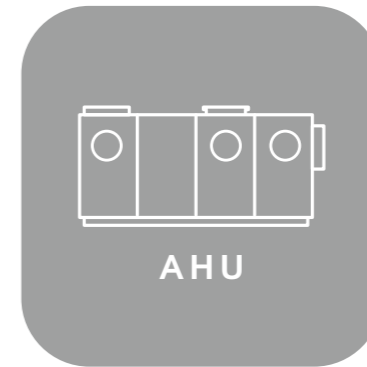
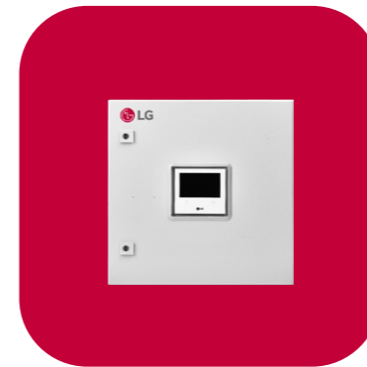


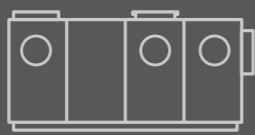
ADVANCED TECHNOLOGY  
**LG AHU KIT**




# What is LG AHU KIT?

A solution to connect LG's high efficiency system to the DX coil of an air handling unit for maximum energy savings.

**COMMUNICATION KIT**




AHU




PAHCMR000      PAHCMS000

**CONTROL KIT**



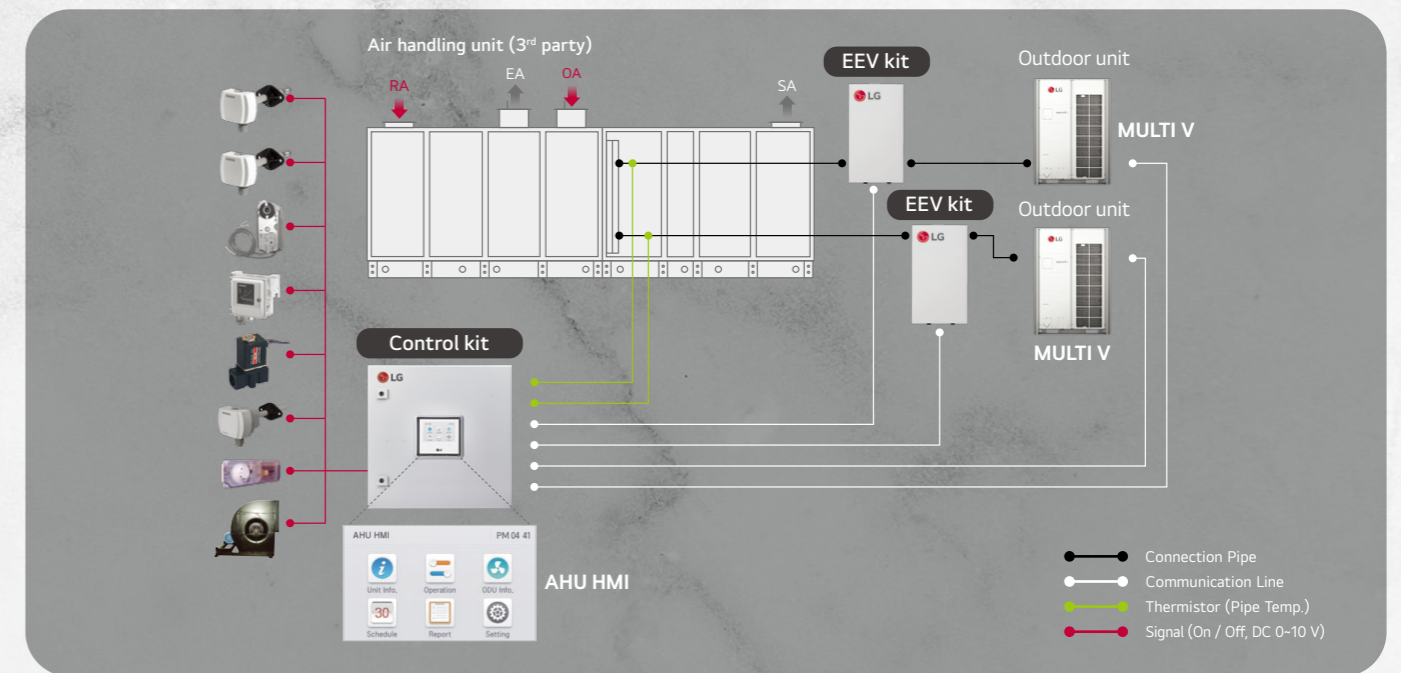
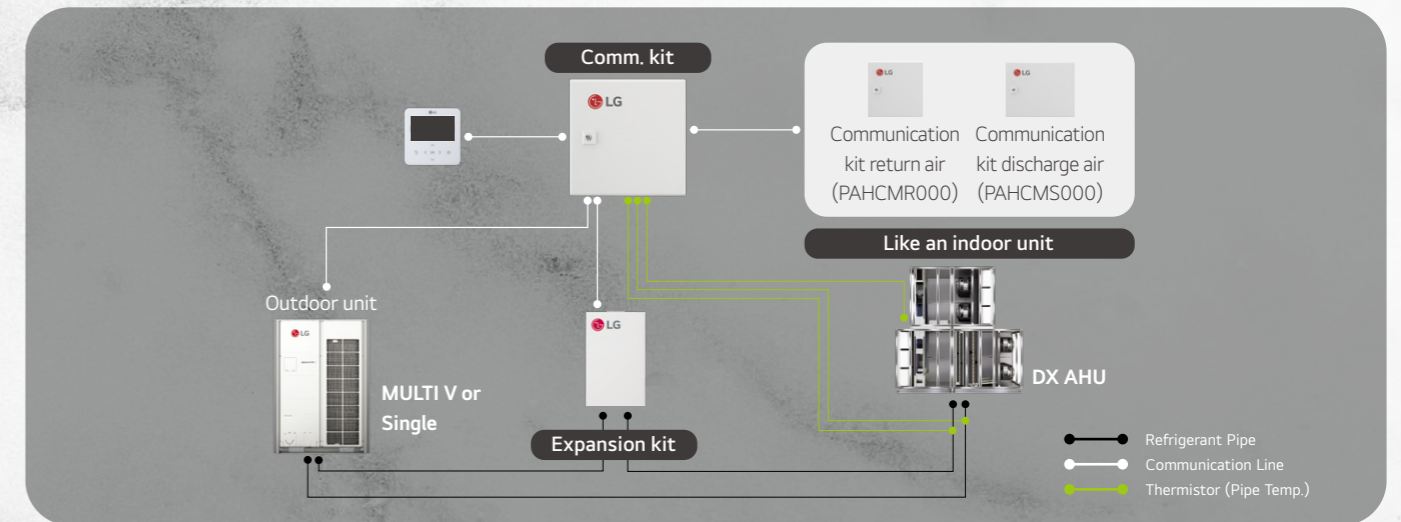
PAHCNM000

