



## **Installation Manual**

ZLABKA01A Low Ambient Cooling Kit

For 6-Ton Multi V III Outdoor Units

ZLABKA02A Low Ambient Cooling Kit For 8, 10, 12-Ton Multi V III Outdoor Units

(PRVC1 Control Kit required; sold separately)



## **PROPRIETARY DATA NOTICE**

This document, as well as all reports, illustrations, data, information, and other materials are the property of LG Electronics U.S.A., Inc., and are disclosed by LG Electronics U.S.A., Inc., only in confidence. This document is for design purposes only.

#### Do not throw away or destroy this manual. Please read carefully and store in a safe place for future reference.

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 below.

"A WARNING" This symbol indicates that the action or lack thereof could possibily cause death or personal injury.

"A CAUTION" This symbol indicates that the action or lack thereof could possibly cause property damage.

\* **A Note:** This symbol indicates that the action or lack thereof could possibly cause equipment malfunction or failure.



This symbol indicates that the following action should not be performed.

A list of safety precautions begins on page 4.

# For more technical materials such as submittals, engineering databooks, and catalogs, visit www.lg-vrf.com.

For continual product development, LG Electronics U.S.A., Inc., reserves the right to change specifications without notice. ©LG Electronics U.S.A., Inc.



## **TABLE OF CONTENTS**

| Safety Precautions | 4-5 |
|--------------------|-----|
| Installation       | 4   |
| Wiring             | 5   |
| Operation          | 5   |

| Specifications  | 5 |
|---|---|
| ZLABKA01A Low Ambient Baffle Kit for 6-ton ODUs         | j |
| ZLABKA02A Low Ambient Baffle Kit for 8, 10, 12-ton ODUs | 7 |
| PRVC1 Control Kit                                       | 3 |

| Dimensions                                       | .9-14 |
|--|-------|
| ZLABKA01A Top Discharge Elbow For 6-ton Units    | 9     |
| ZLABKA01A Side Wind Baffles For 6-ton Units      | 10    |
| ZLABKA01A Rear Wind Baffle For 6-ton Units       | 11    |
| ZLABKA02A Top Discharge Elbow For 8-12 Ton Units | 12    |
| ZLABKA02A Side Wind Baffles For 8-12 Ton Units   | 13    |
| ZLABKA02A Rear Wind Baffle For 8-12 Ton Units    | 14    |

| Wiring Diagrams  | -16  |
|--|------|
| Multi V III Heat Pump Outdoor Unit & PRVC1 Control Kit     | . 15 |
| Multi V III Heat Recovery Outdoor Unit & PRVC1 Control Kit | . 16 |

| Product Installation                                      | 17-19 | J |
|---|-------|---|
| Attaching the Low Ambient Cooling Kit Top Discharge Elbow | 17    | 7 |
| Attaching the Low Ambient Cooling Kit Side Wind Baffles   |       | 3 |
| Attaching the Low Ambient Cooling Kit Rear Wind Baffle    | 19    | ) |

| Electrical Wiring Installation                              | 20-29 |
|---|-------|
| Installing the PRVC1 Control Kit in the Outdoor Unit Frames |       |

| Precommissioning                                      | 30-31 |
|---|-------|
| DIP Switch Settings on the PRVC1 Control Kit PCB      |       |
| DIP Switch Settings on the Heat Pump ODU Main PCB     |       |
| DIP Switch Settings on the Heat Recovery ODU Main PCB |       |
|   |       |

| Sequence of LED / Operations | 2 |
|------------------------------|---|
| Sequence of LEDs             | 2 |
| Sequence of Operations       | 2 |



## SAFETY PRECAUTIONS

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.

**WARNING** This symbol indicates that the action or lack thereof could possibly cause death or personal injury.

**ACAUTION**<sup>"</sup> This symbol indicates that the action or lack thereof could possibly cause property damage.

A Note: " This symbol indicates that the action or lack thereof could possibly cause equipment malfunction or failure.



This symbol indicates that the following action should not be performed.

## INSTALLATION

### **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).

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

Ask the dealer or an authorized technician to install the unit. Improper installation by the user may result in water leakage, fire, electric shock, physical injury or death.

