



LG Electronics, Air Conditioning Technologies
4300 North Point Parkway
Alpharetta, GA 30022

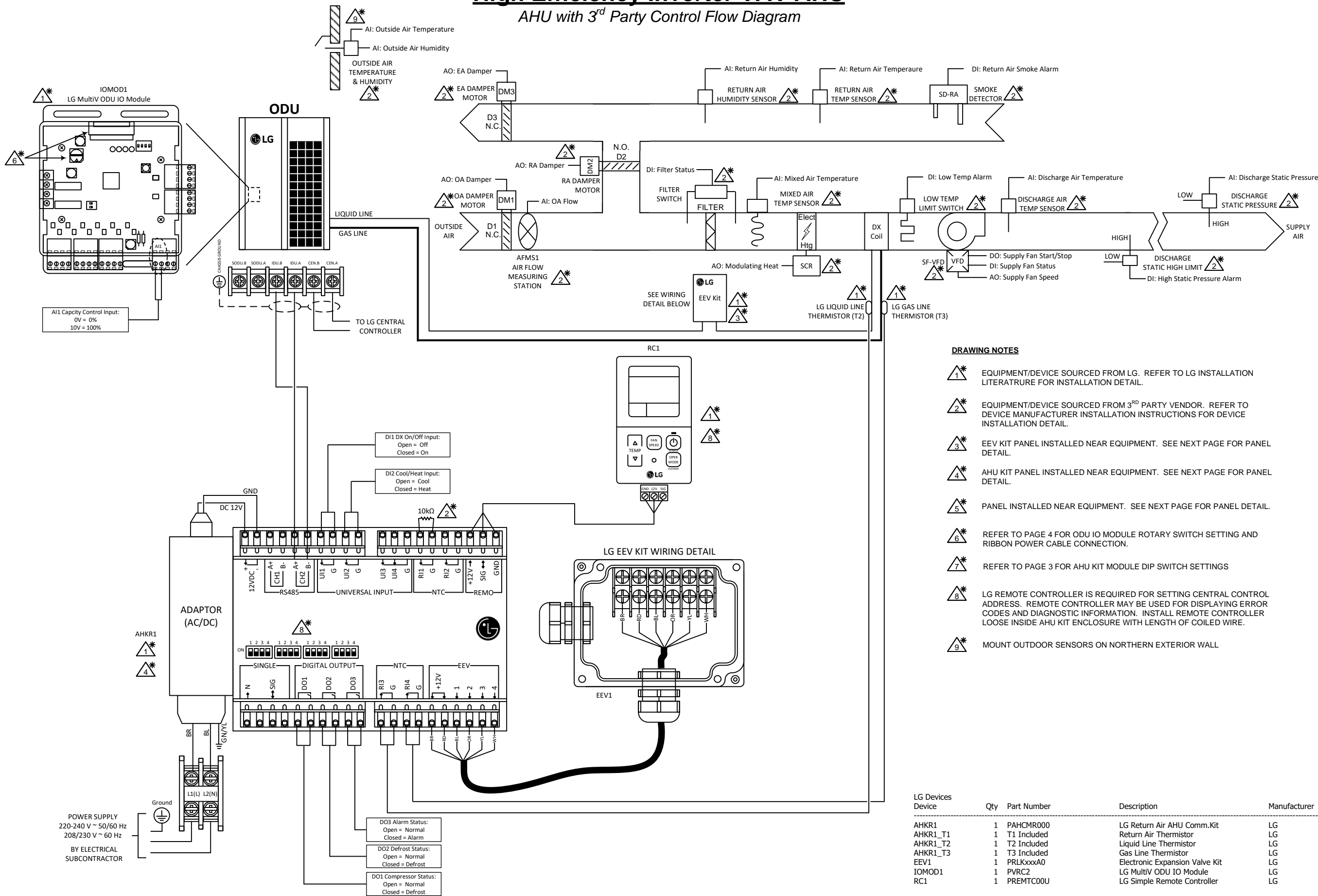
HE Inverter AHU 3rd Party Control


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High Efficiency Inverter VAV AHU

AHU with 3rd Party Control Flow Diagram





Revisions	
#	Change:
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JOB NUMBER
HE Inverter AHU Kit Controllers