**EEV KIT**



PRLK048A0      PRLK096A0      PRLK396A0      PRLK594A0

## Application Scene



## Specification

### Control Application Kit

TYPE	MODEL	DIMENSIONS (mm)			POWER SUPPLY	IP RATING	DESCRIPTION
		W	H	D			
Communication Kit	PAHCMR000	300	300	155	10, 220 ~ 240 V, 50 / 60 Hz	IP66	Return / Room air temperature control by DDC or LG individual / Central controller
	PAHCMS000	380	300	155	10, 220 ~ 240 V, 50 / 60 Hz	IP66	Discharge air / Supply air temperature control by DDC or LG individual / Central controller
Control Kit	PAHCNM000	500	500	210	10, 220 ~ 240 V, 50 / 60 Hz	-	Various AHU control functions with multiple DX coils (Maximum connectable ODU is 3 units)

### Expansion Application Kit

TYPE	MODEL	DIMENSIONS (mm)			PIPE DIAMETER (mm)		CAPACITY INDEX RANGE
		W	H	D	LIQUID		
EEV Kit	PRLK048A0	217	404	83	12.7		3.6 ~ 28 kW
	PRLK096A0	217	404	83	12.7		28.1 ~ 56 kW
	PRLK396A0	349.5	345.5	180	19.05		56.1 ~ 112 kW
	PRLK594A0	409.5	345.5	180	19.05		112.1 ~ 168 kW

# Communication Kit

## High Energy Efficiency

LG's DX AHU solutions' superior performance provides a highly efficient heat source system.