## For re-installation of an installed unit, always contact the dealer or an authorized service provider.

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

#### Be very careful when transporting the product.

- One person should not carry the product.
- Some products use polypropylene bands for packaging. Do not use polypropylene bands as a means of transportation.

#### Dispose the packing materials safely.

 Packing materials, such as nails and other metal or wooden parts, may cause puncture wounds or other injuries.

ΜΠΙΤΙΛ

• Tear apart and throw away plastic packaging bags so that children may not play with them and risk suffocation and death.

### Install the unit in such a way as to prepare for any possible strong winds or earthquakes.

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

**Do not touch the sharp edges of the unit during installation.** *There is a risk of personal injury.* 

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

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

Securely install the 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.

#### **Install the low ambient control kit in the specified location.** There is risk of product failure, fire, and physical injury or death.





### SAFETY PRECAUTIONS

## WIRING

### **WARNING**

The information contained in this manual is intended for use by a qualified, experienced service technician familiar with safety procedures and 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, property damage, personal injury or death.

Highly dangerous electrical voltages are used in this system; refer to the diagrams and these instructions when wiring. *Improper connections and inadequate grounding can cause accidental injury or death.* 

**Only a qualified electrician should wire this system.** *Electrical shock can cause 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.

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.

Secure all field wiring connections with the appropriate strain relief so that outside forces on the cables will not affect the terminals.

Inadequate connections may generate heat, cause a fire and physical injury or death.

#### Connect all wiring tightly.

Loose wiring may overheat at connection points, causing a fire, 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. Electrical shock can cause physical injury or death.

#### A Note:

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

## OPERATION

### **WARNING**

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

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

**Do not operate the unit with the panels or guards removed; keep fingers and clothing away from any moving parts.** *The rotating, hot, or high-voltage parts of the unit can cause physical injury or death.*  **Do not permit water to enter the unit.** There is risk of unit failure, fire, electric shock, physical injury or death.

If the unit becomes flooded or submerged, contact an authorized service provider.

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

A Note: Do not block the inlet or outlet. It may cause product malfunction.



## **SPECIFICATIONS**

ZLABKA01A Low Ambient Cooling Kit For 6-ton Multi V III Outdoor Units

#### **Compatible Outdoor Units:**

ARUN072BT3 / ARUN072DT3 ARUB072BT3 / ARUB072DT3

#### A Note:

Color:

Warm Gray

Low Ambient Cooling Kit cannot be used with triple-frame systems.

#### **Standard Features:**

- Allows operation down to -4°F in cooling mode, and down to 14°F in synchronous mode (Heat Recovery Outdoor Units only).
- · Damper operator has spring return, normally open actuator.

#### 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.
- Sealtite connector (for routing of actuator control and power wiring down to outdoor unit electrical box).

#### **Required Accessories (sold separately):**

Control Kit - PRVC1.



Material:

20 Gauge Sheet Metal



Front View

ôô



**MULTIV** 





## **SPECIFICATIONS**

ZLABKA02A Low Ambient Cooling Kit For 8, 10, and 12-Ton Multi V III Outdoor Units

#### **Compatible Outdoor Units:**

| ARUN096BT3 / ARUB096BT3 | ARUN096DT3 / ARUB096DT3 |
|-------------------------|-------------------------|
| ARUN121BT3 / ARUB121BT3 | ARUN121DT3 / ARUB121DT3 |
| ARUN144BT3 / ARUB144BT3 | ARUN144DT3 / ARUB144DT3 |

#### A Note:

Low Ambient Cooling Kit cannot be used with triple-frame systems.

#### **Standard Features:**

- Allows operation down to -4°F in cooling mode, and down to 14°F in synchronous mode (Heat Recovery Outdoor Units only).
- · 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.
- · Sealtite connector (for routing of actuator control and power wiring down to outdoor unit electrical box).

#### **Required Accessories (sold separately):**

Control Kit - PRVC1.

Figure 2: ZLABKA02A Low Ambient Cooling Kit for 8, 10, and 12-Ton Multi V III Outdoor Units.