FILE NAME
HE Inverter AHU 3rd Party.vsd

SHEET NO.
1 OF 5

Engineer:
4300 North Point Parkway
Alpharetta, GA 30022

Contractor:
GCM

Designed by:
GCM

Software by:
GCM

Checked by:
GCM

Date:
5/27/2020

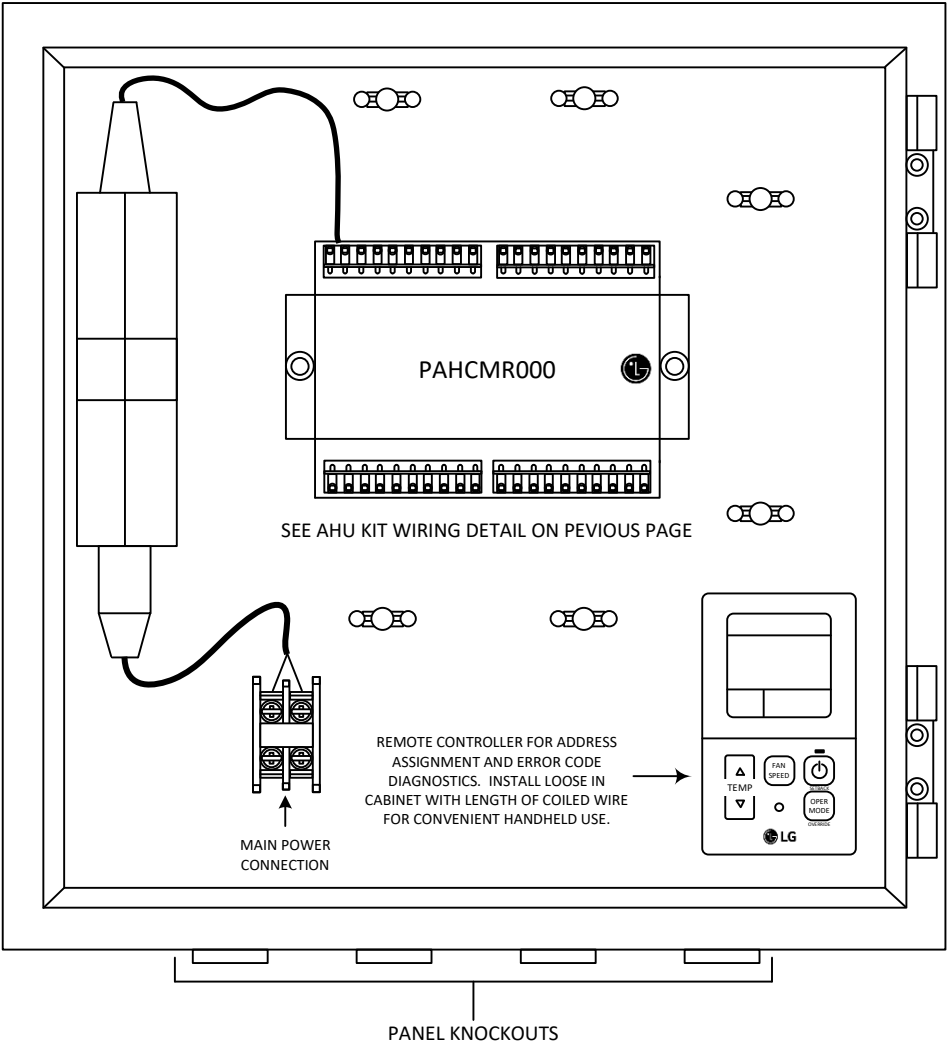
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5/27/2020

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High Efficiency Inverter VAV AHU

LG AHU Kit and LG EEV Kit Panel Details

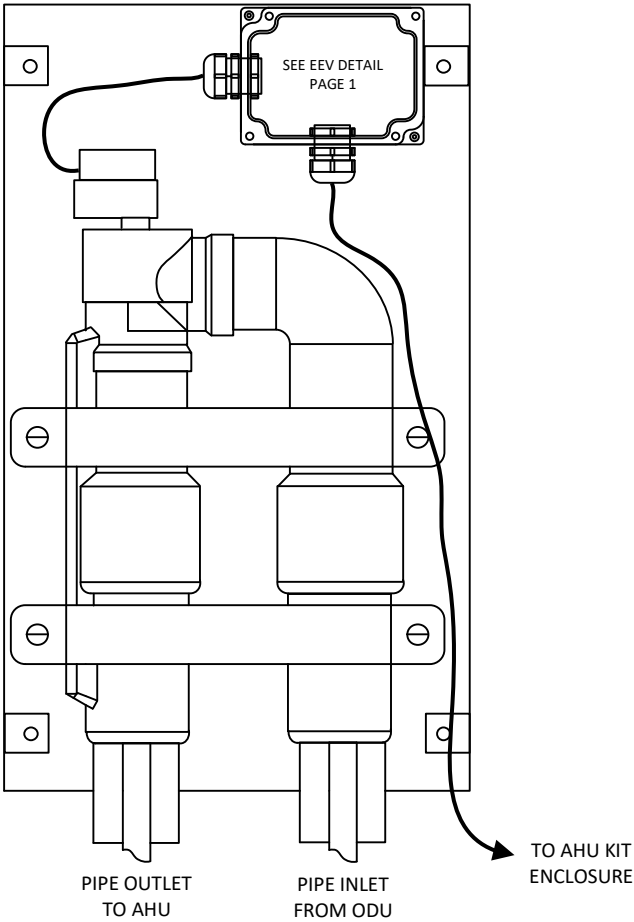
LG AHU KIT
PANEL INTERIOR DETAIL
(FACTORY ASSEMBLED)



AHU KIT PANEL NOTES

- 1) PANEL SHOWN FOR SCHEMATIC PURPOSES ONLY. NOT DRAWN TO SCALE.
- 2) INSTALL PANEL ON WALL NEAR AIR HANDLING EQUIPMENT.
- 3) REFER TO RETURN AIR AHU KIT INSTALLATION MANUAL FOR DETAIL PANEL MOUNTING INSTRUCTIONS.

LG EEV KIT
PANEL INTERIOR DETAIL
(FACTORY ASSEMBLED)



EEV KIT PANEL NOTES

- 1) PANEL SHOWN FOR SCHEMATIC PURPOSES ONLY. NOT DRAWN TO SCALE.
- 2) INSTALL PANEL NEAR AIR HANDLING EQUIPMENT.
- 3) REFER TO EEV KIT INSTALLATION MANUAL FOR PANEL MOUNTING AND PIPING DETAIL INSTRUCTIONS.