- High energy efficiency inverter system
- Large range of expansion application Kit : Max. 168 kW EEV Kit
- Connected to various heat sources : MULTI V, MULTI V WATER, MULTI V WATER S, MULTI V S, SINGLE SPLIT



AHU



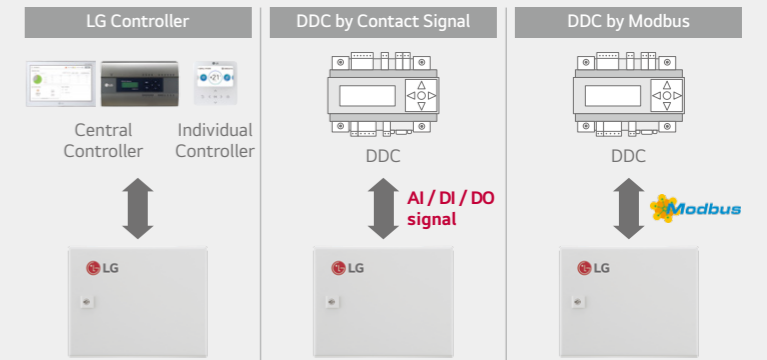
1) Single lineup is only available in 5 - 15 kW.  
2) MULTI V WATER S is compatible with only Return / Room Air Temperature Control AHU.

## Diverse Options for Control

AHU communication kit can be connected to various control systems such as LG individual / central controller and DDC.<sup>1)</sup> It can be directly connected to DDC without separated controller, so DDC can receive product control and monitor information through contact signal or Modbus protocol.

- LG Individual / Central controller supported
  - LG controller stand alone or combination with DDC
- Direct wiring between DDC and AHU communication kit
  - Embedded Digital I/O and Analog Input
  - Modbus RTU protocol supported

