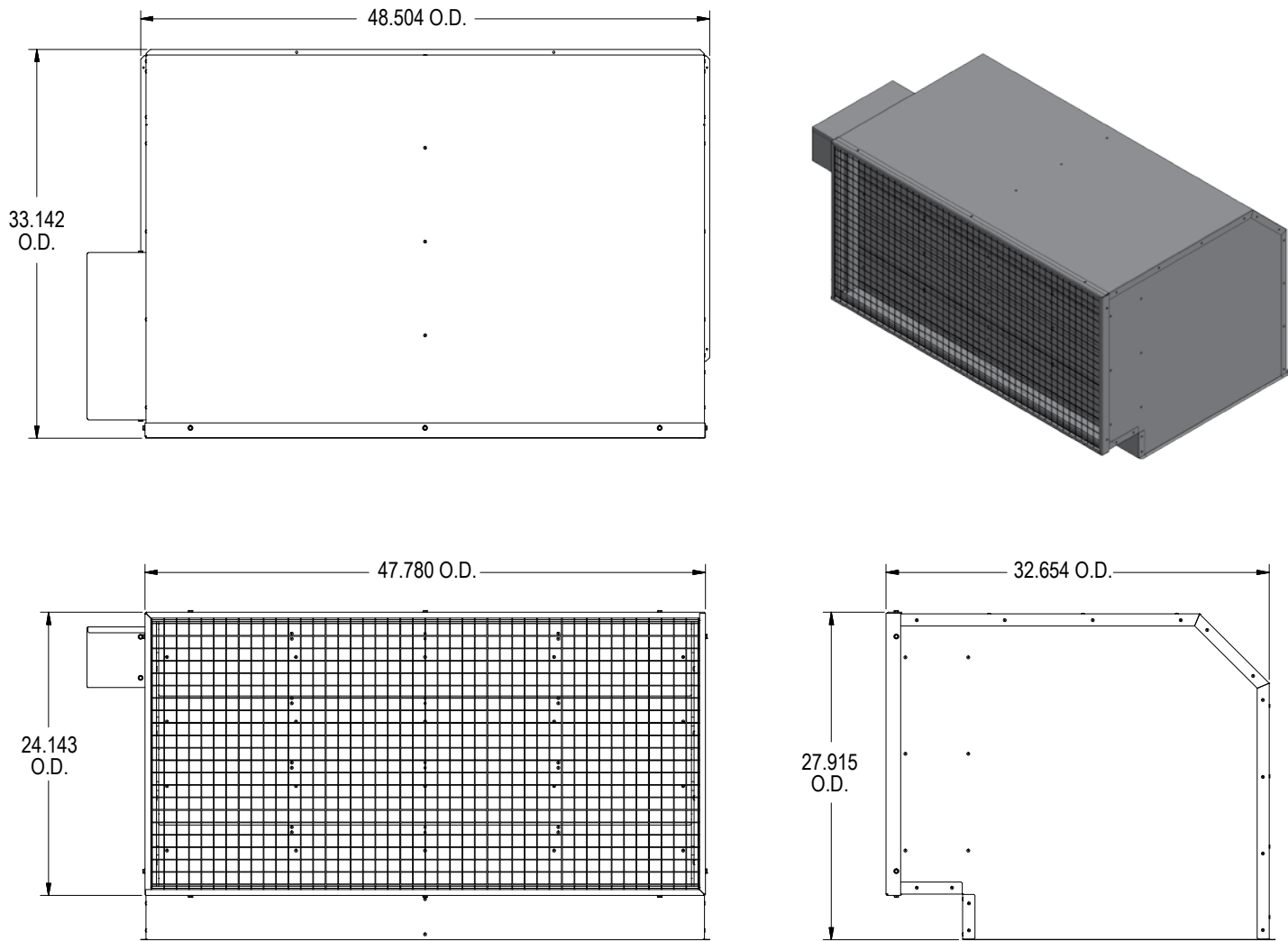


# DIMENSIONS



## ZLABKA52A Low Ambient Cooling Kit Top Discharge Elbow For 8- to 20-Ton Multi V 5 Outdoor Units

Figure 9: ZLABKA52A Low Ambient Cooling Kit Top Discharge Elbow.





**ZLABKA52A Low Ambient Cooling Kit Side Wind Baffles**  
For 8- to 20-Ton Multi V 5 Outdoor Units

Figure 10: Left Side Wind Baffle for ZLABKA52A Low Ambient Cooling Kit.

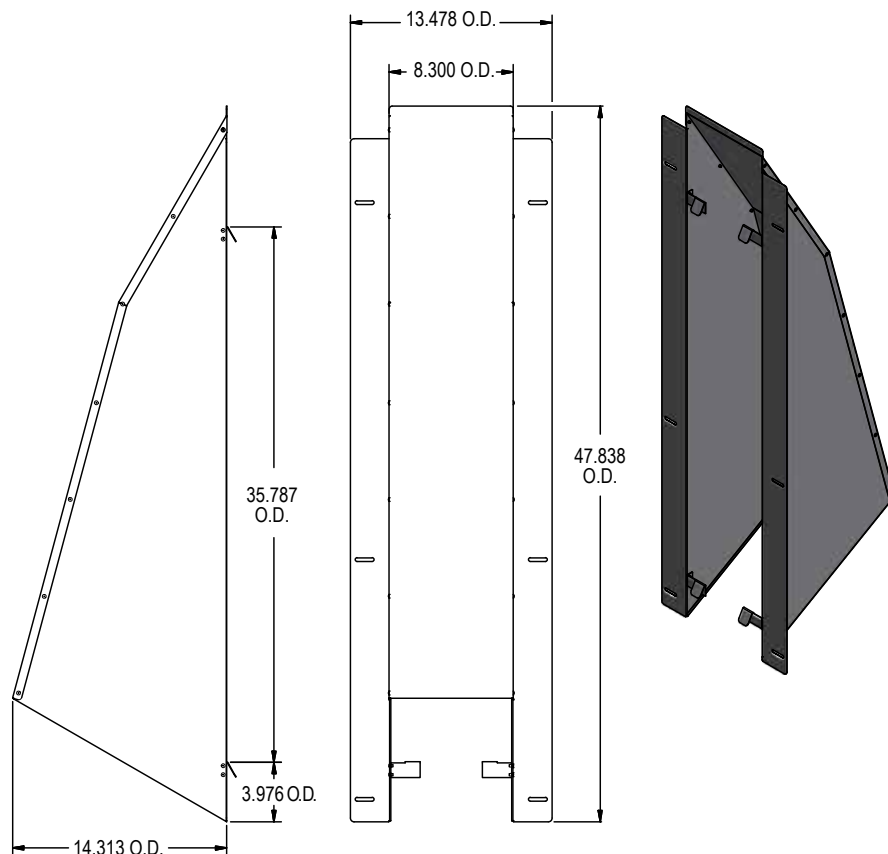
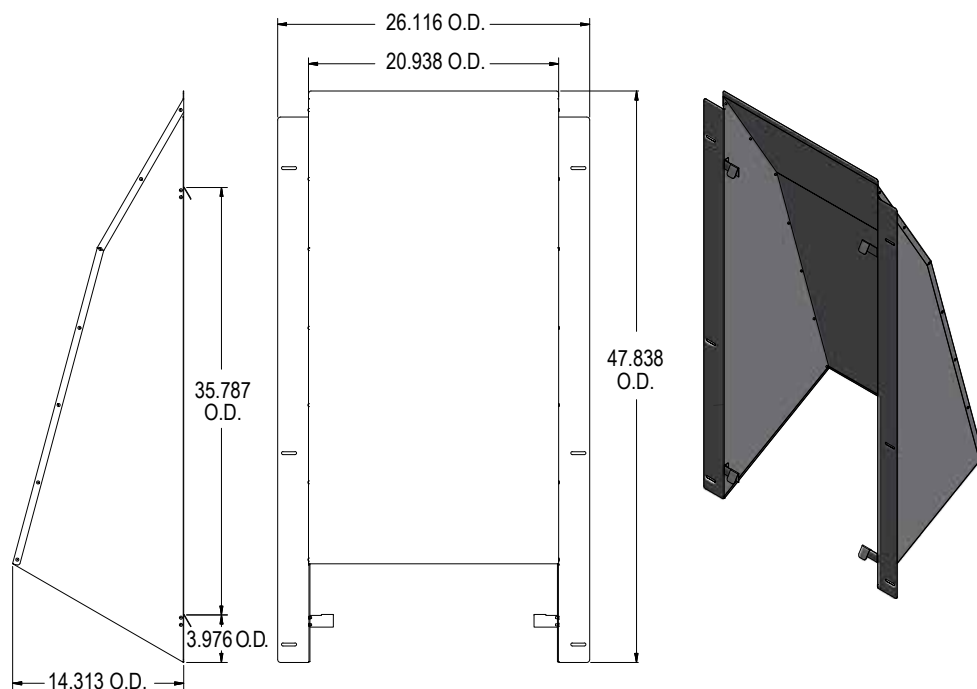



Figure 11: Right Side Wind Baffle for ZLABKA52A Low Ambient Cooling Kit.