Side View



## SPECIFICATIONS

### PRVC1 Control Kit



PRVC1 Control Kit allows connection of Multi V III outdoor units to ZLABKA01A and ZLABKA02A Low Ambient Cooling Kits.

### **PRVC1 Control Kit Parts (included)**

Figure 3: PRVC1 Control Kit Parts.



#### A Note:

Low Ambient Cooling Kit cannot be used with triple-frame systems.

### Low Ambient Control Printed Circuit Board (PCB)



- CN-PWR: Power input terminal 1a: DC 12V 1b: GND
- 2. CN-AO: Signal output terminal to control the damper (DC 0~10V)
- 3. CN-OUT: Outdoor unit connector
- 4. BUS\_A: RS-485 (+) terminal
- 5. BUS\_B: RS-485 (-) terminal
- 6. SWDIP: Switch to select main function
- 7. SW1: Reset switch

#### 🛕 Note:

- All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.
- PRVC1 Control Kit PCB can accept only DC power input. Do not use 220VAC power input as it will cause serious damage to the unit.



ZLABKA01A Low Ambient Cooling Kit Top Discharge Elbow

For 6-ton Multi V III Outdoor Units

Figure 4: ZLABKA01A Low Ambient Cooling Kit Top Discharge Elbow.





### ZLABKA01A Low Ambient Cooling Kit Side Wind Baffles

### For 6-ton Multi V III Outdoor Units

Figure 5: Left Side Wind Baffle for ZLABKA01A Low Ambient Cooling Kit.



Due to our policy of continuous product innovation, some specifications may change without notification. ©LG Electronics U.S.A., Inc., Englewood Cliffs, NJ. All rights reserved. "LG" is a registered trademark of LG Corp.

23

LG



ZLABKA01A Low Ambient Cooling Kit Rear Wind Baffle For 6-ton Multi V III Outdoor Units







### ZLABKA02A Low Ambient Cooling Kit Top Discharge Elbow For 8, 10, and 12-Ton Multi V III Outdoor Units

Figure 8: ZLABKA02A Low Ambient Cooling Kit Top Discharge Elbow.



🕑 LG



ZLABKA02A Low Ambient Cooling Kit Side Wind Baffles

For 8, 10, and 12-Ton Multi V III Outdoor Units



Due to our policy of continuous product innovation, some specifications may change without notification. ©LG Electronics U.S.A., Inc., Englewood Cliffs, NJ. All rights reserved. "LG" is a registered trademark of LG Corp.



### ZLABKA02A Low Ambient Cooling Kit Rear Wind Baffles For 8, 10, and 12-Ton Multi V III Outdoor Units

Figure 11: Rear Wind Baffle for ZLABKA02A Low Ambient Cooling Kit.







Multi V III Heat Pump Outdoor Unit and PRVC1 Control Kit





## WIRING DIAGRAMS



LG

### Multi V III Heat Recovery Outdoor Unit and PRVC1 Control Kit

Figure 13: Multi V III Heat Recovery Outdoor Unit and PRVC1 Control Kit Wiring Diagram. .



Due to our policy of continuous product innovation, some specifications may change without notification. ©LG Electronics U.S.A., Inc., Englewood Cliffs, NJ. All rights reserved. "LG" is a registered trademark of LG Corp

16



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

#### A 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. Figure 16: Low Ambient Cooling Kit Installed.



Step 1.

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



Figure 17: Location of Screw Holes.

### Step 2.

Use the four (4) sheet-metal hangers to position the side wind baffle on the coil guard's top and bottom crossbars. Line up the predrilled holes of the wind baffle to the side panel holes.

Figure 18: Location of Hangers.



### 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.

#### A Note:

Do not puncture the outdoor unit coil or other interior components when predrilling holes for the wind baffle screws. Maximum depth = Two (2) inches. Figure 19: Positioning the Side Wind Baffle.



Figure 20: Close up of Wind Baffle Hangers.



### 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.



LG



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

#### Step 1.

Insert the top edge of the rear wind baffle into the slot on the back of the outdoor unit.

Figure 23: Top Edge of the Rear Wind Baffle.