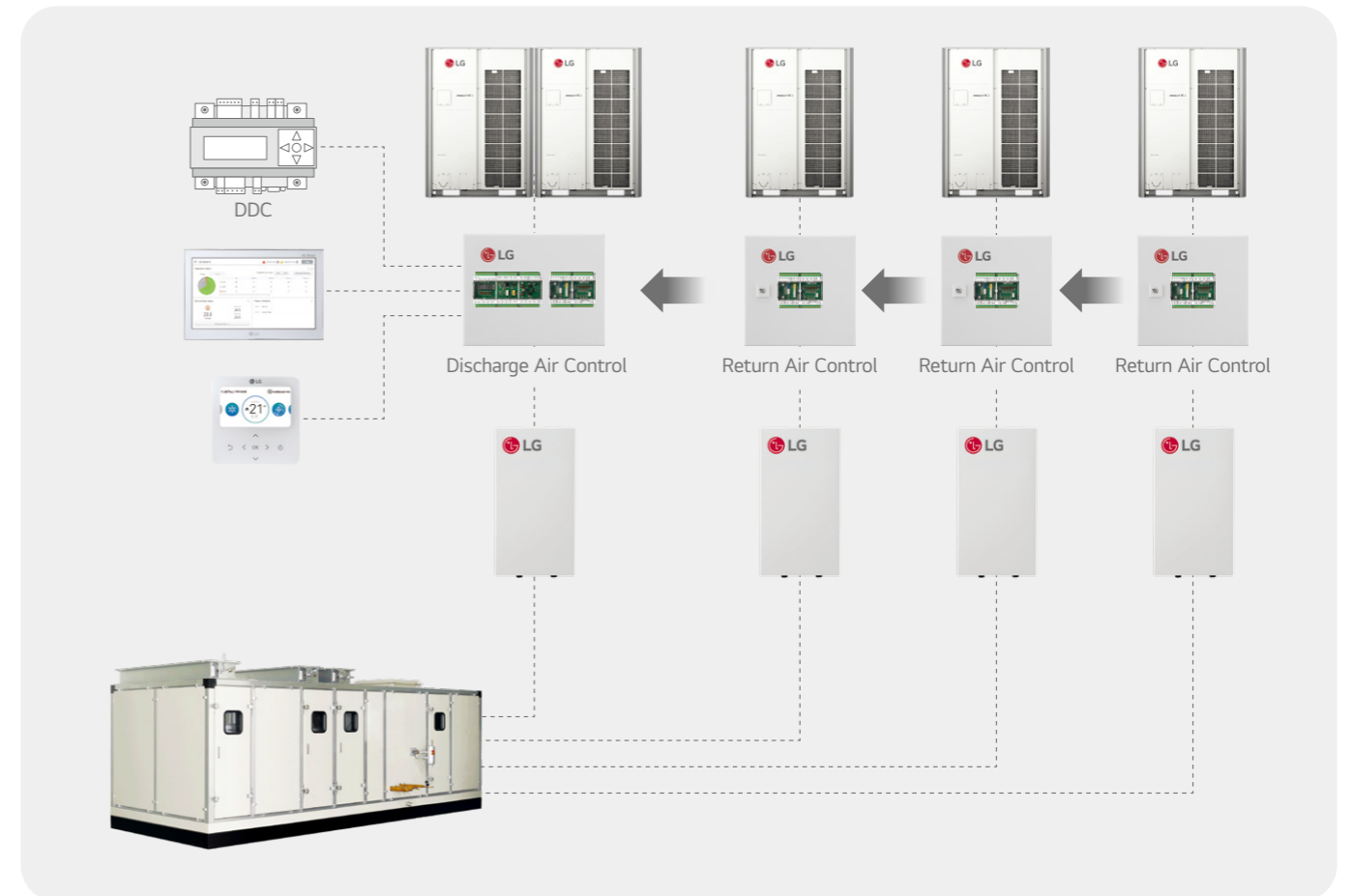
1) DDC : Direct Digital Controller



## Expandable System Design

LG AHU system can be a suitable solution for various sites due to its application flexibility and wide range of line up with large capacity models. According to the required capacity, a single or multiple module combination is possible due to the AHU communication kit's modular design.

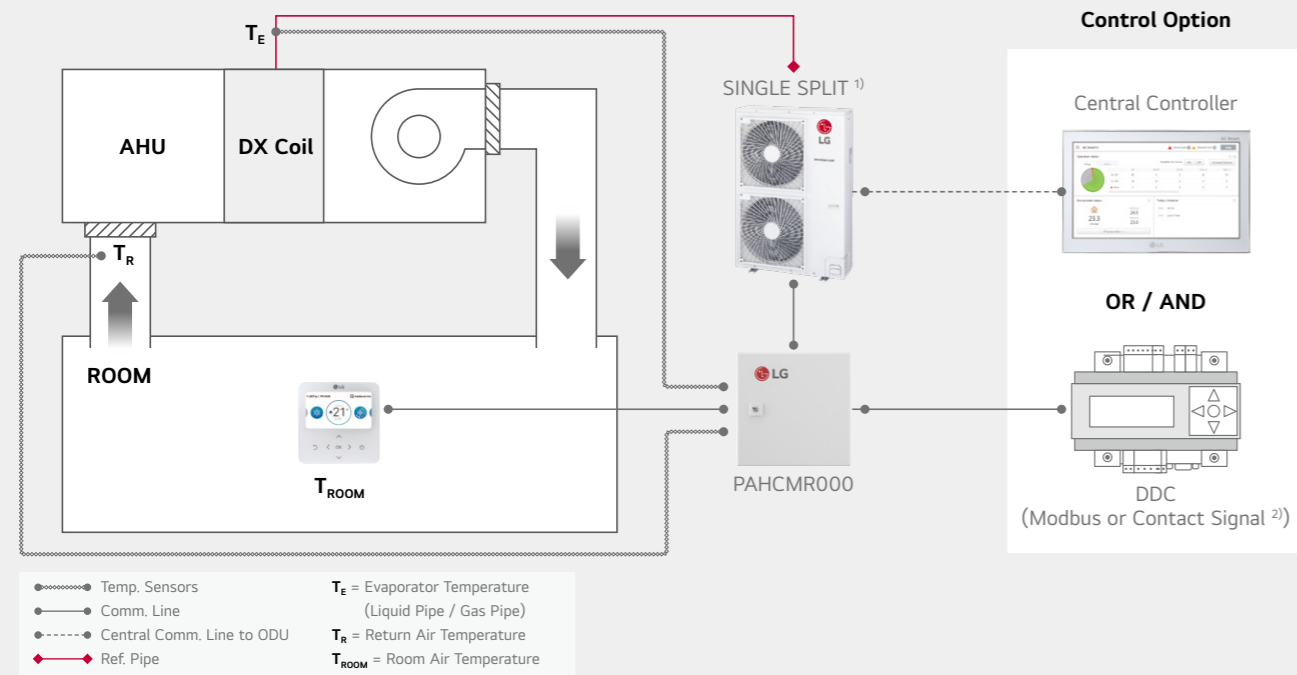
- Multiple module combination for large capacity AHU



