HEI AHU 3rd Party

Project Name: **HE Inverter AHU Kit Controllers**

Project Number:

Description: LG Return Air AHU Kit 3rd Party Control Engineered Application

Prepared for:

LG Electronics, U.S.A. INC.
4300 North Point Parkway
Alpharetta, GA 30022

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Table of Contents

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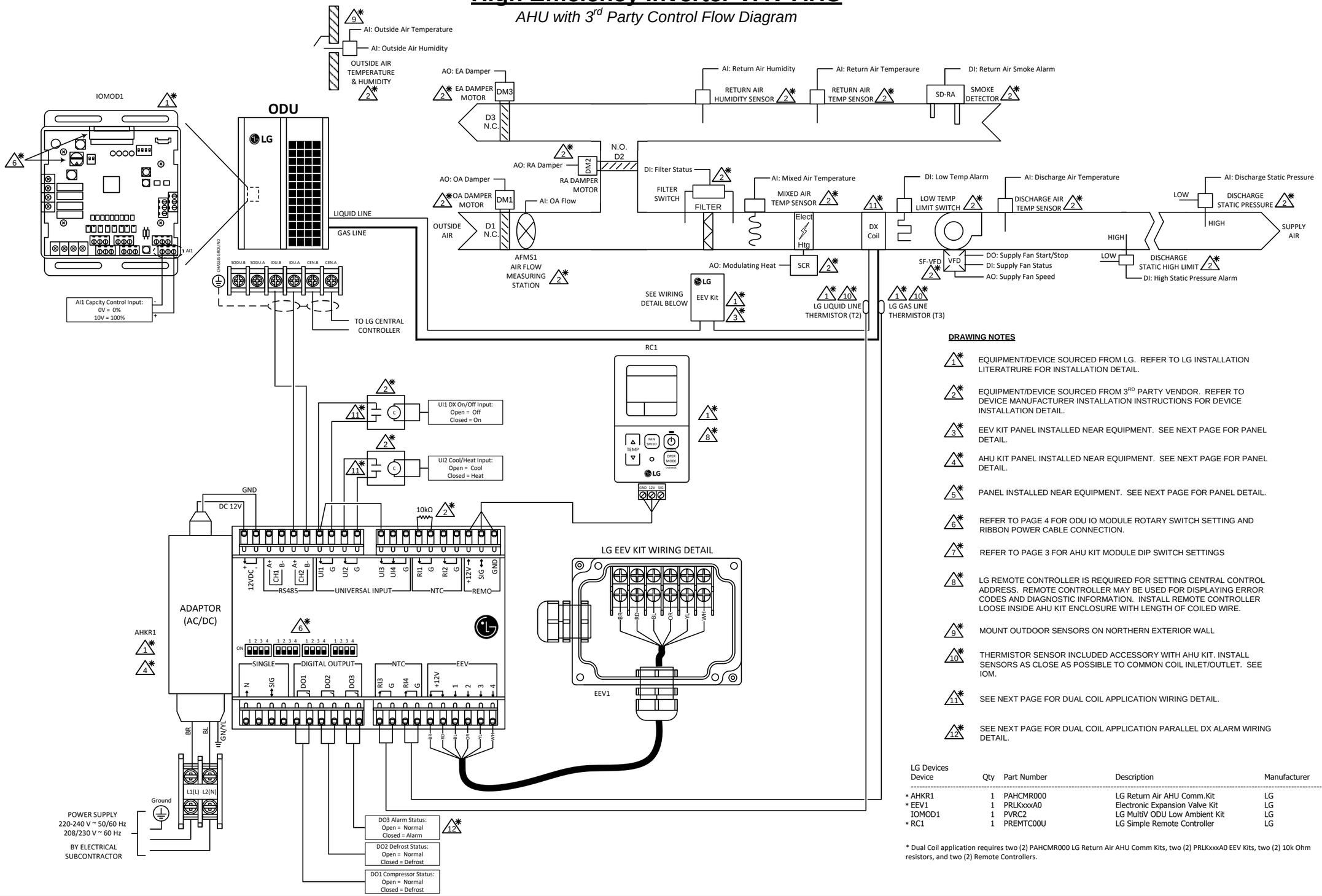
HE Inverter AHU 3rd Party Control