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



### 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.

#### A Note:

Do not puncture the outdoor unit interior components when predrilling holes for the rear wind baffle screws. Maximum depth = Two (2) inches.





### 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.



### Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Step 1.

Turn OFF power to outdoor unit, and remove the service panel and electric box panel.

#### A Note:

- Install the PRVC1 Control Kit components on a flat surface in the outdoor unit frame with the included screws, otherwise, the product may not be anchored properly.
- Do not damage the PRVC1 PCB as it may cause it to malfunction.

### Step 2A (For Heat Pump Outdoor Units).

Attach the PRVC1 Control Kit transformer, terminal block, and PCB to the outdoor unit frame (as shown below) with screws (included). Heat Pump outdoor unit frames include predrilled holes for the transformer and terminal block; holes must be predrilled on site for attaching the PCB.

Figure 26: Location of PRVC1 Control Kit Components in Multi V III Heat Pump Outdoor Unit Frames.

PRVC1 Control Kit Transformer (frame includes predrilled holes)

PRVC1 Control Kit Terminal Block (frame includes predrilled holes)

A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.



PRVC1 Control Kit PCB (holes must be predrilled on site)



Installing the PRVC1 Control Kit in the Outdoor Unit Frames

### Step 2B (For Heat Recovery Outdoor Units).

#### A Note:

To allow for PRVC1 Control Kit installation, the heat recovery outdoor unit's sub terminal block must be removed.

- 1. Disconnect and discard the wires that connect the sub terminal block to the main PCB terminal block.
- Disconnect the communication wires from the heat recovery unit / indoor units (the bottom connections) on the sub terminal block. (Existing systems will have these wires already installed; new installations may not have these connections present.) Discard the sub terminal block.





- 3. Connect these communication wires from the heat recovery unit / indoor units to the main PCB terminal block.
- 4. To prevent communication errors, clamp these communication wires to the side of the electrical box.
- 5. Install the PRVC1 Control Kit terminal block and transformer components in the area where the sub terminal block was located.

Figure 28: Heat Recovery Unit Wiring Path without PRVC1 Control Kit Components Installed.



Figure 29: Heat Recovery Unit Wiring Path with PRVC1 Control Kit Components Installed.



A Note:

A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.

**Clamp the Wires.** It is imperative that the communication wires are clamped to the side of the electrical box. If the wires overlap, communication and operation errors will occur.



Installing the PRVC1 Control Kit in the Outdoor Unit Frames

### Step 2B (For Heat Recovery Outdoor Units, continued).

Attach the PRVC1 Control Kit transformer, the terminal block, and the PCB to the outdoor unit frame (as shown below) with screws (included). Holes must be predrilled on site for attaching the transformer, the terminal block, and the PCB to the Heat Recovery outdoor unit frames.

Figure 30: Location of PRVC1 Control Kit components in Multi V III Heat Recovery Outdoor Unit Frames.



#### A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.

**MULTIV** 



## **ELECTRICAL WIRING INSTALLATION**

Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Overview of Steps 3 to 10.

Figure 31: Wiring Connections between the Main PCB of the Multi V III Heat Pump Outdoor Unit and the PRVC1 Control Kit.



#### A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.



## **ELECTRICAL WIRING INSTALLATION**

Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Overview of Steps 3 to 10, continued.

Figure 32: Wiring Connections between the Main PCB of the Multi V III Heat Recovery Outdoor Unit and the PRVC1 Control Kit.



#### A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.



Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Overview of Steps 3 to 10, continued.

Dual-frame systems with Master and Slave Outdoor Units will require an additional Low Ambient Control Kit terminal block and transformer (another Low Ambient Control kit must be purchased). Control signal is daisy-chained from the Low Ambient Control Kit PCB to the Master Outdoor Unit. Only Master Outdoor Unit requires software onboarding.

Figure 33: Low Ambient Control Kit Wiring Connections in Dual-Frame Heat Pump Systems.



- The Master Unit (damper actuator) 0-10V control signal wire connects to the PRVC1 Control Kit PCB A+ terminal.
- The Slave Unit (damper actuator) 0-10V control signal wire connects to the PRVC1 Control Kit PCB B+ terminal in the master unit.
- Control signal wires then connect from the PRVC1 Control Kit PCB A- and B- terminals to the PRVC1 Terminal Block (in the master unit), bottom right.