# Communication Kit

## Single Split Application

Single Split + Return / Room Air Temperature Control

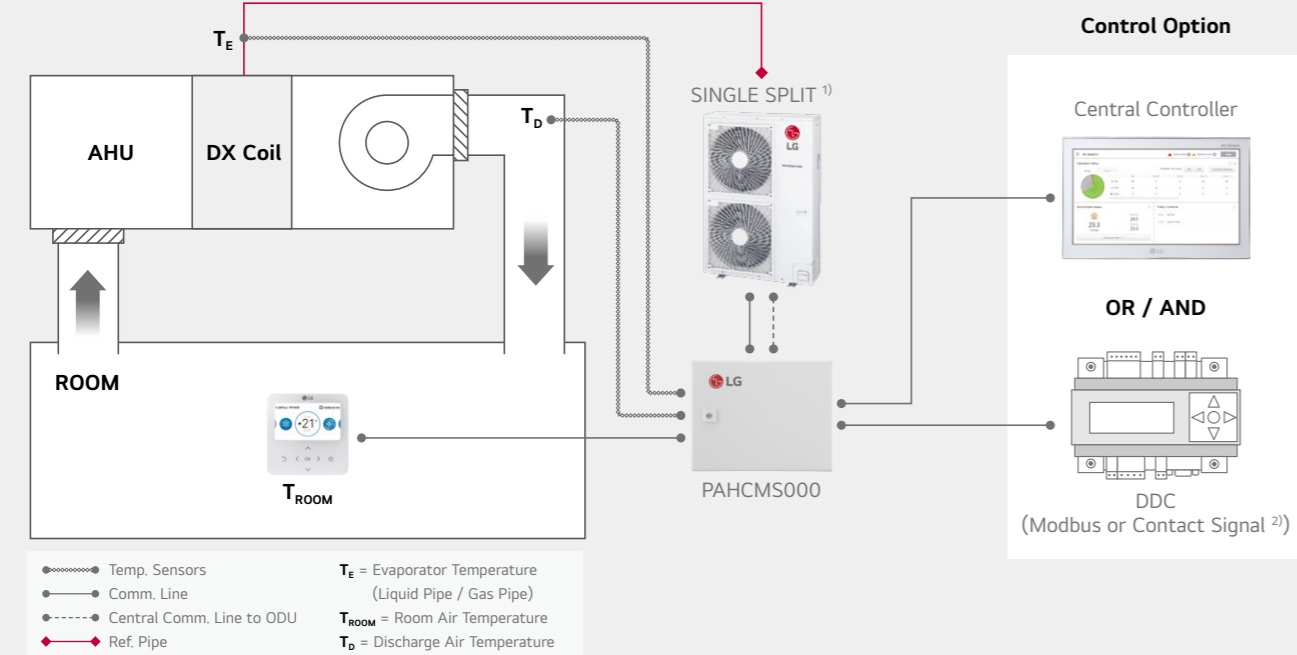


1) PI485 (PMNFP14A1) is required for central controller.

2) In case of applying DDC with contact signal, return air temperature should be measured and controlled by DDC.  
Note : For more detail, please refer to the PDB.