Drawing Index:

High Efficiency Inverter VAV AHU

AHU with 3rd Party Control Flow Diagram



DRAWING NOTES

1. EQUIPMENT/DEVICE SOURCED FROM LG. REFER TO LG INSTALLATION LITERATRURE FOR INSTALLATION DETAIL.
2. EQUIPMENT/DEVICE SOURCED FROM 3RD PARTY VENDOR. REFER TO DEVICE MANUFACTURER INSTALLATION INSTRUCTIONS FOR DEVICE INSTALLATION DETAIL.
3. EEV KIT PANEL INSTALLED NEAR EQUIPMENT. SEE NEXT PAGE FOR PANEL DETAIL.
4. AHU KIT PANEL INSTALLED NEAR EQUIPMENT. SEE NEXT PAGE FOR PANEL DETAIL.
5. PANEL INSTALLED NEAR EQUIPMENT. SEE NEXT PAGE FOR PANEL DETAIL.
6. REFER TO PAGE 4 FOR ODU IO MODULE ROTARY SWITCH SETTING AND RIBBON POWER CABLE CONNECTION.
7. REFER TO PAGE 3 FOR AHU KIT MODULE DIP SWITCH SETTINGS
8. LG REMOTE CONTROLLER IS REQUIRED FOR SETTING CENTRAL CONTROL ADDRESS. REMOTE CONTROLLER MAY BE USED FOR DISPLAYING ERROR CODES AND DIAGNOSTIC INFORMATION. INSTALL REMOTE CONTROLLER LOOSE INSIDE AHU KIT ENCLOSURE WITH LENGTH OF COILED WIRE.
9. MOUNT OUTDOOR SENSORS ON NORTHERN EXTERIOR WALL
10. THERMISTOR SENSOR INCLUDED ACCESSORY WITH AHU KIT. INSTALL SENSORS AS CLOSE AS POSSIBLE TO COMMON COIL INLET/OUTLET. SEE IOM.
11. SEE NEXT PAGE FOR DUAL COIL APPLICATION WIRING DETAIL.
12. SEE NEXT PAGE FOR DUAL COIL APPLICATION PARALLEL DX ALARM WIRING DETAIL.

LG Devices Device	Qty	Part Number	Description	Manufacturer
* AHKR1	1	PAHCMR000	LG Return Air AHU Comm.Kit	LG
* EEV1	1	PRLKxxxA0	Electronic Expansion Valve Kit	LG
IOMOD1	1	PVRC2	LG MultiV ODU Low Ambient Kit	LG
* RC1	1	PREMTC00U	LG Simple Remote Controller	LG

* Dual Coil application requires two (2) PAHCMR000 LG Return Air AHU Comm Kits, two (2) PRLKxxxA0 EEV Kits, two (2) 10k Ohm resistors, and two (2) Remote Controllers.