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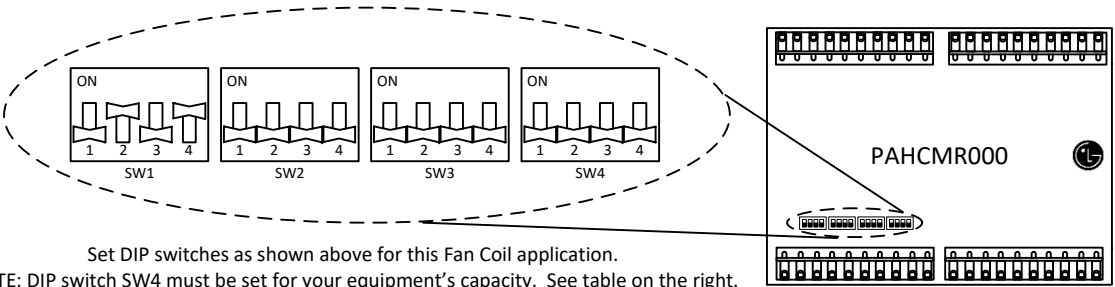
HE Inverter AHU Kit Controllers	4300 North Point Parkway
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JOB NUMBER	HE Inverter AHU 3rd Party.vsd
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High Efficiency Inverter VAV AHU

LG AHU Kit DIP Switch Settings

FOR PROPER AHU KIT FUNCTION, DIP SWITCHES
MUST BE SET AS REQUIRED BY YOUR SYSTEM.



Set DIP switches as shown above for this Fan Coil application.
NOTE: DIP switch SW4 must be set for your equipment’s capacity. See table on the right.

Return Air Kit DIP Switch Function Table

DIP Switch	Switch Number	Item	Setting		Note
SW1	1	ODU Type	On	Single Comm.	Using Single Zone outdoor unit
			Off	Multi V Comm.	Using Multi V Outdoor Unit
	2	Control Type	On	Communication	Controlled by DDC through Mmodbus or LG Centralized Controller
			Off	Contact Signal	Controlled by DDC through Contact signal (AI, DI) LG Centralized controller can only monitor status.
	3	DO Type	On	Fan Speed	DO1: High, DO2: Middle, DO3: Low
			Off	Status	DO1: On/Off, DO2: Defrost, DO3: Alarm
	4	Fan Speed (TH. On/Off)	On	Fixed	Fan speed doesn't chagne when TH. On/Off (Cooling/Heating)
			Off	Change	Fan Speed change to LOW when Th. Off in Cooling Mode Fan Speed change to STOP when Th. Off in Heating Mode
SW2	1	Reserved	-	-	-
	2	Reserved	-	-	-
	3/4	UI Setting	Off/Off	Fan Speed	UI1: Operation On/Off, UI2: Heating/Cooling UI3: Forced Thermo On/Off, UI4: Target air temperature
			Off/On	Status	UI1: Operation On/Off, UI2: Cooling only/Off UI3: Heating only/Off, UI4: Forcede Thermo On and Off
			On/Off	Reserved	-
			On/Off	Reserved	-
SW3	1	ODU Type	On	Single Comm.	Using Single Zone outdoor unit
			Off	Multi V Comm.	Using Multi V Outdoor Unit
	2\3	Operation Mode Setting	Off/Off	Heat Pump	Cooling or Heating operation mode is available
			Off/On	Heating Only	Operation mode is Heating only (Heating / Fan)
			On/Off	Cooling Only	Operation mode is Cooling only (Cooling / Fan)
			On/On	Reserved	-
SW4	1~4	Capacity Setting	-	-	-
			-	-	Refer to capacity DIP switch setting table for details

Notes:
1) CAUTION: Do not change reserved switches. Changing reserved switches may cause equipment malfunction.
2) If using group control, the maximum length of the group control cable is 164 ft including remote controller wiring.

Return Air Kit DIP Switch SW4 Capacity Table

Switch Number	SW4 DIP Switches	Capacity (kBTU/h)	
		MULTI V	Single Zone
1		12	5
2		15	7
3		18	9
4		24	12
5		28	15
6		36	18
7		42	24
8		48	30
9		54	36
10		76	42
11		96	48
12		115	60
13		134	70
14		153	85
15		172	Reserved
16		192	Reserved

FOR CAPACITIES BETWEEN 192 AND 384 MBH, ALL DIP SWITCHES ON.



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HEI AHU Kit DIP Switch Settings

JOB NUMBER
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SHEET NO.
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High Efficiency Inverter VAV AHU
LG ODU I/O Module (PRVC2) and ODU Control Cabinet Detail