## Single Split Application

Single Split + Discharge Air Temperature Control

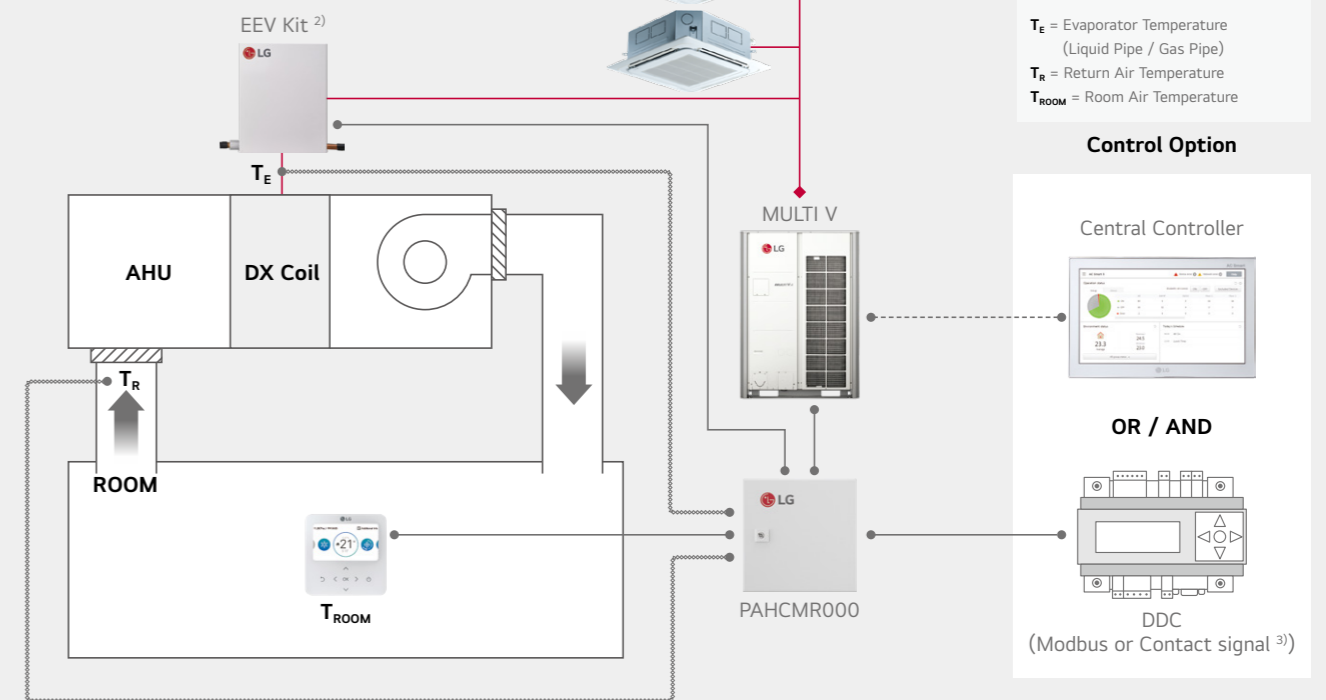


1) PI485 (PMNFP14A1) is required for central controller.

2) In case of applying DDC with contact signal, return air temperature should be measured and controlled by DDC.  
Note : For more detail, please refer to the PDB.

## MULTI V Application

MULTI V + EEV Kit + IDU<sup>1)</sup> +  
Return / Room Air Temperature Control



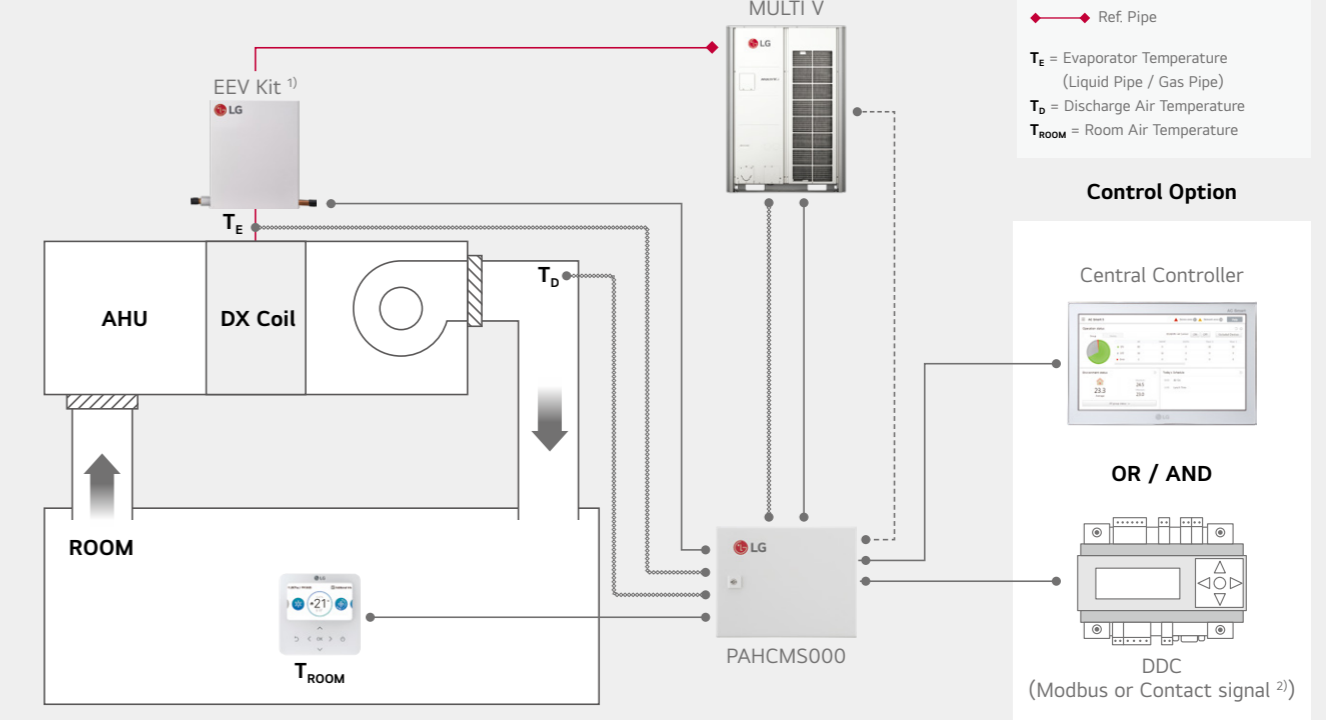
1) Indoor unit can be applicable with EEV kit PRLK048A0 / PRLK096A0 only - Please refer to PDB or Engineer prior.