Revisions

#	Change:	Date:
1		7/12/2021
2		
3		
4		
5		

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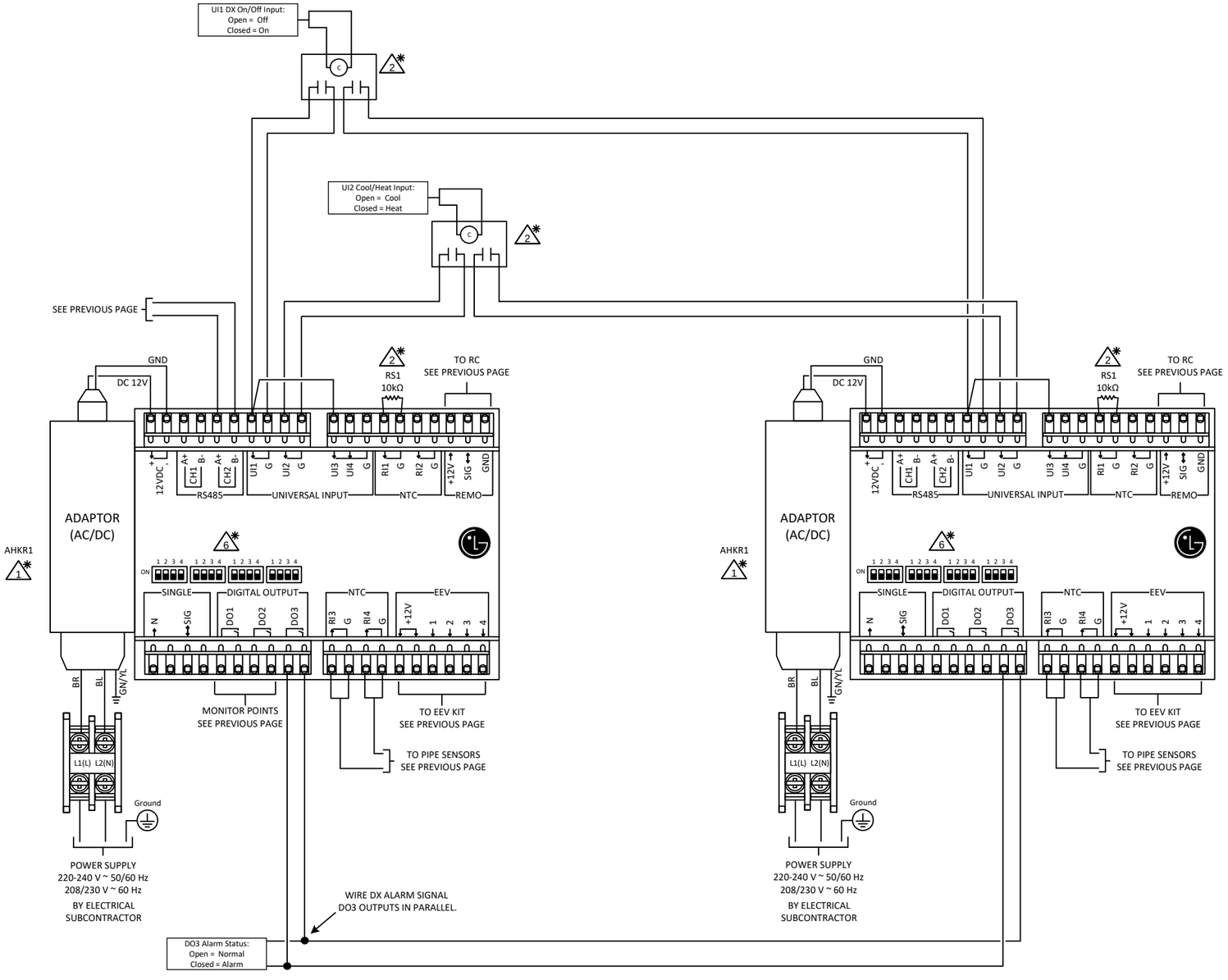
HEI AHU Flow Diagram

FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
1 OF 6

High Efficiency Inverter VAV AHU

Dual Coil Application Wiring Detail



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Revisions

#	Change:	Date:
1		7/12/2021
2		
3		
4		
5		

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Engineer:
Contractor:
Designed by: GCM Date:
Software by: Date:
Checked by: Date:

HE Inverter AHU Kit Controllers
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HEI AHU & EEV Kit Panel Details