Rotary Switch Setting

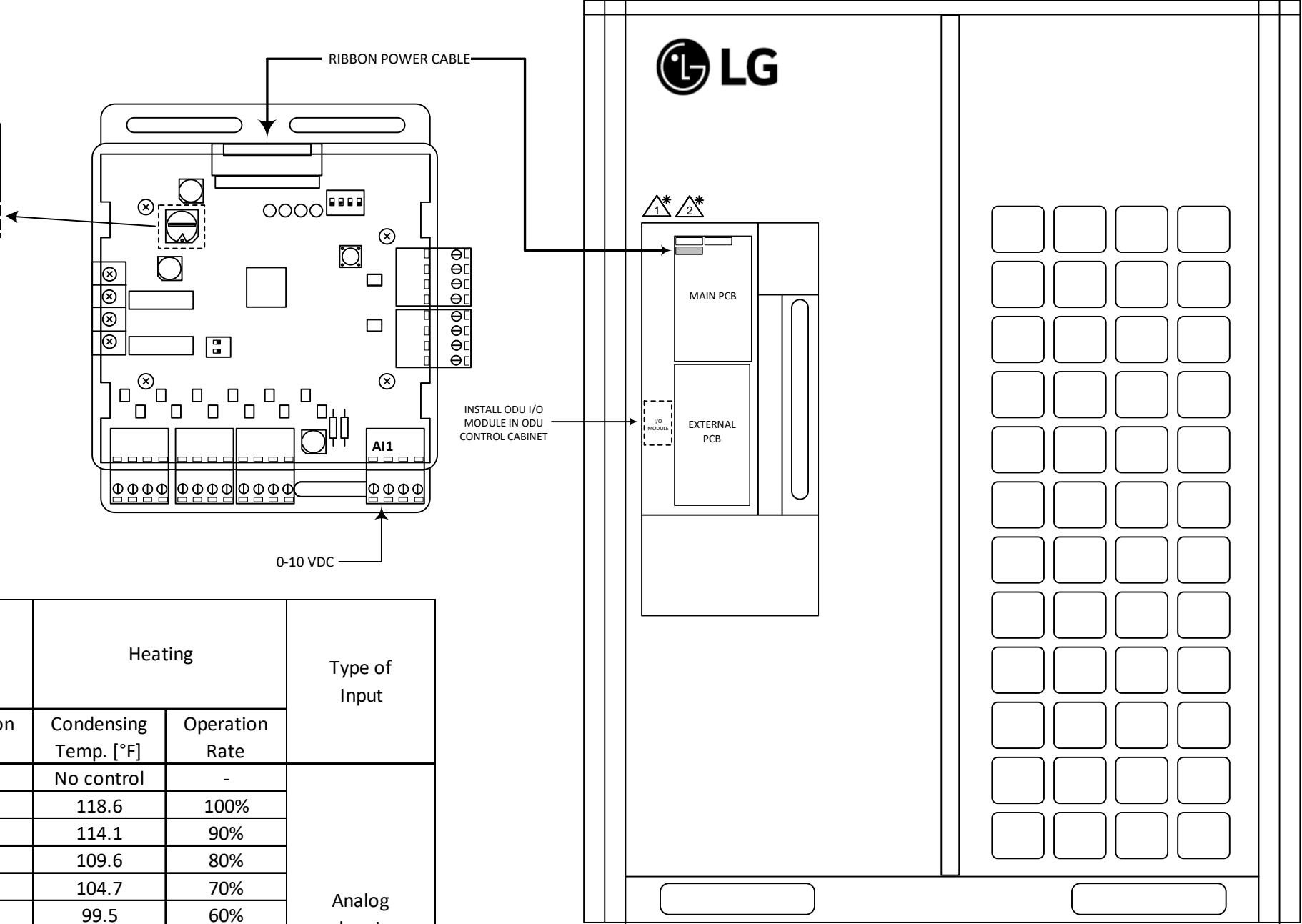
Use the Rotary Switch to set a control step for contact signal input:
The type of signal and control step can be set usings "SW104". This
function is for demand control to reduce power consumption. Set
thecontrol mode according to the table below.

SW_STEP	Input Signal
0, 1, 2, 3, 4, 5, 6, 7	Contact signal input
C, D, E	Analog Input Signal (0-10 VDC)

Analog Input (0-10VDC) Demand Control Step Table

Refer to the table below for analog input voltage ranges and their
corresponding Cooling/Heating target temperatures.

SW_STEP	Normal (VDC) △*	Input Voltage Range (VDC)		Cooling		Heating		Type of Input
		Min	Max	Evaporating Temp. [°F]	Operation Rate	Condensing Temp. [°F]	Operation Rate	
D	0	0	0.4	No control	-	No control	-	Analog Input
	1	0.6	1.4	37.6	100%	118.6	100%	
	2	1.6	2.4	39.4	90%	114.1	90%	
	3	2.6	3.4	41	80%	109.6	80%	
	4	3.6	4.4	42.6	70%	104.7	70%	
	5	4.6	5.4	45	60%	99.5	60%	
	6	5.6	6.4	48.2	50%	94.1	50%	
	7	6.6	7.4	49.6	45%	91.9	45%	
	8	7.6	8.4	51.8	40%	88.3	40%	
	9	8.6	9.4	Comp off	0%	Comp off	0%	
	10	9.6	10	All off	0%	All off	0%	



DRAWING NOTES

- △* ODU CONTROL CABINET AND RIBBON POWER CABLE SHOWN FOR SCHEMATIC PURPOSES ONLY. EQUIPMENT BOARDS AND CONNECTIONS MAY VARY. REFER TO LG EQUIPMENT INSTALLATION MANUAL FOR DETAIL. FIELD VERY EQUIPMENT.
- △* ODU I/O MODULE (LOW AMBIENT KIT) OPTION MUST BE ENABLED (ON) IN MAIN PCB. USE HMI TO ENABLE FUNCTION CODE 9. REFER TO LG EQUIPMENT INSTALLATION MANUAL FOR DETAIL.
- △* CAUTION: DO NOT CHANGE 0-10 VDC COMMAND TOO QUICKLY! KEEP THE COMMAND 30 SECONDS AT LEAST, OTHERWISE DAMAGE TO OUTDOOR UNIT WILL OCCUR!



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JOB NUMBER	HE Inverter AHU Kit Controllers
FILE NAME	4300 North Point Parkway Alpharetta, GA 30022
SHEET NO.	HEI AHU ODU Module DIP Switch Settings
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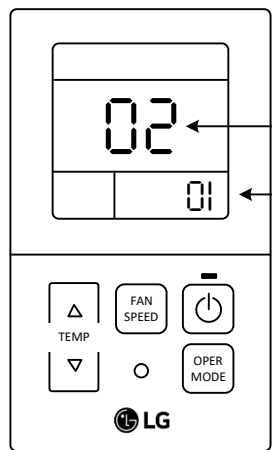
High Efficiency Inverter VAV AHU

LG AHU Kit and ODU Central Control Address Assignment

Step 1: AHU Kit Central Control Address Assignment

Function Code 02 is used to assign central control address. Assign a unique hexadecimal address when used with central controller (00~FF).