2) Multiple EEV kits can be applicable with multiple DX Coils and PAHCMR000s.

3) In case of applying DDC with contact signal, return air temperature should be measured and controlled by DDC.  
Note : For more detail, please refer to the PDB.

## MULTI V Application

MULTI V + EEV Kit + Discharge Air Temperature Control



1) Multiple EEV kits can be applicable with multiple DX Coils and PAHCMS000s.

2) In case of applying DDC with contact signal, return air temperature should be measured and controlled by DDC.  
Note : For more detail, please refer to the PDB.

# Communication Kit Function

## Communication with DDC via Contact Signal

FUNCTION LIST	PAHCMR000	PAHCMS000	TYPE	NOTE
Operation On / Off	On / Off	On / Off	Digital Input (Non Voltage)	-
Operation Mode	Cooling / Heating	Cooling / Heating	Digital Input (Non Voltage)	Available operation mode can vary depending on the settings of Communication Kit
Return (Room) Air Temperature <sup>2)</sup>	16 ~ 30°C	-	Analog Input (DC 0 ~ 10 V / 20 mA)	-
Control <sup>1)</sup> Discharge Air Temperature <sup>2)</sup>	-	-	-	Discharge air temperature should be controller directly by DDC using ODU Capacity Control
Fan Speed <sup>3)</sup>	-	High / Middle / Low	Digital Input (Non Voltage)	-
Forced Thermal	On / Off	-	Digital Input (Non Voltage)	-
ODU Capacity	-	10 ~ 100%	Analog Input (DC 0 ~ 10 V / 20 mA)	-
Emergency Stop	-	Stop / Normal	Digital Input (Non Voltage)	-
Monitor Operation	On / Off	On / Off	Digital Output (Max. : DC 30 V / 1 A, AC 250 V / 1 A)	For PACHMR000, dip sw1-3 DO Type should be set 'Off' (Status), In this case, 'fan speed' cannot be monitored by DO ports
Monitor Operation Mode	-	-	-	It needs to be checked through control signal
Monitor Fan Speed	High / Middle / Low	High / Middle / Low	Digital Output (Max. : DC 30 V / 1 A, AC 250 V / 1 A)	For PACHMR000, dip sw1-3 DO Type should be set 'On' (Fan Mode) In this case, 'On / Off, defrost, error Status' cannot be monitored by DO ports
Monitor Defrost Operation	Defrost / Normal	Defrost / Normal	Digital Output (Max. : DC 30 V / 1 A, AC 250 V / 1 A)	For PACHMR000, dip sw1-3 DO type should be set 'OFF' (Status), In this case, 'fan speed' cannot be monitored by DO ports
Monitor Error Alarm	Error / Normal	Error / Normal	Digital Output, Relay C contact (Max. : DC 30 V / 1 A, AC 250 V / 1 A)	-
Monitor Compressor On / Off	-	On / Off	Digital Output, (Max. : DC 30 V / 1 A, AC 250 V / 1 A)	-

- 1) Control functions for LG individual and central controller are not available in case of using together with DDC via contact signal.  
 2) The range of temp. is differ depending on the type of the controller.  
 3) To control fan speeds, DO port of the fan speed status should be connected to the fan control panel.  
 Note : For more detail information, please refer to the product data book.