JOB NUMBER

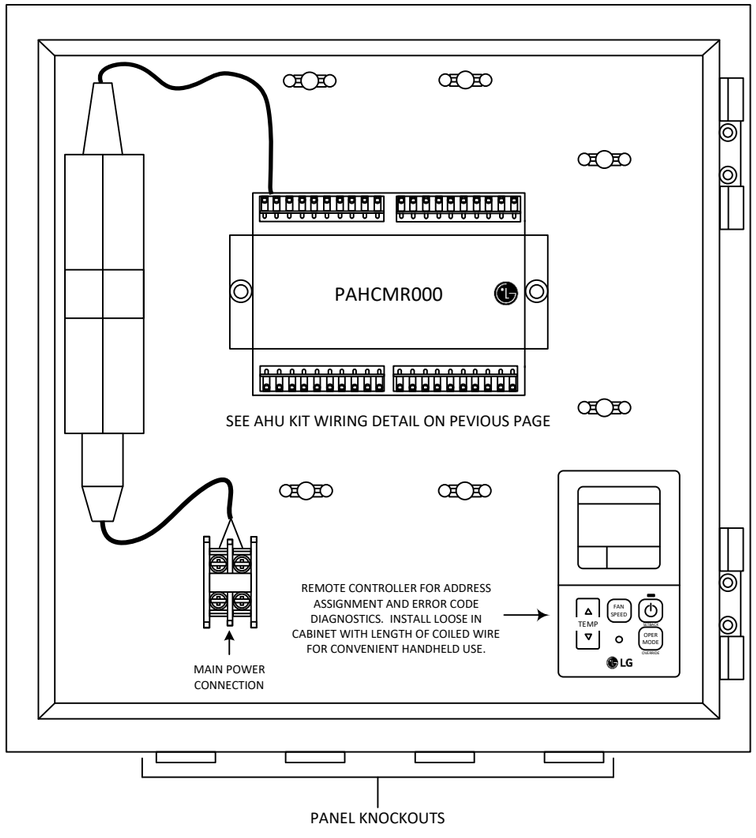
FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
2 OF 6

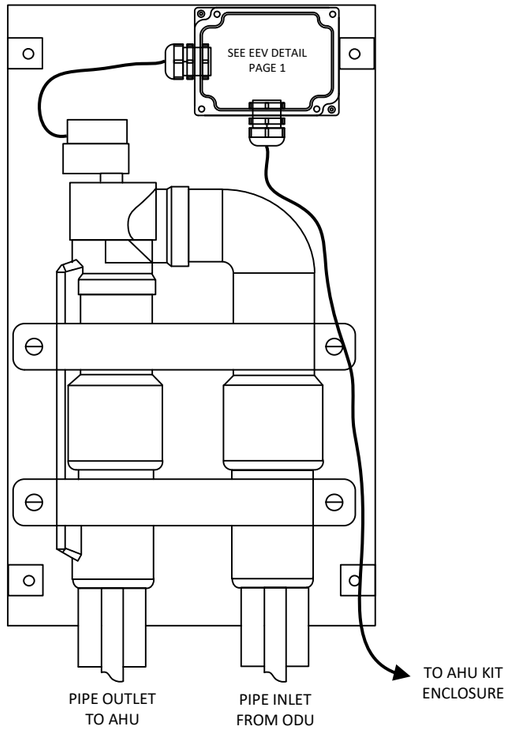
High Efficiency Inverter VAV AHU

LG AHU Kit and LG EEV Kit Panel Details

LG AHU KIT
PANEL INTERIOR DETAIL
(FACTORY ASSEMBLED)



LG EEV 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.

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.

Revisions

#	Change:	Date:
A		7/12/2021
B		
C		
D		
E		
F		

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Software by: Date:
Checked by: Date:

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4300 North Point Parkway
Alpharetta, GA 30022
HEI AHU & EEV Kit Panel Details

JOB NUMBER

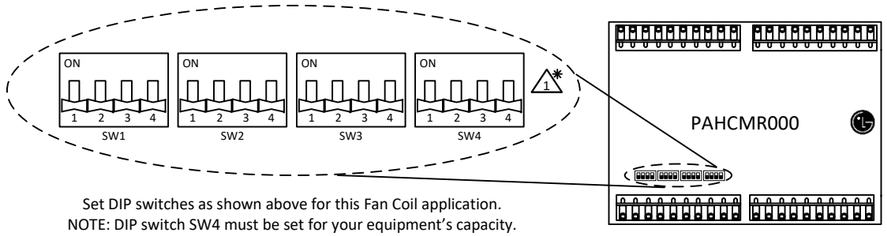
FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
3 OF 6

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.