#### A Note:

- The Low Ambient Control Kit cannot be used with triple-frame systems.
- All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.
- Wires between the Master and Slave Outdoor Units cannot be longer than ten (10) feet.



### Installing the PRVC1 Control Kit in the Outdoor Unit Frames

### Overview of Steps 3 to 10, continued.

Dual-frame systems with Master and Slave Outdoor Units will require an additional Low Ambient Control Kit terminal block and transformer (another Low Ambient Control kit must be purchased). Control signal is daisy-chained from the Low Ambient Control Kit PCB to the Master Outdoor Unit. Only Master Outdoor Unit requires software onboarding.

Figure 34: Low Ambient Control Kit Wiring Connections in Dual-Frame Heat Recovery Systems.

**CN45** Slave Outdoor Unit PCB Wire Harness Master Outdoor Unit PCB JIG1 and JIG2 JIG1 and JIG2 GRD and 12V 12V and GND (CN\_PWR) 220V 220V PRVC1 Control Kit PCB Damper Actuator **Damper Actuator** PRVC1 Control for Slave for Master CN OUT Kit Transformer **Outdoor Unit Outdoor Unit** PRVC1 Control Kit Transformer PRVC1 Control 24V 24V Master Unit 0-10V Kit Terminal **PRVC1** Control **Control Signal to** Block Kit Terminal Damper Actuator Block Slave Unit 0-10V **Control Signal to** Damper Actuator 24V Power to Damper Actuator **Control Signal Wires** 24V Power to Damper Actuator

#### A Note:

- The Master Unit (damper actuator) 0-10V control signal wire connects to the PRVC1 Control Kit PCB A+ terminal.
- The Slave Unit (damper actuator) 0-10V control signal wire connects to the PRVC1 Control Kit PCB B+ terminal in the master unit.
- Control signal wires then connect from the PRVC1 Control Kit PCB A- and B- terminals to the PRVC1 Terminal Block (in the master unit), bottom right.

#### A Note:

- The Low Ambient Control Kit cannot be used with triple-frame systems.
- All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.
- Wires between the Master and Slave Outdoor Units cannot be longer than ten (10) feet.





MULTI V



Installing the PRVC1 Control Kit in the Outdoor Unit Frames

### Step 3.

Connect the blue 220V wires from the transformer to the JIG1 and JIG2 terminals on the main outdoor unit PCB. There is no polarity, so each blue wire can be plugged in either terminal.

Figure 35: Transformer to JIG1 / JIG2 Connection in Heat Pump Units.



Figure 36: Transformer to JIG1 / JIG2 Connection in Heat Recovery Units.



### Step 4.

Connect the red 24V wires from the transformer to the terminal block. There is polarity, so the 24V red wire must be connected to the top left terminal, and the 0V red wire must be connected to the top right terminal.

Figure 37: Transformer to Terminal Block in Heat Pump Units.



Figure 38: Transformer to Terminal Block in Heat Recovery Units.



A Note:

• PCB can accept only DC 12V power input. Do not use AC power input as it will cause serious damage to the unit.

• All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.





Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Step 5.

Connect the red and black actuator wires from the damper actuator to the terminal block. There is polarity, so the red wire should be connected to the bottom left terminal and the black wire should be connected to the bottom right terminal. Figure 39: Black, Red, and Orange Wire Connections to Terminal Block.



### Step 6.

Connect the orange control signal wire (field supplied) to the bottom right terminal of the terminal block and the A-terminal on the PRVC1 Control PCB.

Figure 40: Orange Control Signal Wire and White 0-10V Control Signal Wire Connections to PRVC1 Control PCB A- and A+ Terminals.



### Step 7.

Connect the white 0-10V control signal wire from the damper actuator to the A+ terminal on the PRVC1 Control PCB.

#### A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.

28





Installing the PRVC1 Control Kit in the Outdoor Unit Frames

#### Step 8.

Connect the 12V wire (field supplied) from the PRVC1 Control PCB 12V terminal (CN-PWR) to the 12V terminal on the Outdoor Unit Main PCB (on lower right-hand corner).