# DIMENSIONS



## ZLABKA52A Low Ambient Cooling Kit Front and Rear Wind Baffles

### For 8- to 20-Ton Multi V 5 Outdoor Units

Figure 12: Front Wind Baffle for ZLABKA52A Low Ambient Cooling Kit.

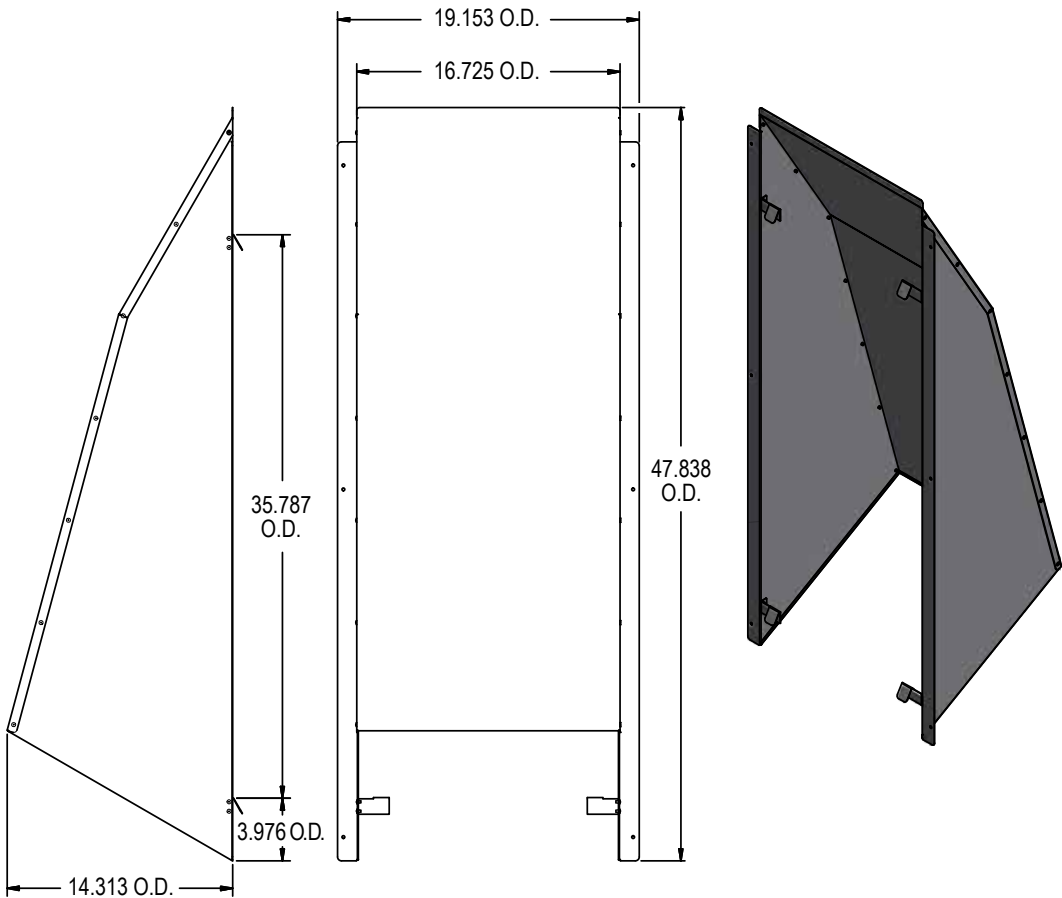
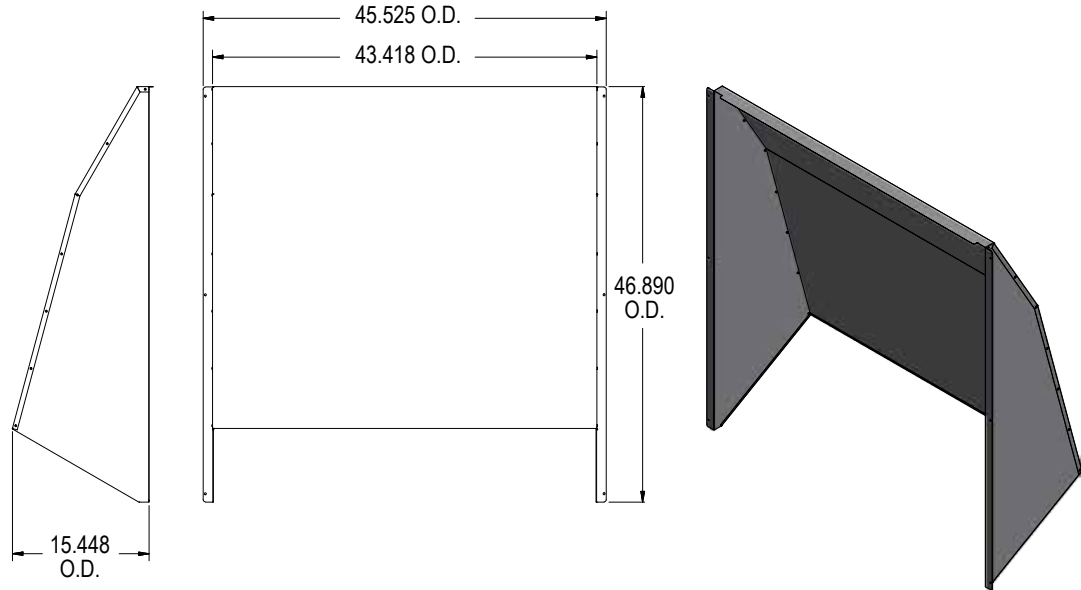


Figure 13: Rear Wind Baffle for ZLABKA52A Low Ambient Cooling Kit.

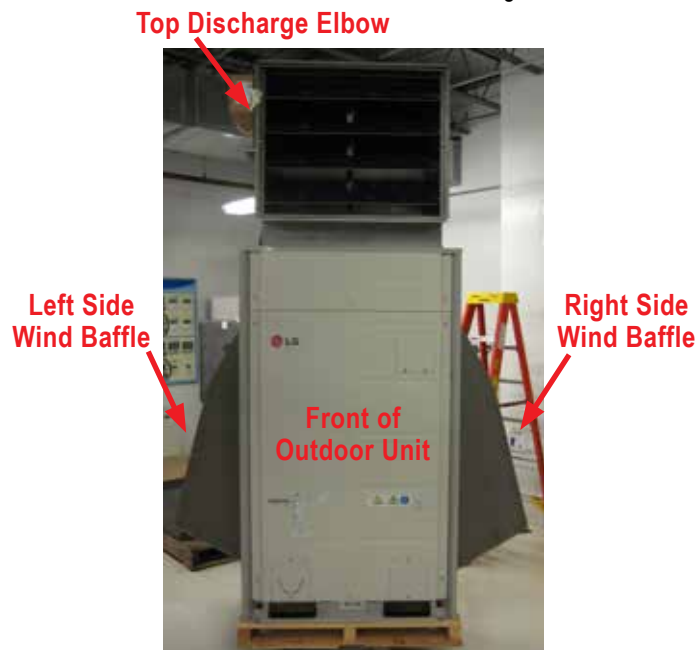


**Note:**

The images of the outdoor unit on this page are for illustrative purposes only. Multi V 5 outdoor units have a different configuration.

**View of Low Ambient Kit Installed**

Figure 16: View of Top Discharge Elbow and Side Wind Baffles of the Low Ambient Cooling Kit Installed.



**Attaching the Low Ambient Cooling Kit Top Discharge Elbow**

**Step 1.**

Turn OFF the power to the outdoor unit.

**Step 2.**

Loosen the four screws that secure the fan guard to the top of the outdoor unit, and then remove the fan guard.

Figure 14: Top of Outdoor Unit with Fan Guard Removed.



**Step 3.**

Attach the top discharge elbow to the top of the outdoor unit with screws (included).

Figure 15: Installed Top Discharge Elbow.