1 Refer to equipment IOM for SW4 capacity settings.

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	-
	4	Reserved	-	-	-
SW4	1~4	Capacity Setting	-		Refer to capacity DIP switch setting table in equipment IOM 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.

Revisions

#	Change:	Date:
1		7/12/2021
2		
3		
4		
5		

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HEI AHU Kit DIP Switch Settings

JOB NUMBER

FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
4 OF 6

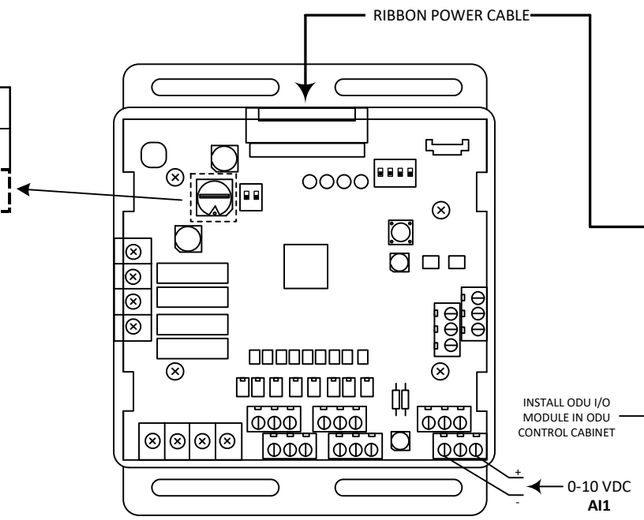
High Efficiency Inverter VAV AHU

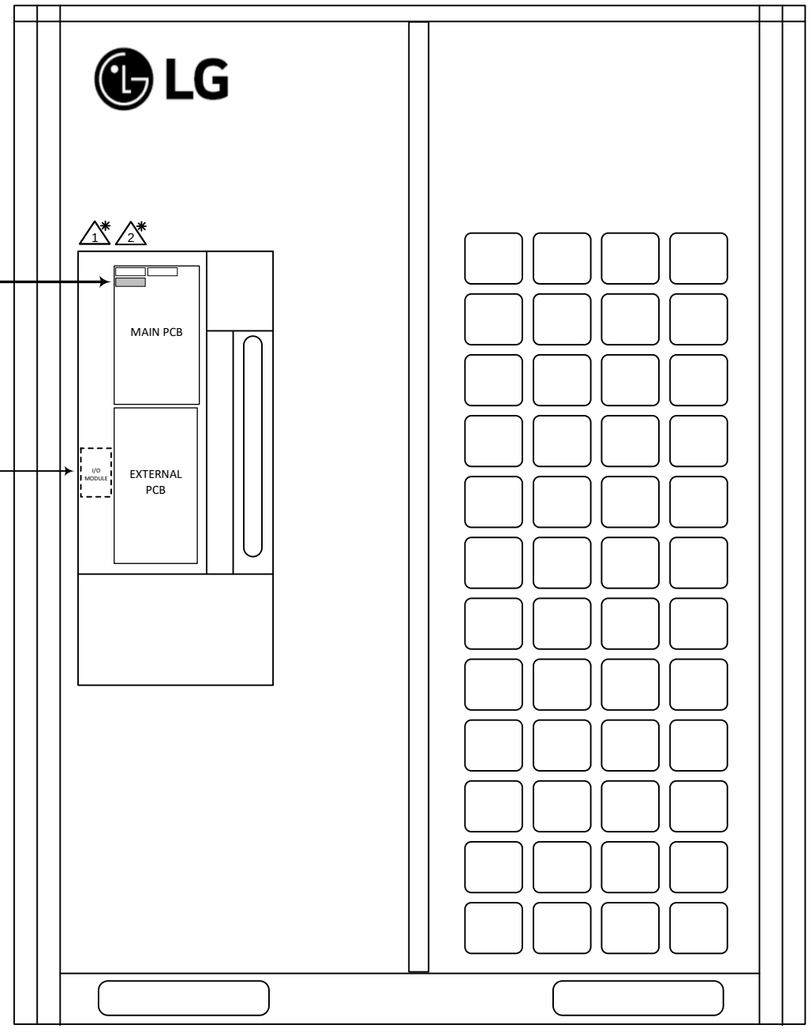
LG ODU I/O Module (PRVC2) and ODU Control Cabinet Detail

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) ⚠2	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

⚠1 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.