How to enter Remote Controller installer setting mode

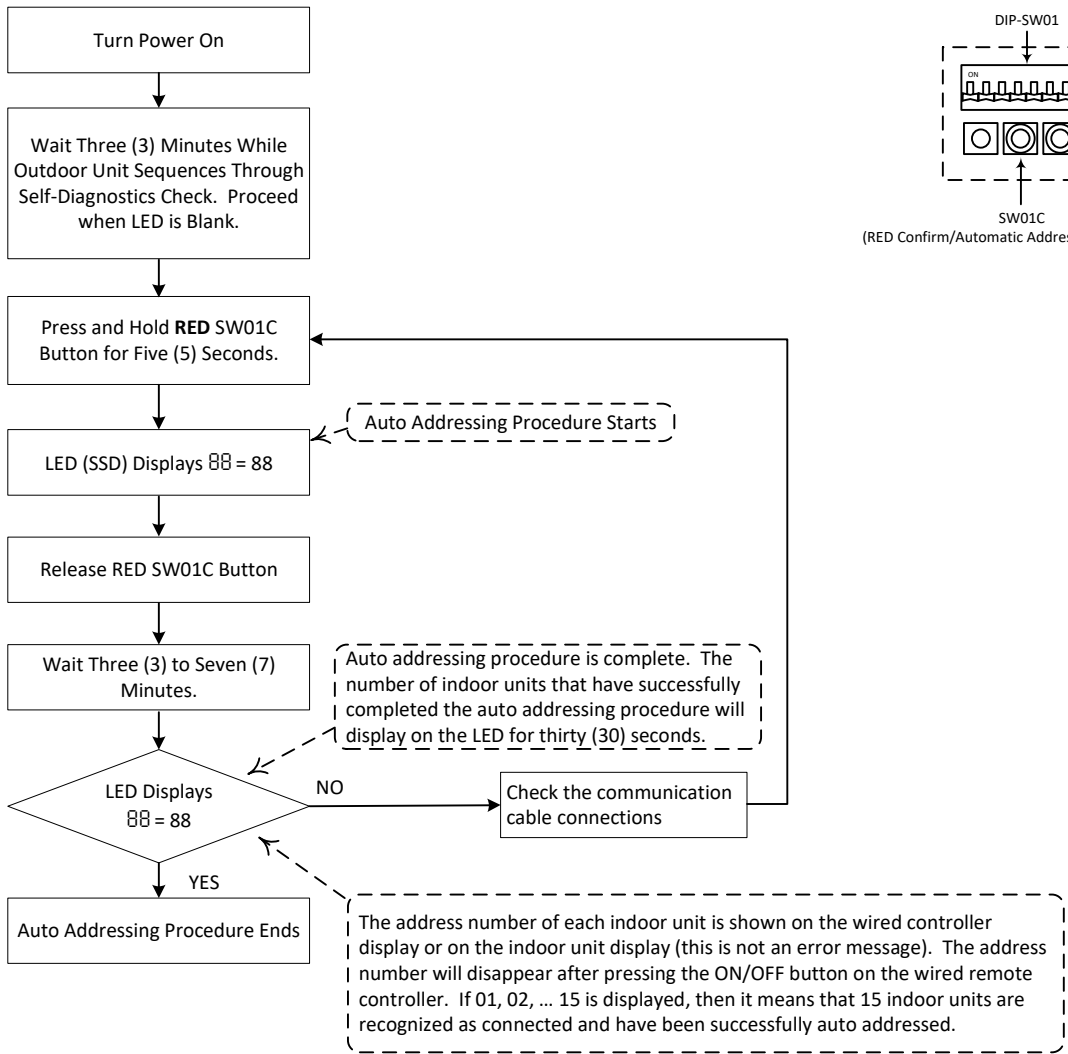


1. Press button and button simultaneously for 3 seconds to enter the installer setting mode.
2. When you enter the setting mode initially, function code is displayed on the LCD screen.
3. Press button to select function code.
4. Press button to change value.
5. Press button to set value.
6. Press button and button simultaneously for 3 seconds to exit installer setting mode.

Step 2: Outdoor Unit (ODU) Auto Addressing Procedure

After AHU Kit has been assigned a unique central control address, the AHU Kit must be added to the Outdoor Unit's Indoor Unit network bus. Use the below flow chart to execute Auto Address procedure.

ODU Auto Addressing Flowchart



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HEI AHU Central Control Address Assignment

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Architect:

Engr:

Rep:

(Company)

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Approval Other

GC:

Mech:

(Project Manager)



PAHCMR000
AHU Communications Kit
Return Air

Electrical:

Power Supply	208-230VAC, 60Hz, 1Ph
Rated Current	0.1A

Environmental Data:

Operating Temperature	-4 to +149°F
Humidity	0-98% (Non-condensing)

Unit Data:

Dimensions (inch)	11-13/16 W x 6-3/32 D x 11-13/16 H
Net Weight (lb.)	13.7
Shipping Weight (lb.)	16.4

Standard Features:

- Allows communication between third-party air handling unit controllers and LG air source and water source units
- AHU Coil Capacities
 - 41°F minimum entering air temperature
- 12-384 kBtu/h for Multi V
- 5-85 kBtu/h for Single Zone
- Three - Thermistor (Return air, pipe in, and pipe out. Each 16.4 ft. in length.)
- EEV Control
- Analog input (0-10V) for capacity control
- Digital Inputs for On/Off and Mode control
- Digital Outputs for ODU running status (heat/cool/off), ODU defrost signal
- Designed for indoor installation (field-supplied waterproof enclosure required for outdoor installation)

Required Accessories (Sold Separately):

One of the following wired controllers:

- ☐ MultiSITE Remote Controller CRC1 - PREMTBVC0
- ☐ MultiSITE Remote Controller CRC1+ - PREMTBVC1
- ☐ Premium Remote Controller - PREMTA000
- ☐ Simple Remote Controller - PREMTC00U

One of the following Electronic Expansion Valves:

- ☐ AHU EEV Kit PRLK048A0
- ☐ AHU EEV Kit PRLK096A0
- ☐ AHU EEV Kit PRLK396A0
- ☐

Notes:

- Must follow installation instructions in the applicable LG installation manual.