## Attaching the Low Ambient Cooling Kit Side Wind Baffles

### Note:

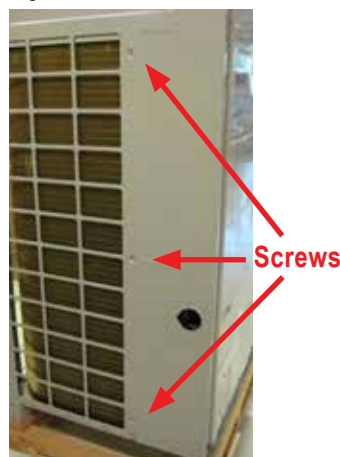
The images of the outdoor unit on this page are for illustrative purposes only. Multi V 5 outdoor units have a different configuration.

### Attaching the Low Ambient Cooling Kit Side Wind Baffles

#### Step 1.

Remove the three (3) screws on the outdoor unit side panel.

Figure 17: Location of Screw Holes.



### Note:

- The right wind baffle is wider than the left wind baffle. Make sure to attach the correct wind baffle to the correct side panel.
- Use only the cabinet screws to attach the right flange on the Left Side Wind Baffles / Hail Guards. ⚠ Do NOT use self-drilling screws to attach the left bracket, which will puncture the outdoor coil. Self-drilling screws (supplied with each kit) must be used to attach the left bracket on the Left Side Wind Baffles / Hail Guards to unit corner post.

#### Step 2.

Use the four (4) sheet-metal hangers to position the side wind baffle on the coil guard's top and bottom crossbars. Verify all four hangers are hooked on the stamped unit left, right (and front for 8 to 20-Ton only) air grilles before attaching with screws.

Figure 18: Location of Hangers.

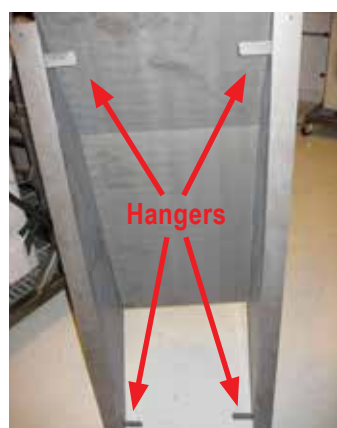


Figure 19: Positioning the Side Wind Baffle.



Figure 20: Close up of Wind Baffle Hangers and Where to Attach Them.



#### Step 3.

Using the side wind baffle as the template, mark the locations on the outdoor unit where additional screws (included) must be added. Remove the side wind baffle, and predrill the holes using a drill bit.

### Note:

⚠ Do not puncture the outdoor unit coil or other interior components when predrilling holes for the wind baffle screws. Maximum depth = 1/2 inch.

#### Step 4.

Reposition the side wind baffle on the coil guard's top and bottom crossbars. Secure with three (3) screws on each side. Repeat steps for the other side wind baffle.

Figure 21: Attaching the Side Wind Baffle.



Figure 22: Side Wind Baffle Installed.



## Attaching the Low Ambient Cooling Kit Rear Wind Baffle

### Attaching the Low Ambient Cooling Kit Rear Wind Baffle

#### Step 1.

Insert the top edge of the rear wind baffle between the top, solid rear unit panel and the coil protective grille.

Figure 23: Top Edge of the Rear Wind Baffle.



Figure 24: Top Edge of the Rear Wind Baffle Inserted.



#### **⚠ WARNING**

*To prevent the rear wind baffle from falling, which may result in physical injury, use two individuals during install. As one individual holds the rear baffle, the other inserts the screws.*

#### Step 2.

Using the rear wind waffle as the template, mark the locations on the outdoor unit where holes need to be predrilled for the screws — three (3) on each side, six (6) total. Remove the side wind baffle, and predrill the holes using a drill bit.

Figure 25: Example of a Rear Wind Baffle Predrilled Hole.



#### **Note:**

⊘ Do not puncture the outdoor unit coil or other interior components when predrilling holes for the rear wind baffle screws. Maximum depth = 1/2 inch.

#### Step 3.

Reposition the rear wind baffle into the slot on the back of the outdoor unit. Secure with three (3) screws on each side.

# INSTALLATION

**MULTI V 5**

## Attaching the Low Ambient Cooling Kit Front Wind Baffle

### Attaching the Low Ambient Cooling Kit Front Wind Baffle

#### Step 1.

Use the four (4) sheet-metal hangers to position the side wind baffle on the coil guard's top and bottom crossbars. Verify all four hangers are hooked on the stamped unit left, right (and front for 8 to 20-Ton only) air grilles before attaching with screws.

Figure 26: Location of Hangers.



Figure 27: Positioning the Front Wind Baffle.



Figure 28: Close up of Wind Baffle Hangers and Where to Attach Them.



#### Step 2.

Using the Front wind baffle as the template, mark the locations on the outdoor unit where additional screws (included) must be added. Remove the side wind baffle, and predrill the holes using a drill bit.

#### Step 3.

Reposition the front wind baffle on the coil guard's top and bottom crossbars. Secure with three (3) screws on each side.

Figure 29: Attaching the Front Wind Baffle.



Figure 30: Front Wind Baffle Installed.



#### Note:

⊘ Do not puncture the outdoor unit coil or other interior components when predrilling holes for the wind baffle screws. Maximum depth = 1/2 inch.



## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

### ⚠ WARNING

**Turn off power to outdoor unit before installation.**  
Electrical shock can cause physical injury or death.

### Installing PRVC2 I / O Components in the Outdoor Unit Frames

1. Verify PRVC2 kit contents against parts list shown on page 10.
2. Verify main power is shutoff the outdoor unit. Follow all safety protocols / lockout tag-out procedures.
3. Mount the transformer and both terminal blocks to the Plate as shown.
4. After attaching the transformer and terminal blocks to the Plate install the sub-assembly in outdoor unit control box. There are two (2) unit footprints: 6-ton (small), and 8- to 20-ton (large).

Figure 31: Component Placement on the Plate.

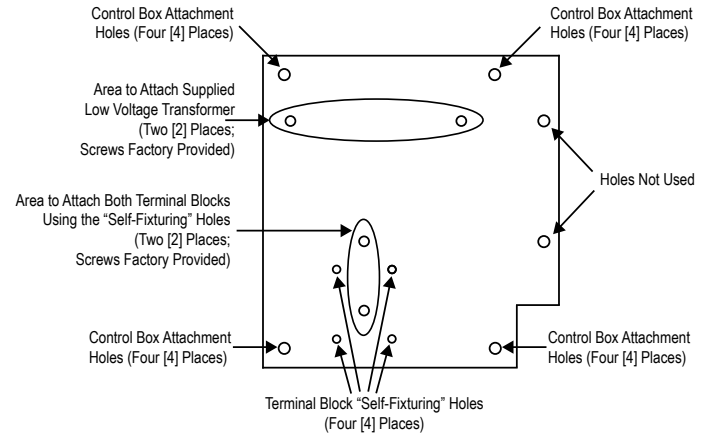


Figure 32: View of the Transformer and Terminal Block Assemblies Installed in the Small Frame 6-Ton Outdoor Unit Control Box.

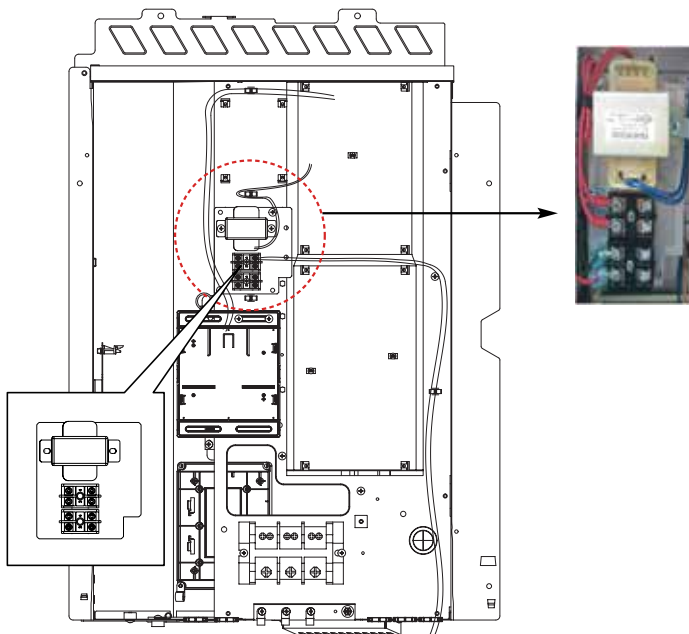
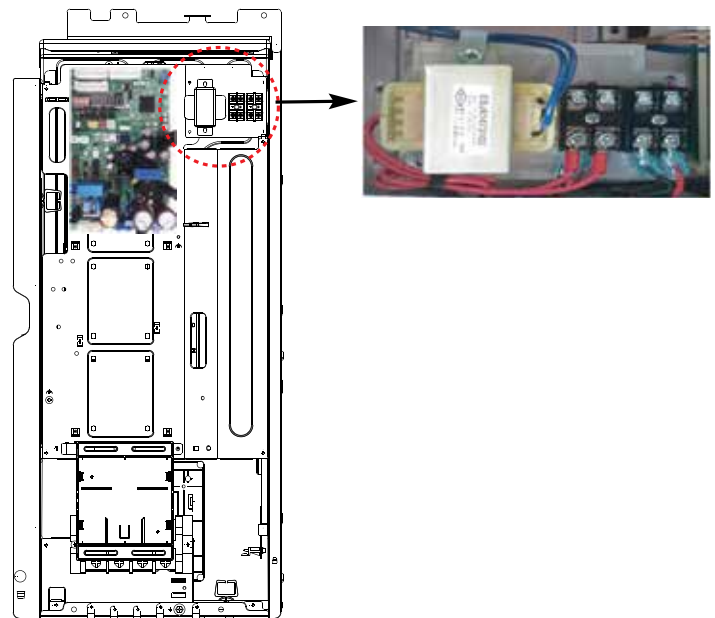