⚠2 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.

⚠3 **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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Revisions

#	Change:	Date:
A		7/12/2021
B		
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HEI AHU ODU Module DIP Switch Settings

JOB NUMBER

FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
5 OF 6

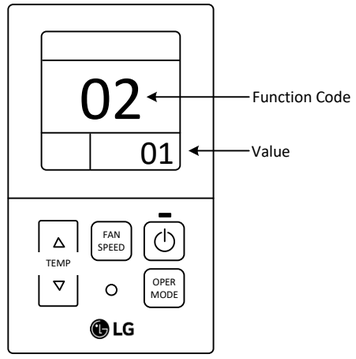
High Efficiency Inverter VAV AHU

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

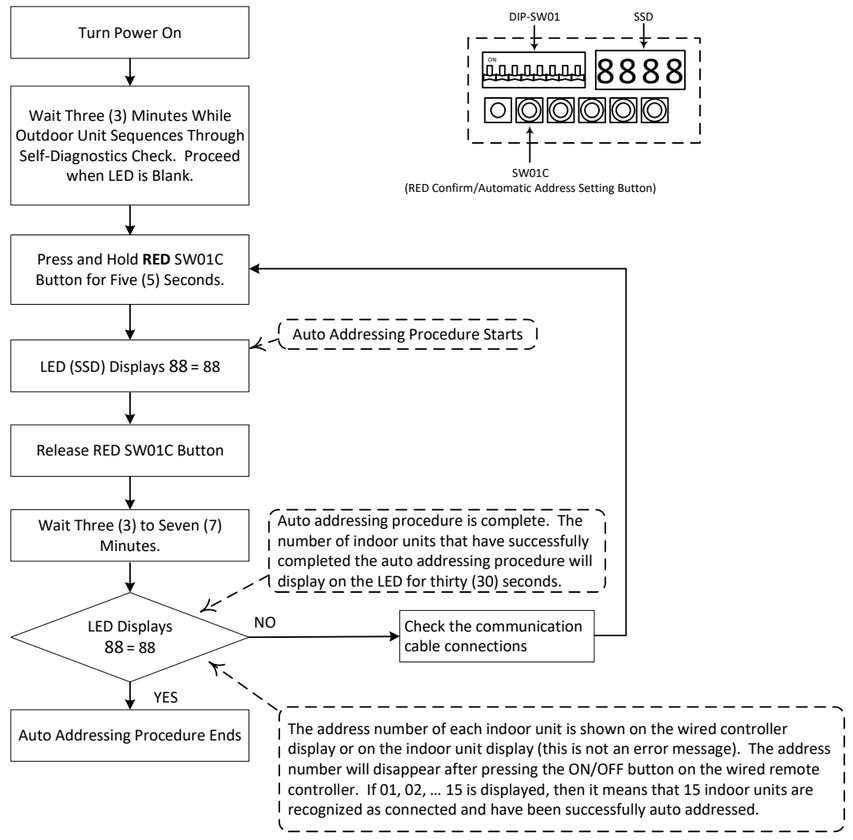


1. Press ▵ button and OPER MODE button simultaneously for 3 seconds to enter the installer setting mode.
2. When you enter the setting mode initially, function code is displayed on the LCD screen.
3. Press OPER MODE button to select function code.
4. Press TEMP button to change value.
5. Press ⏻ button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



Auto Addressing Button Location on Outdoor Unit PCB.

Revisions

#	Change:	Date:
A		7/12/2021
B		
C		
D		
E		

JOB NUMBER

FILE NAME
HE Inverter AHU 3rd Party Rev3.vsd

SHEET NO.
6 OF 6

HE Inverter AHU Kit Controllers
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HEI AHU Central Control Address Assignment

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