Connectivity:

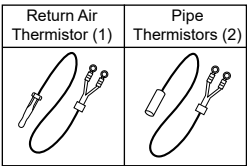
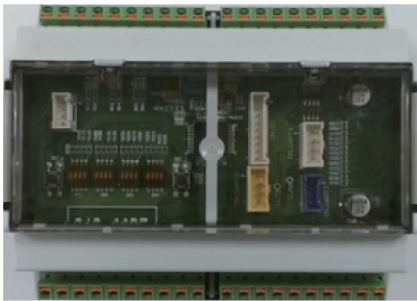
LG Communications	J A/B Communications Terminals on ODU)
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Communications Cabling Specifications:

Type	Stranded, Shielded Copper Cable
Size	18 x 2

AWG - American Wire Gauge

Communications Module

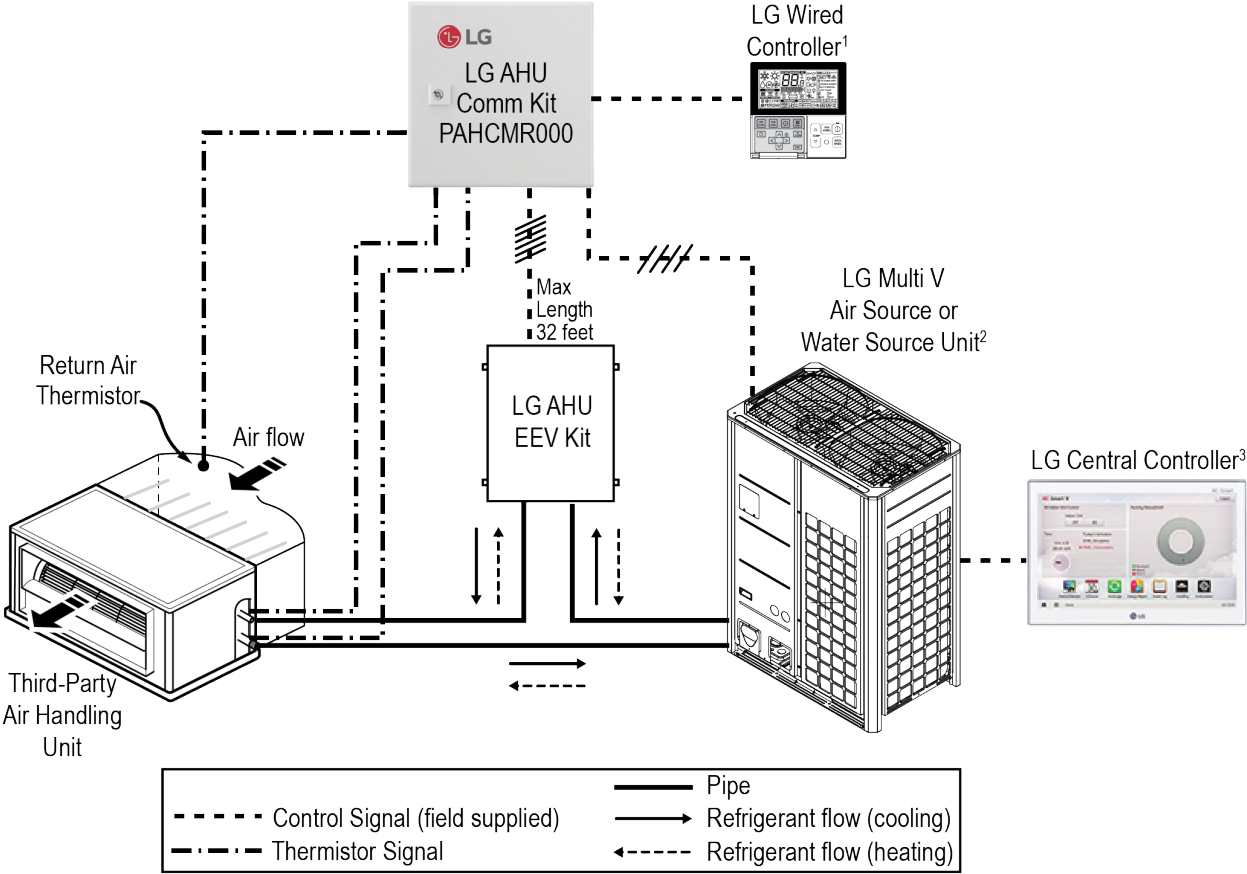


AHU Capacity Multi V (kBtu/h)	AHU Capacity Single Zone (kBtu/h)
12	18
15	24
18	36
24	42
28	48
36	-
42	-
48	-
54	-
76	-
96	-
115	-
134	-
153	-
172	-
192	-
216	-
240	-
264	-
288	-
312	-
336	-
360	-
384	-
396	-