Figure 33: View of the Transformer and Terminal Block Assemblies Installed in Large Frame 8- to 20-Ton Outdoor Units Control Box.



# INSTALLATION



## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

- Verify the I / O Module DIP switch settings are configured as shown.
- After DIP switch settings have been confirmed / configured, install the I / O Module in the outdoor unit control box. There are two (2) unit footprints: 6-ton (small), and 8- to 20-ton (large).

Figure 34: Location of SW101 and SW102 on the I / O Module.

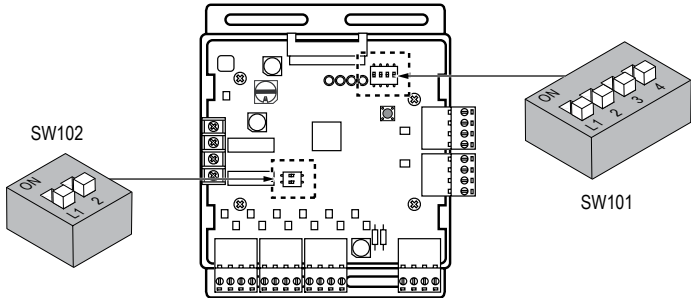


Table 2: Low Ambient Kit DIP Switch Settings.

DIP Switch	Settings
<p>SW101</p>	L1 = ON; L2 = ON; L3 = OFF; L4 = OFF
<p>SW102</p>	L1 = ON; L2 = OFF

### WARNING

Turn off power to outdoor unit before installation.  
Electrical shock can cause physical injury or death.

Figure 35: Installing the I / O Module in Small (6-Ton) Outdoor Unit Frames.

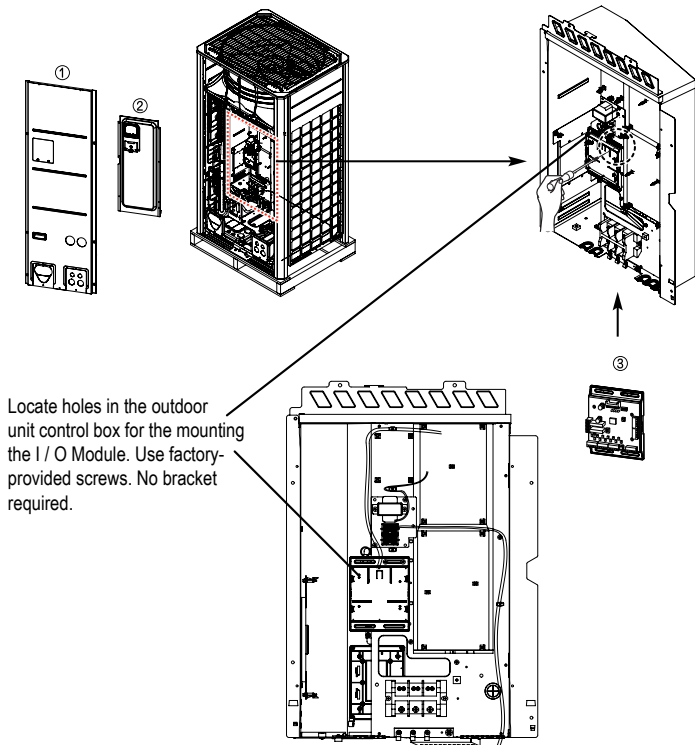
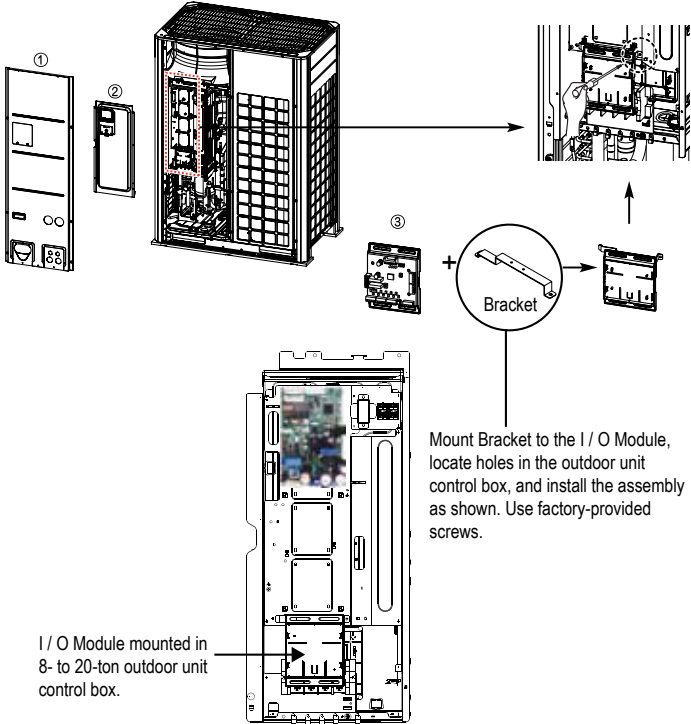


Figure 36: Installing the I / O Module in Large (8- to 20-Ton) Outdoor Unit Frames.