Figure 43: 12V and GND Wire Connections on the PRVC1 Control PCB.



### Step 9.

Connect the GND wire (field supplied) from the G terminal (CN-PWR) on the PRVC1 Control PCB to the GND terminal on the Outdoor Unit Main PCB.

Figure 44: 12V and GND Wire Connections on the Outdoor Unit Main PCB.



### Step 10.

Connect the PRVC1 Control Kit wire harness from the PCB CN-OUT terminal to the **CN-41 terminal on the Heat Pump Outdoor Unit** Main PCB, or to the **CN-45 terminal on the Heat Recovery Outdoor Unit Main PCB**.

Figure 41: Wire Harness Terminal on PRVC1 Control PCB.



Figure 42: Wire Harness Terminal on Outdoor Unit Main PCB.



#### A Note:

All field-supplied wiring (to connect the PRVC1 Control Kit PCB to the Outdoor Unit PCB) should be a minimum of AWG 22.



## MULTI V.

### **DIP Switch Settings on the PRVC1 Control Kit PCB**

Low Ambient Control Kit PCB includes an RS-485 communication module. To prevent erroneous communication between the Low Ambient Control Kit RS-485 module, and the outdoor unit RS-485 module, the Low Ambient Control Kit RS-485 module must be disabled using the settings below.

#### To disable:

- DIP Switches 1, 2, and 3: ON
- DIP Switch 4: OFF





#### A Note:

- After the DIP switch setting is changed, the reset button must be pressed to reflect the setting.
- Before operating the outdoor unit, check the PCB voltage signal.





## PRECOMMISSIONING

**DIP Switch Settings** 

#### **DIP Switch Settings on the Heat Pump Outdoor Unit Main PCB**

DIP Switches 11, 12, and 13: ON.





#### A Note:

Push the reset button after setting the DIP switches.

#### Figure 46: Heat Pump Outdoor Unit Main PCB DIP Switches.



### **DIP Switch Settings on Heat Recovery Outdoor Unit SUB PCB**

DIP Switches 11, 12, and 13: ON.





#### A Note:

Push the reset button after setting the DIP switches.

Figure 47: Heat Recovery Outdoor Unit SUB PCB DIP Switches.



## **SEQUENCE OF LED / OPERATIONS**

### Sequence of LEDs

The LEDs on the PRVC1 PCB indicate when communication exists between the Outdoor Unit and the Control Kit.

Figure 48: PRVC1 PCB LEDs.



- LED01 LED01: Blinks when the PRVC1 PCB sends an RS-485 signal to the Outdoor Unit.
- LED01G · LED01G: Not used.
- LED02G LED02G: Blinks when the Outdoor Unit receives a TTL signal from the PRVC1 PCB.
- LED03G LED03G: Blinks when the PRVC1 PCB sends a TTL signal to the Outdoor Unit.

### **Sequence of Operations**

- Low Ambient Control Kit initiates when the ambient temperature drops below 32°F, and all indoor units are in cooling mode
- When heat recovery systems are in synchronous operation (heating and cooling), louvers will be fully opened and the Low Ambient Cooling Kit will be disabled.

Table 1: Louver Openings per High Pressure Reading.

|   | High Pressure (psi) | DC Output | Discharge Damper Angle |
|---|---------------------|-----------|------------------------|
| 1 | 392 < HP            | 2V        | 0 (Opened)             |
| 2 | 377 < HP < 392      | 4V        | 30                     |
| 3 | 363 < HP < 377      | 7V        | 60                     |
| 4 | 334 < HP < 363      | 8V        | 70                     |
| 5 | 305 < HP ≤ 334      | 9V        | 80                     |
| 6 | HP < 305            | 10V       | 90 (Closed)            |











For further technical materials such as submittals, engineering databooks, and catalogs, visit www.lg-vrf.com.



LG Electronics Commercial Air Conditioning Division 11405 Old Roswell Road Alpharetta, Georgia 30009 www.lg-vrf.com LG Customer Information Center, Commercial Products 1-888-865-3026 USA Follow the prompts for commercial A/C products and parts.