PAHCMR000
AHU Communications Kit
Return Air

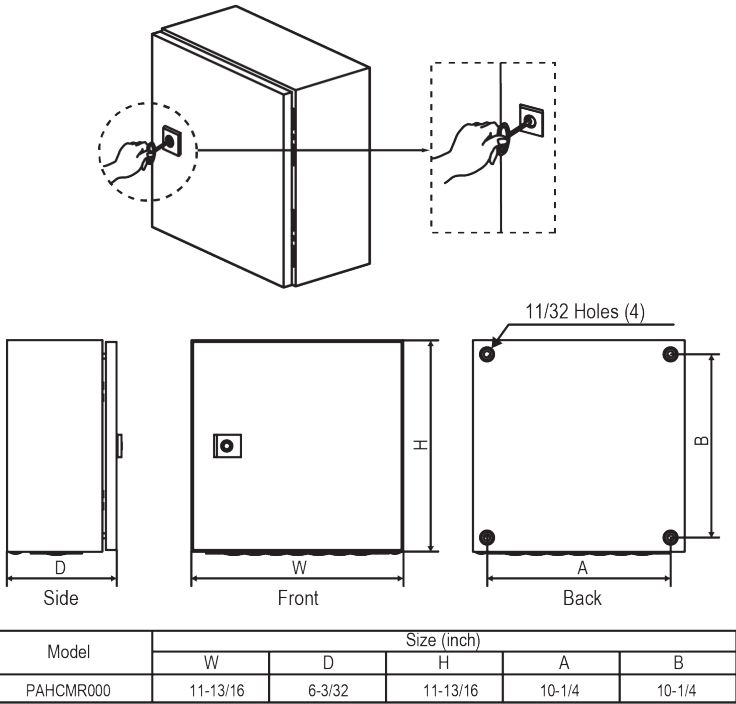


Tag No.: _____
Date: _____
PO No.: _____



¹LG wired controller is required.
²Compatible units are Multi V and Single Zone.
³Compatible central controllers are AC Smart V and ACP V.

AHU Communications Kit Installation



Job Name/Location:

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Approval Other

Architect:

GC:

Engr:

Mech:

Rep:

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(Project Manager)

PREMTC00U Simple Remote Controller



Unit Data:

Maximum No. of Indoor Units (Group Control)	16
Temperature Value*	Fahrenheit (1° Increments) / Celsius
Dimensions	4-3/4" L x 2-3/4" W x 5/8" H
Weight	0.18 lbs.

*Temperature Value depends on equipment.

Operating Range:

Cooling (°F DB)	64 ~ 86
Heating (°F WB)	60 ~ 86

Communications Cabling Specifications (V-Net):

Type	Field Supplied
Length**	164 feet
Size	22-3 AWG, twisted, stranded, unshielded

**Communication cable can be extended to a maximum of 164 feet between controller and indoor unit by using field supplied cable or the Wired Remote Group Control Cable Assembly (PZCWRCG3) or Wired Remote Extension Cable (PZWRC1), maximum of 4.

Standard Features:

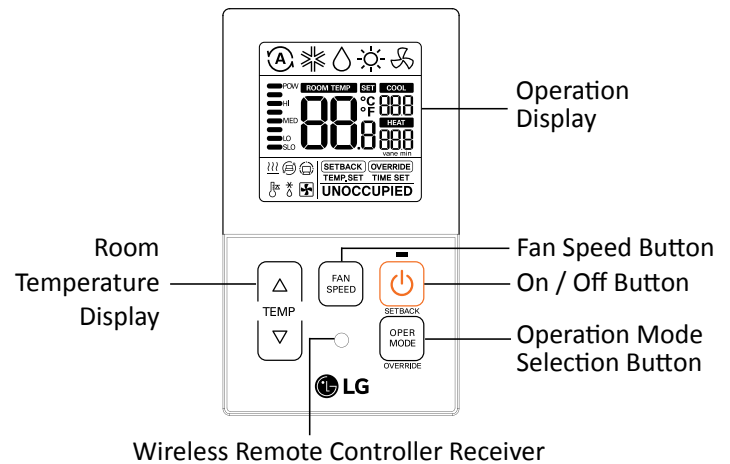
- Auto Operation (Dual Setpoint)
- Unit Operation – On / Off
- Mode Selection – Cool / Heat / Dry / Fan / Auto
- Fan Speed Selection
- Air Flow Direction (available with indoor units equipped for this feature)
- Static Pressure Setting
- Child Lock
- LED Indicator for unit operating status
- Master / Slave Setting for Multiple Controller Installation
- Room Temperature Sensing Location (Zone Controller, Indoor Unit, Two-Thermistor)
- Discharge Vanes – Auto Swing / Fixed (available with indoor units equipped for this feature)
- Manual Central Control Addressing

Optional Accessories:

- ☐ 33-foot Extension Cable Assembly (PZCWRC1)
- ☐ Group Control Cable Kit (PZCWRCG3)

Notes:

1. Must follow installation instructions in the applicable LG installation manual.
2. Available functions / features may differ based on the connected system.



Date:	For: <input type="checkbox"/> File <input type="checkbox"/> Resubmit
PO No.:	<input type="checkbox"/> Approval <input type="checkbox"/> Other _____
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Engr:	Mech:
Rep:	
(Company)	(Project Manager)

PRLK048A0

Electronic Expansion Valve for AHU Communications Kit



Electrical:

Power Supply	Powered by AHU Comm Kit (12 VDC)
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Environmental Data:

Operating Temperature	-4 -149 °F
Humidity	0-98 % (non-condensing)

Unit Data:

Dimensions	8-5/8" W x 15-15/16" H x 3-5/16" D
Net Weight	6.8 lb
Shipping Weight	7.9 lb

Capacity:

Maximum AHU Capacity	96000 Btu/h
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Standard Features:

- Controls refrigerant flow between Multi V air or water source units and a 3rd party air handling unit.
- Minimum coil entering temperature is 41°F
- Maximum distance between EEV and Comm kit is 10 feet
- Maximum of (1) EEV kit can be connected to Comm kit
- When brazing to EEV kit, use wet cloth to ensure main EEV body temperature does not exceed 248°F
- Designed for indoor installations (field supplied water-proof enclosure must be used when installing outdoors)