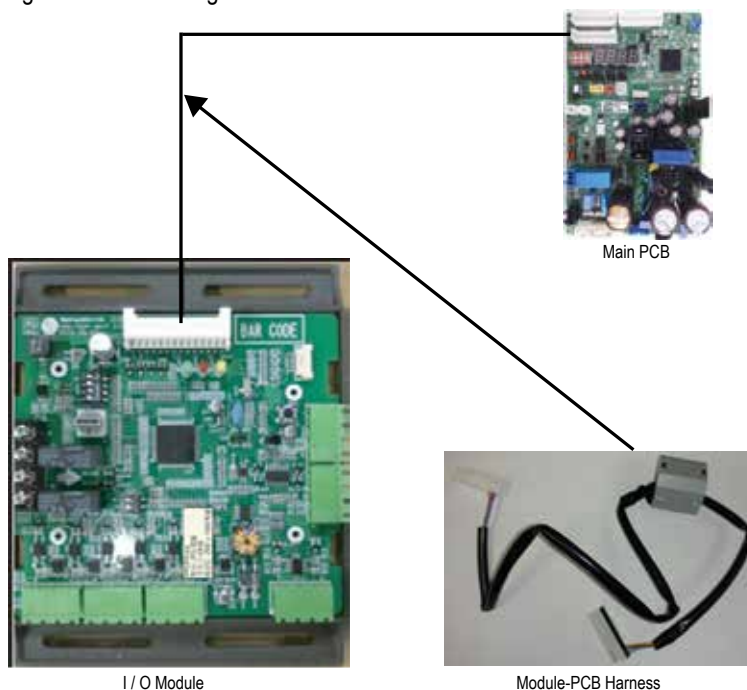




## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

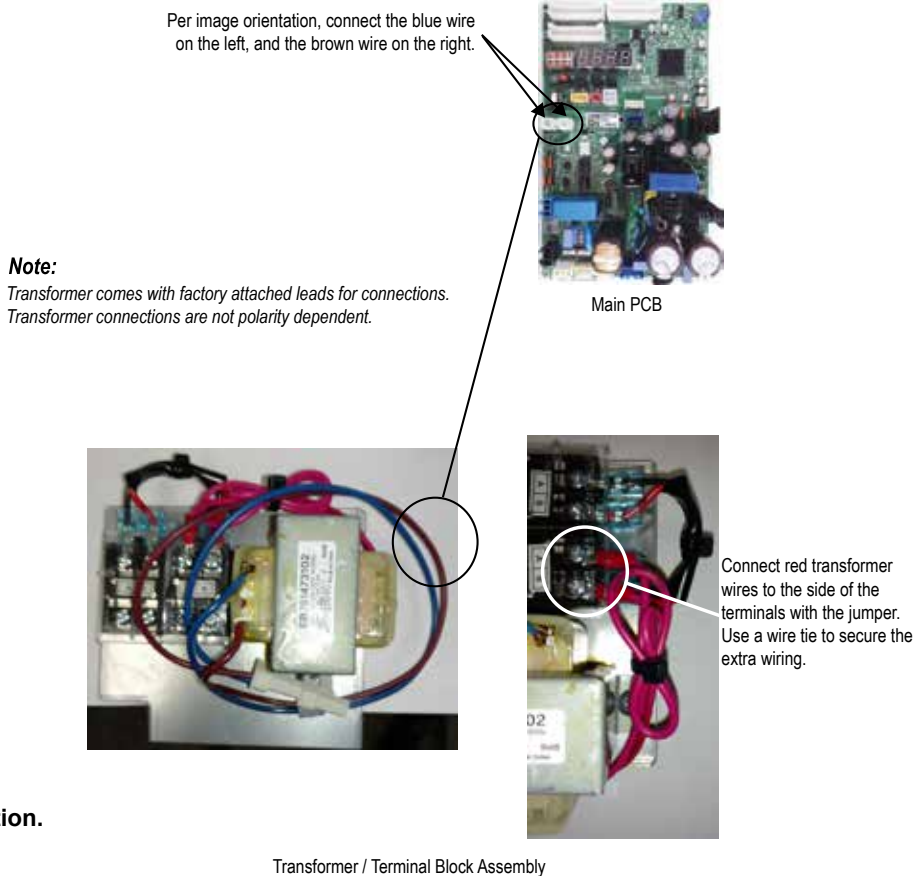
- After the I / O Module and transformer / terminal block sub-assemblies have been securely screwed into the outdoor unit control box, route the Module-PCB harness and snap it into the connector slots.

Figure 37: Connecting the Module-PCB Harness.



- Uncoil the incoming transformer power wires (Blue and Brown wires), route, and connect them to the Main PCB.

Figure 38: Connecting the Module-PCB Harness.



### ⚠ WARNING

**Turn off power to outdoor unit before installation.**  
Electrical shock can cause physical injury or death.

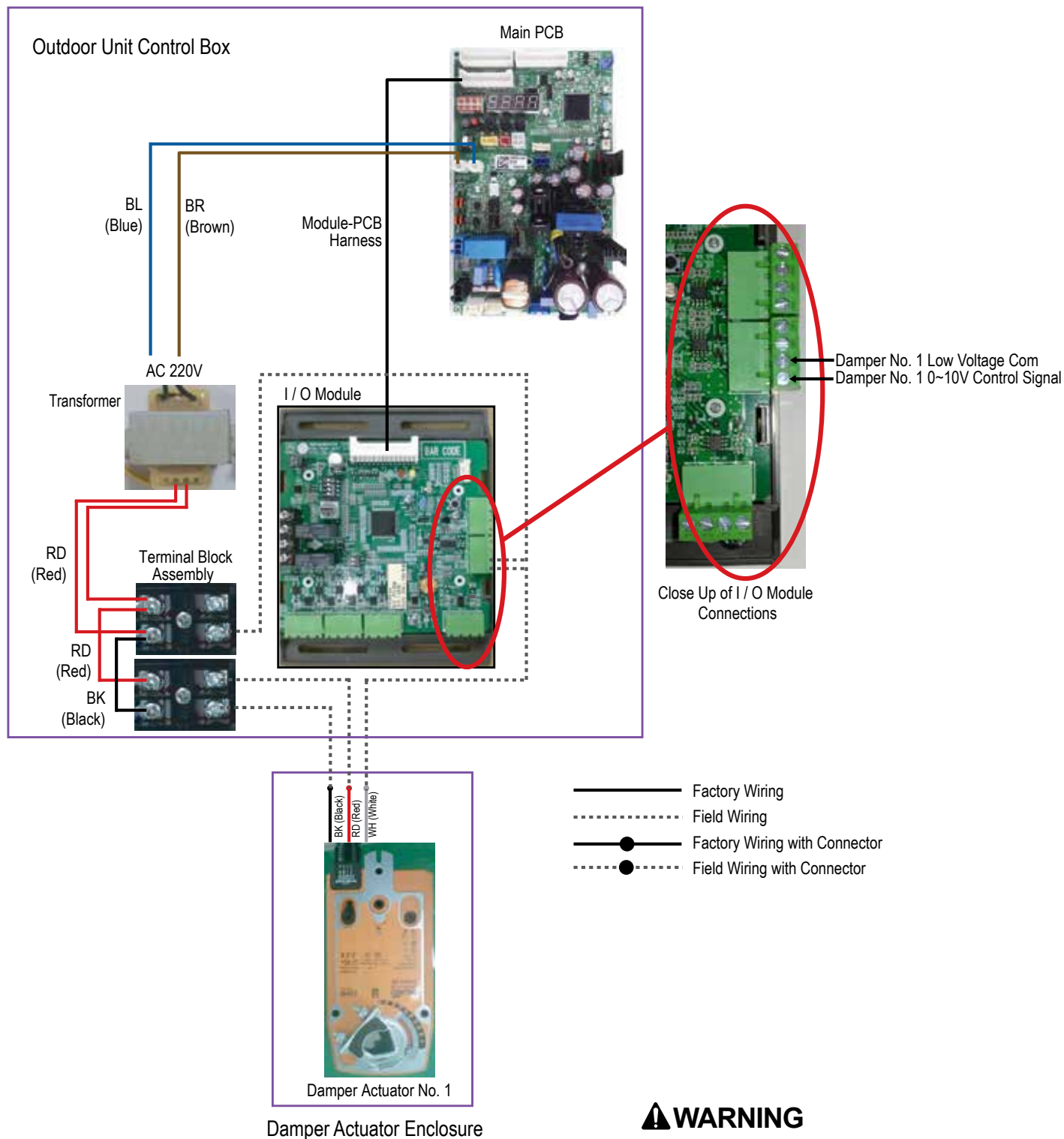
# INSTALLATION

**MULTI V 5**

## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

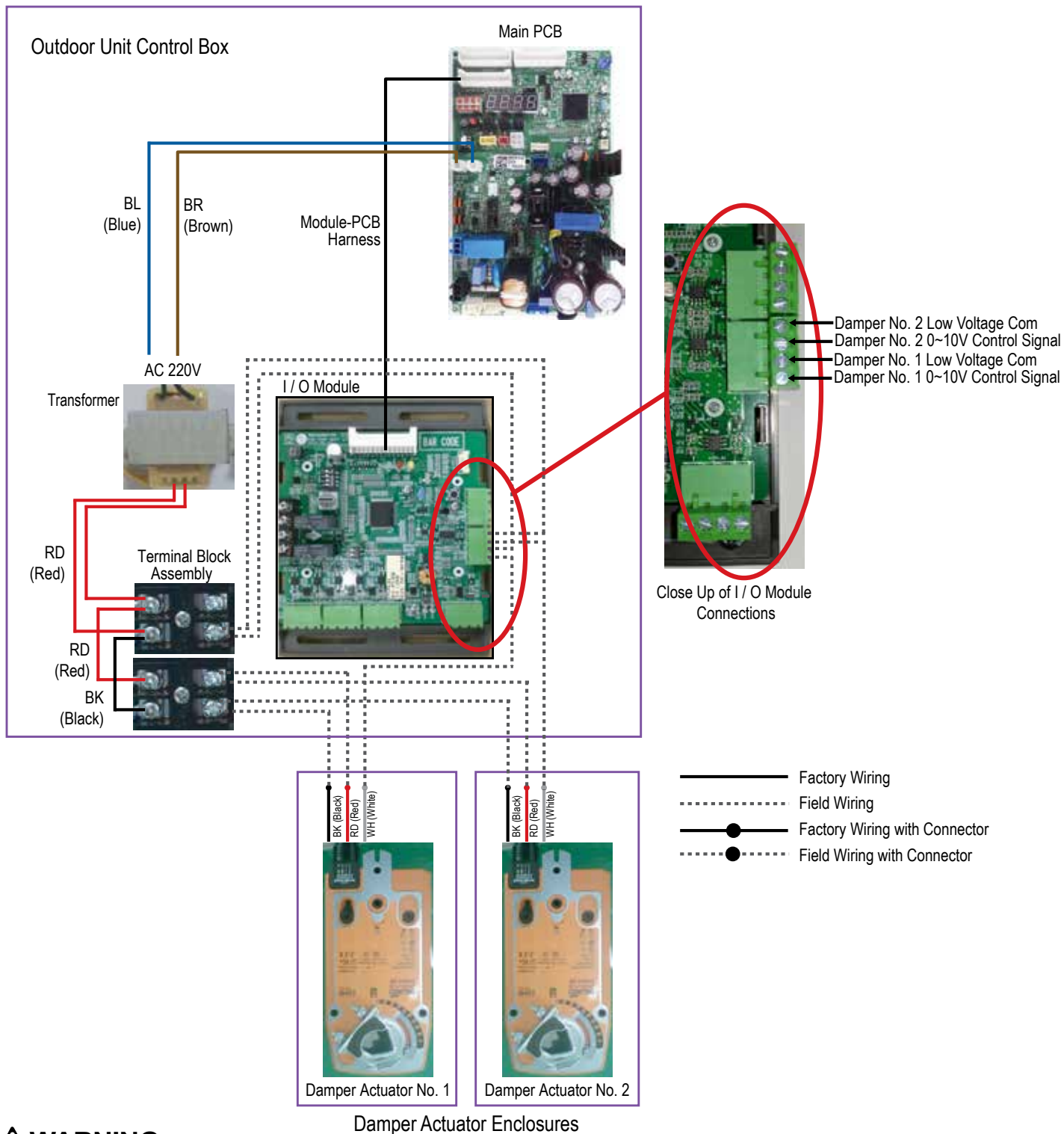
9. Connect the damper actuator to 24VAC power wiring, and 0-10 DVC control signal wiring.

Figure 39: Wiring for Damper Actuators, Single Frame Outdoor Units.



## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

Figure 40: Wiring for Damper Actuators, Double Frame Outdoor Units.



### ⚠ WARNING

**Turn off power to outdoor unit before installation.**  
Electrical shock can cause physical injury or death.

# MULTI V 5 Low Ambient Kit Installation Manual

## Installing the PRVC2, Transformer, and Terminal Block Assemblies in the Outdoor Unit Frames

**Outdoor Unit Control Box**

**Main PCB**

**I / O Module**

**Transformer**

**Terminal Block Assembly**

**Damper Actuator Enclosures**

**Damper Actuator No. 1**

**Damper Actuator No. 2**

**Damper Actuator No. 3**

**Close Up of I / O Module Connections**

**Legend:**

- Factory Wiring (Solid line)
- Field Wiring (Dotted line)
- Factory Wiring with Connector (Solid line with dot)
- Field Wiring with Connector (Dotted line with dot)

**Wiring Details:**

- AC 220V** (Blue) and **BR (Brown)** connect to the **Transformer**.
- RD (Red)** and **BK (Black)** connect to the **Terminal Block Assembly**.
- Factory Wiring** connects the **Main PCB** to the **I / O Module** via the **Module-PCB Harness**.
- Field Wiring** connects the **I / O Module** to the **Damper Actuator Enclosures**.
- Close Up of I / O Module Connections:**
  - Damper No. 3 Low Voltage Com
  - Damper No. 3 0~10V Control Signal
  - Damper No. 2 Low Voltage Com
  - Damper No. 2 0~10V Control Signal
  - Damper No. 1 Low Voltage Com
  - Damper No. 1 0~10V Control Signal

**Turn off power to outdoor unit before installation.**  
*Electrical shock can cause physical injury or death.*

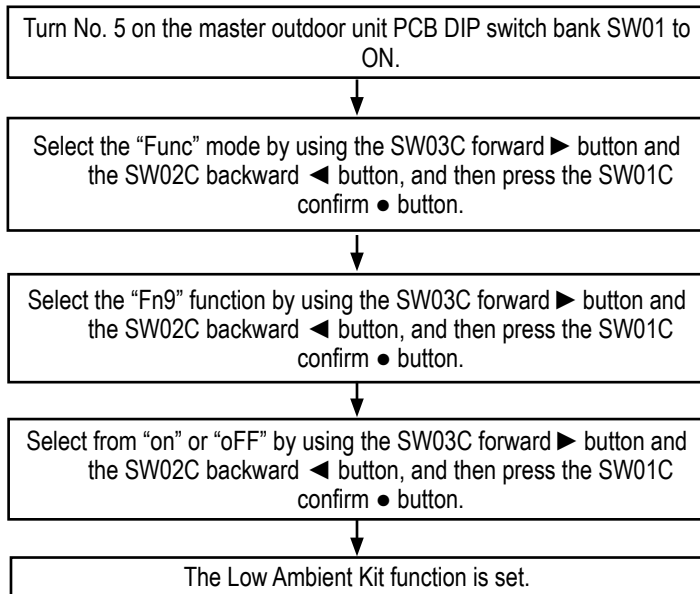


## Installing the PRVC2 Transformer and Terminal Block Assemblies in the Outdoor Unit Frames

10. Set DIP switch No. 5 on the master outdoor unit PCB board so the outdoor units increase the fan CFM to compensate for the increase static added by the Low Ambient Kit top discharge elbows.

### Low Ambient Kit Mode

Figure 43: Setting the Low Ambient Kit Function.



11. After all low ambient kit electrical components are configured for low ambient operation per Steps Nos. 5 and 10, securely installed inside the outdoor unit control, and wired, secure the wiring with the wire ties and clamp provided. Verify the wires are routed such that they do not get pinched, placed in tension or rub against any sharp, metal edge prior to securing.

### ⚠ DANGER

Verify the wires are routed such that they do not get pinched, placed in tension or rub against any sharp, metal edge prior to securing. Damaged wiring runs the risk of fire, electric shock, and physical injury or death.

### ⚠ WARNING

Turn off power to outdoor unit before installation.  
Electrical shock can cause physical injury or death.

Figure 42: No. 5 on Master Outdoor Unit DIP Switch Bank SW01 ON.

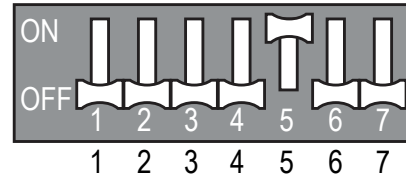


Figure 44: Location of DIP Switches and Setting Buttons on the Outdoor Unit PDB.

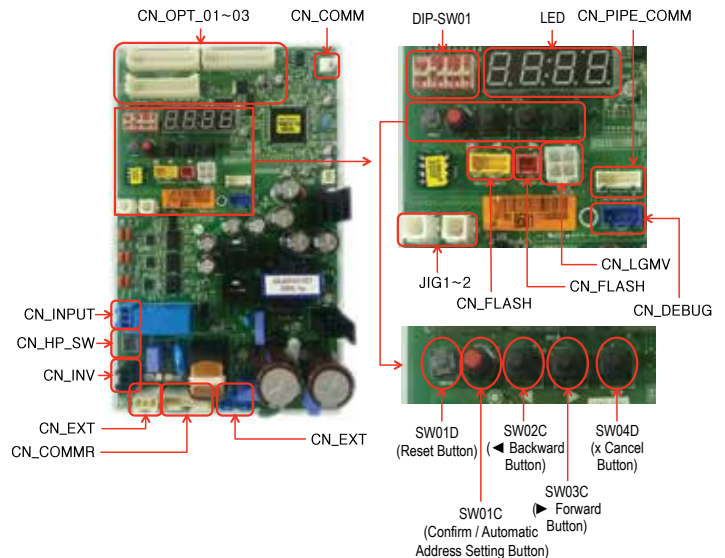
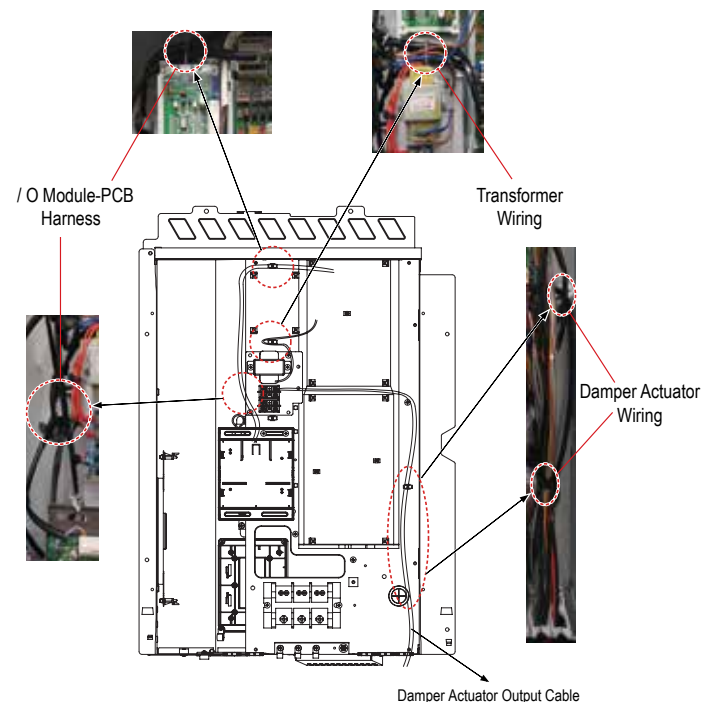


Figure 45: Securing the Low Ambient Kit Components to the 6-ton Outdoor Unit.