Communications Cabling Specifications:

Type	Stranded, shielded copper cable
Size	AWG 18 x 6

AWG - American Wire Gauge

Refrigerant

Refrigerant Type	R410A
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Notes:

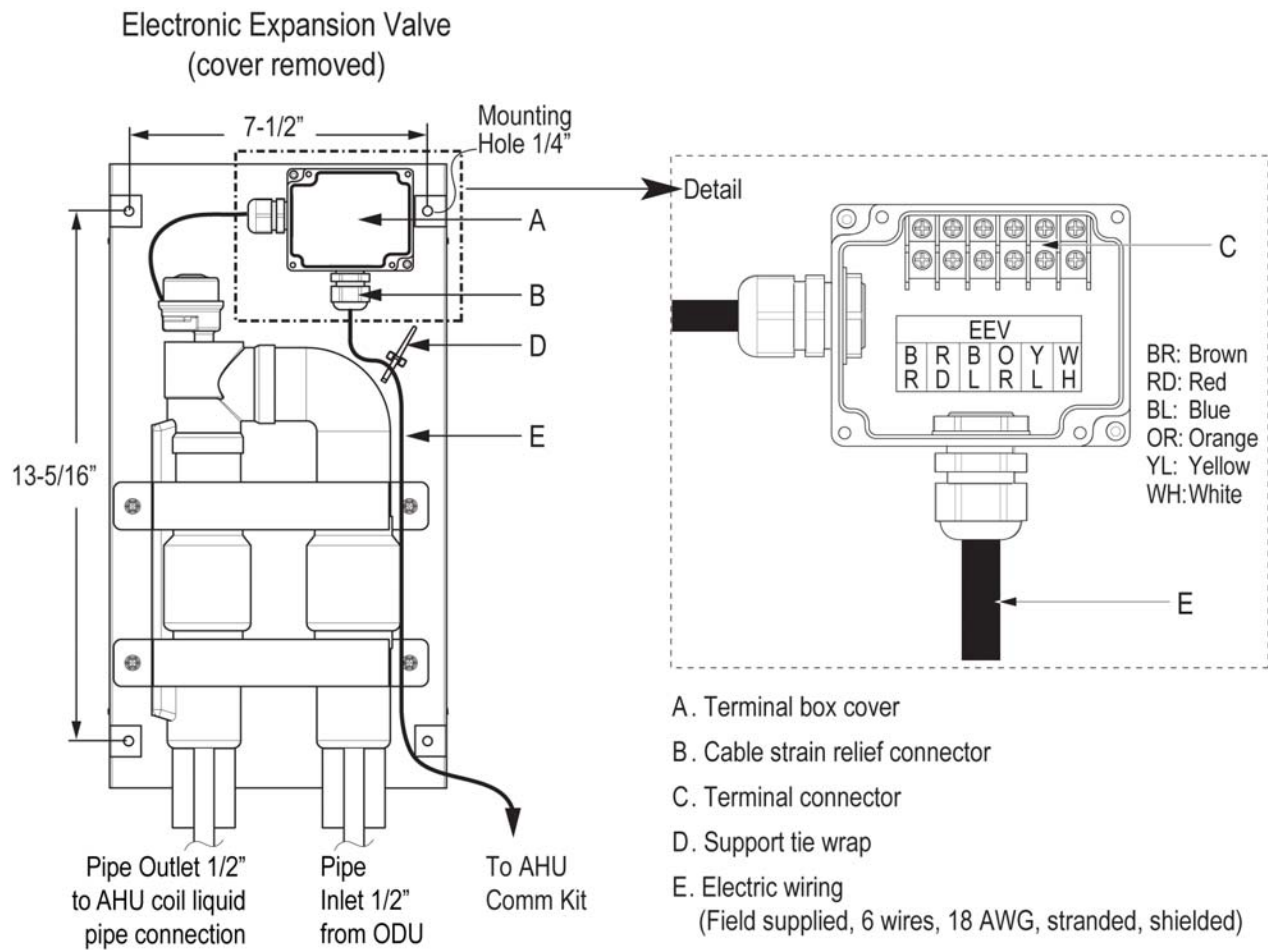
- 1.Must follow installation instructions in the applicable LG installation manual.

PRLK048A0

Electronic Expansion Valve for AHU Communications Kit

**LG**

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PRVC2

Low Ambient Control Kit for
Multi V IV and Multi V 5 ODU's



Electrical:

Power Supply	24VDC
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Environmental:

Operating Temp Ranges (°F)	
Cooling	
Outdoor:	95
Indoor:	81
Heating	
Outdoor:	45
Indoor:	68

Unit Data:

Dimensions	4" W x 5" H x 1" D
Net Weight	3
Shipping Weight	4

Standard Features:

- Allows control of louvers on top elbow vent of low ambient baffle kit
- Controls from one to three low ambient baffle kits

Required Accessories (sold separately)

One or more of the following Low Ambient Baffle Kits.

- ☐ Low Ambient Baffle Kit - ZLABKA01A
- ☐ Low Ambient Baffle Kit - ZLABKA03A
- ☐ Low Ambient Baffle Kit - ZLABKA51A
- ☐ Low Ambient Baffle Kit - ZLABKA52A

Connectivity:

Outdoor Unit	Power and communication
Inputs	
Digital	Dry contact
Analog	0 to 10VDC
Outputs	
Digital	Operating and error status relay (250V, 1A)
Analog	0 to 10VDC

Cabling Specifications:

Type	stranded, shielded copper cable
Size	AWG 22

AWG - American Wire Gauge

Notes:

1. Must follow installation instructions in the applicable LG installation manual.

For continual product development, LG reserves the right to change specifications without notice.

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