# INSTALLATION

**MULTI V 5**

## Installing the PRVC2 Transformer and Terminal Block Assemblies

## in the Outdoor Unit Frames / PRVC2 Power Wiring and Communications Cables

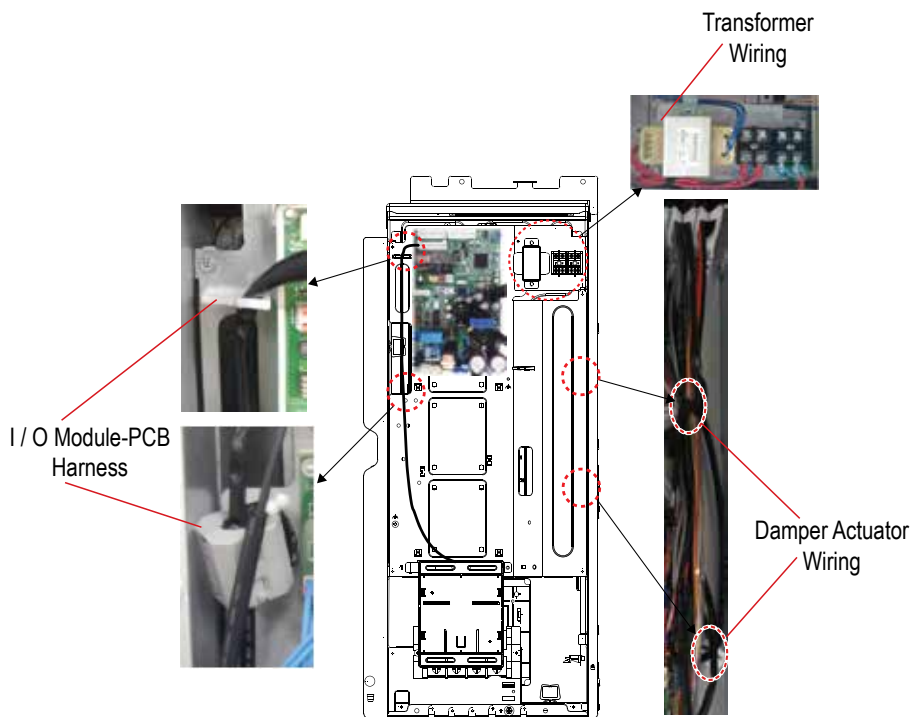
### ⚠ DANGER

Verify the wires are routed such that they do not get pinched, placed in tension or rub against any sharp, metal edge prior to securing. Damaged wiring runs the risk of fire, electric shock, and physical injury or death.

### ⚠ WARNING

Turn off power to outdoor unit before installation. Electrical shock can cause physical injury or death.

Figure 46: Securing the Low Ambient Kit Components to the 8- to 20-ton Outdoor Unit.



## Separating Power Wiring and Communication Cables

- Avoid running the power wiring and communication cable alongside each other; there is a strong likelihood of operation malfunction due to electrostatic and electromagnetic interference. ⓧ Do not run both in the same conduit.
- If running the power wiring and communication cable alongside each other cannot be avoided, see the table below for minimum recommended distances.

Table 3: Power Wire and Communications Cable Minimum Required Separation Allowable Distances.

Capacity of Power Supply Wiring (current)		Recommended Minimum Distance <sup>1,2</sup>
100V or more	10A	12 inches
	50A	20 inches
	100A	40 inches
	Exceeding 100A	60 inches

<sup>1</sup>The figures above are based on parallel lengths up to 328 feet long. For lengths in excess of 328 feet, the distances will have to be recalculated in direct proportion to the additional line lengths involved.

<sup>2</sup>If the power supply waveform continues to exhibit some distortion, the space between the power wiring and communication cable should be increased.

### ⚠ WARNING

Properly ground all outdoor units. Ground wiring must always be installed by a qualified technician. Ground wiring is required to prevent accidental electrical shock during current leakage, which may cause bodily injury or death.

### Note:

- ⓧ Do not secure the power wiring and communication cables together. It may result in equipment malfunction.
- ⓧ Do not run the power wiring and the communication cable in the same conduit. It may result in equipment malfunction.

## Setting the Low Ambient Kit I / O Module

Use DIP switches SW101 and SW102 on the I / O Module to set various low ambient kit functions.

### Note:

DIP switches are factory set to all OFF.

### Low Ambient Kit Mode

Verify the I / O Module DIP switches are as set as shown for installation.

### Note:

After the DIP switch settings are changed, press reset switch SW103 to save the setting.

## Low Ambient Kit Function

DIP switch setting increases the outdoor unit fan speed to compensate for static pressure due to ductwork, low ambient hood, or air guide.

Figure 49: Setting the Low Ambient Kit Function.

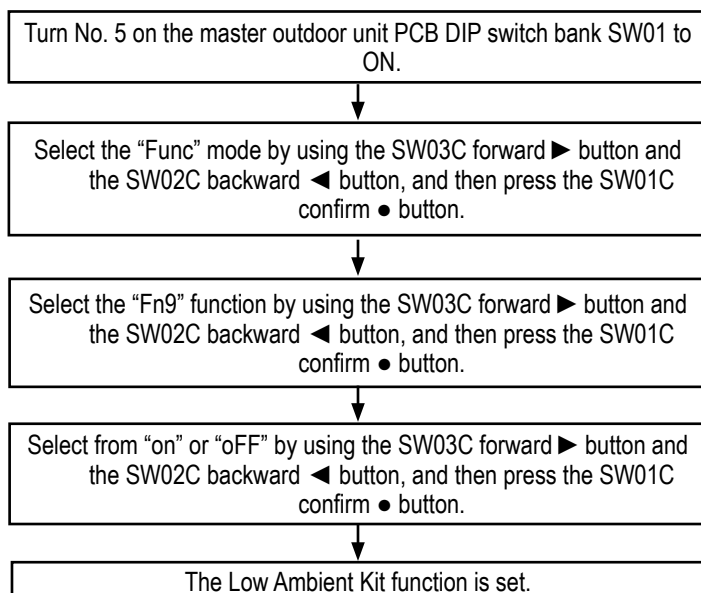


Figure 47: Location of SW101 and SW102 on the I / O Module.

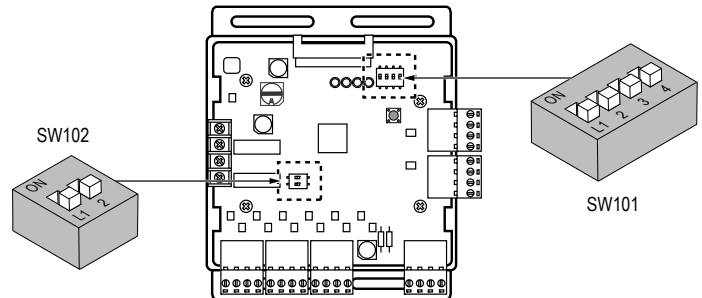


Table 4: Low Ambient Kit Mode DIP Switch Settings.

DIP Switch	Settings
<p>SW101</p>	L1 = ON; L2 = ON; L3 = OFF; L4 = OFF
<p>SW102</p>	L1 = ON; L2 = OFF

Figure 48: No. 5 on Master Outdoor Unit DIP Switch Bank SW01 ON.

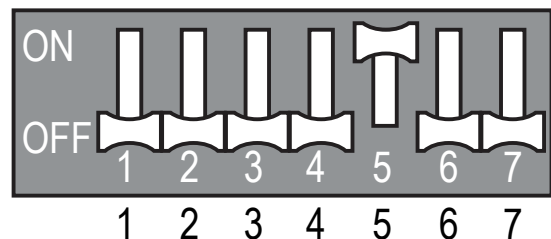
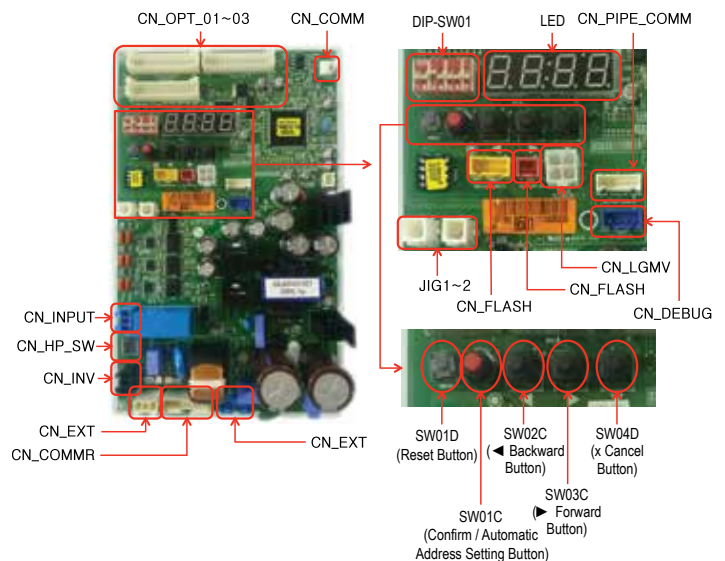
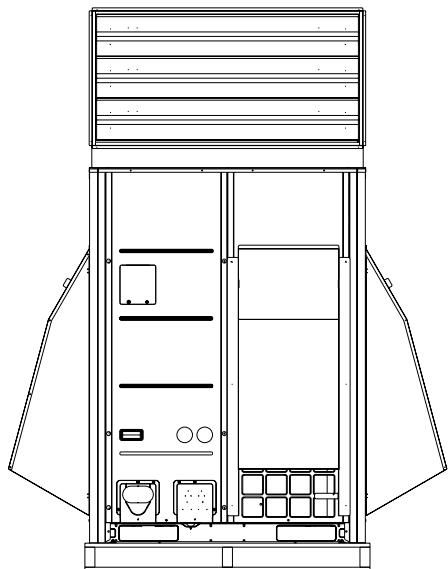


Figure 50: Location of DIP Switches and Setting Buttons on the Outdoor Unit PDB.



## Placement for Single and Multiple Outdoor Units with the Low Ambient Kit Installed

Figure 51: Outdoor Units with the Top Discharge Elbow and Side Wind Baffles Installed.



One Outdoor Unit with Top Discharge Elbow  
and Side Wind Baffles



Two Outdoor Units with Top Discharge Elbow  
and Side Wind Baffles



Three Outdoor Units with Top Discharge Elbow  
and Side Wind Baffles

### Note:

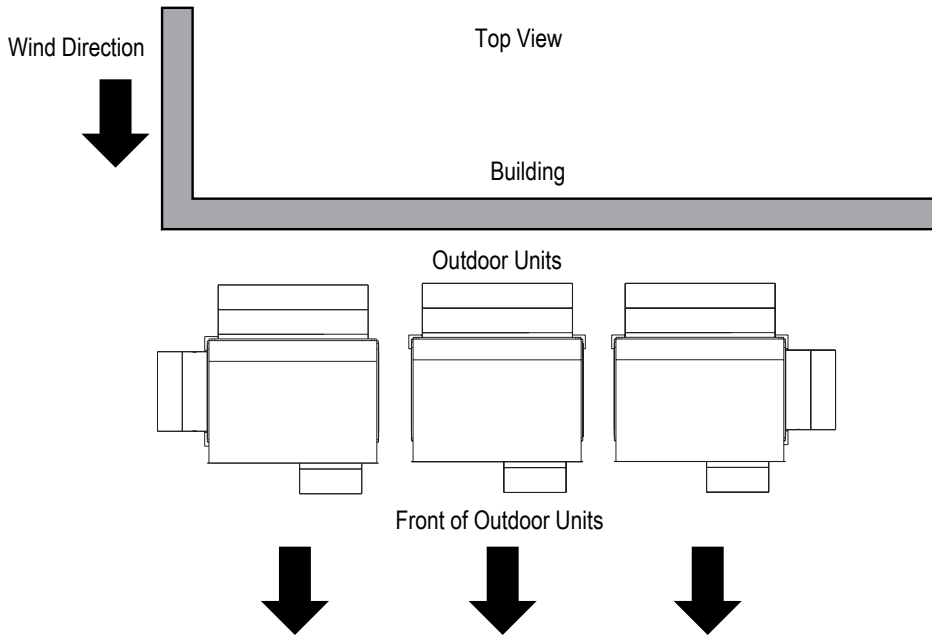
Refer to the Multi V 5 Outdoor Unit Engineering and Installation Manuals for allowable clearances between the outdoor units.



## Installing in Consideration of Winds

- Avoid installing the outdoor unit with the low ambient kit where it would be directly exposed to prevailing winds.
- In locations prone to strong winds, install the outdoor unit on the side of the building opposite from direct winds.

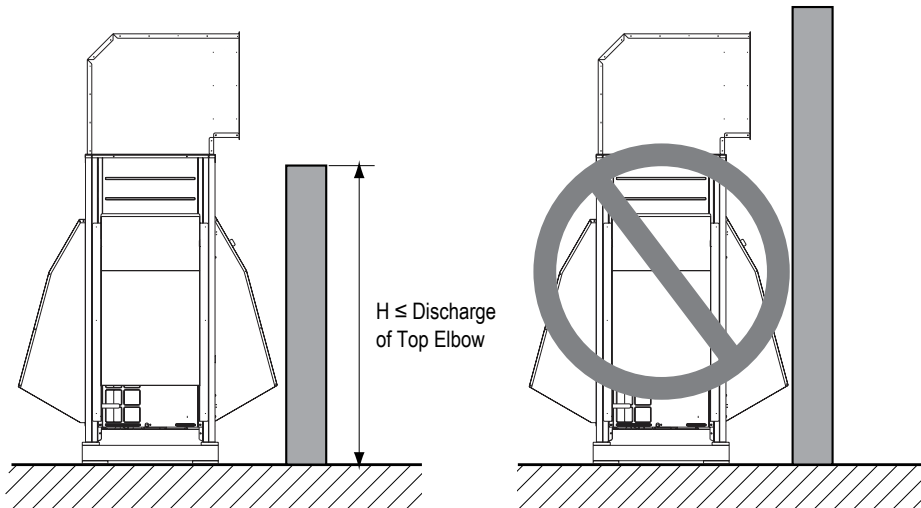
Figure 52: Installing for Winds.



## Installing When The Outdoor Unit(s) Is (are) Surrounded by an Enclosure

If the outdoor units are surrounded by an enclosure, the wall in front of the hood must be short enough to allow the top elbow to discharge the air out and over the enclosure walls to prevent air recirculation.

Figure 53: Correct and Incorrect Wall Heights when the Outdoor Units are Surrounded by an Enclosure.



### Note:

Refer to the Multi V 5 Outdoor Unit Engineering and Installation Manuals for allowable clearances between the outdoor units.

# PLACEMENT AND CLEARANCES

**MULTI V 5**

## Distances Between the Outdoor Units

If the distance between the outdoor units is  $>8$  inches, the side wind baffles must be installed. If the distance between the outdoor units is  $<8$  inches, it is not necessary to install the side wind baffles between the outdoor units.

### Note:

Refer to the Multi V 5 Outdoor Unit Engineering and Installation Manuals for allowable clearances between the outdoor units.

Figure 54: Distances Between the Outdoor Units.

$>4$  inches  $\times$   $\leq 8$  inches to Omit Side Baffles Between Outdoor Units



Two Outdoor Units with Top Discharge Elbow  
and Side Wind Baffles

### Note:

Outdoor units in multi-frame configurations CANNOT be installed closer than four (4) inches. If placed closer than eight (8) inches, service to the damper actuator will not be possible without removing the low ambient hood on the unit to the left of the one being serviced.

$>4$  inches  $\times$   $\leq 8$  inches to Omit  
Side Baffles Between  
Outdoor Units

$>4$  inches  $\times$   $\leq 8$  inches to Omit  
Side Baffles Between  
Outdoor Units



Three Outdoor Units with Top Discharge Elbow  
and Side Wind Baffles



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