## Communication with DDC via Modbus protocol

FUNCTION LIST	PAHCMR000	PAHCMS000	NOTE
Operation On / Off	On / Off	On / Off	-
Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	-
Return (Room) Air Temperature	16 ~ 30°C	-	-
Control <sup>1)</sup> Discharge Air Temperature <sup>2)</sup>	-	○	Dip SW1-2 Discharge Temp. Control Type should be set 'On' Standard II : 16 ~ 30°C Standard III <sup>4)</sup> : 12 ~ 50°C
Fan Speed <sup>3)</sup>	High / Middle / Low	-	-
Forced Thermal On / Off	-	-	-
ODU Capacity Control <sup>2)</sup>	-	10 ~ 100%	Dip SW1-2 Discharge Temp. Control Type should be set 'On'
Emergency Stop	-	-	-
Monitor Operation	On / Off	On / Off	-
Monitor Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	-
Monitor Return (Room) Air Temperature	○	-	Corresponding air temperature sensor connected to AHU Comm.Kit is required
Monitor Discharge Air Temperature	-	○	-
Monitor Fan Speed	High / Middle / Low	High / Middle / Low	-
Monitor Defrost Operation	Defrost / Normal	Defrost / Normal	-
Monitor Error Alarm	Error / Normal, Error code	Error / Normal, Error code	-
Monitor Compressor On / Off	On / Off	On / Off	-









- ※ ○ : Applied, - : Not Applied  
 1) Control functions for LG individual and central controller are not available in case of using together with DDC via contact signal.  
 2) In case of PAHCMS000, control type between "Discharge Air Temperature" and "ODU Capacity Control" is selectable.  
 3) To control fan speeds, DO port of the fan speed status should be connected to the fan control panel.  
 4) Standard III wired remote controller after version 2.10.5a.  
 Note : For the Modbus memory map and more detail information, please refer to the product data book.

## With LG Control System (Individual & Central Controller)

FUNCTION LIST	PAHCMR000	PAHCMS000	NOTE
Operation On / Off	On / Off	On / Off	-
Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	Available operation mode can vary depending on the settings of Communication Kit
Control <sup>1)</sup> Return (Room) Air Temperature <sup>2)</sup>	16 ~ 30°C	-	-
Discharge Air Temperature <sup>2)</sup>	-	○	Standard II : 16 ~ 30°C Standard III <sup>4)</sup> : 12 ~ 50°C Central Controllers : 12 ~ 50°C
Fan Speed <sup>3)</sup>	High / Mid / Low	High / Mid / Low	To control the AHU fan, dip switch 1-3 'DO type' should be set 'On (Fan Speed)' (PAHCMR000)
Monitor Operation	On / Off	On / Off	-
Monitor Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	-
Monitor Return (Room) Air Temperature	○	-	-
Monitor Discharge Air Temperature	-	○	Standard II : 11 ~ 39.5°C Standard III <sup>4)</sup> : 0 ~ 100.0°C Central : -50.0 ~ 100.0°C
Monitor Fan Speed	High / Middle / Low	High / Middle / Low	-
Monitor Defrost Operation	On / Off	On / Off	Only with Individual Controller
Monitor Error Alarm	Error Code	Error Code	Error code will be displayed on the screen
Monitor Compressor On / Off	On / Off	On / Off	Only with Individual Controller

- ※ ○ : Applied, - : Not Applied  
 1) Control functions for LG individual and central controller are not available in case of using together with DDC via contact signal.  
 2) The range of setting temperature is different depending on the type of the controllers. And operation may different from setting range.  
 3) To control fan speeds, DO port of the fan speed status should be connected to the fan control panel.  
 4) Standard III wired remote controller after version 2.10.5a.  
 Note : For more detail information, please refer to the product data book.

## Compatibility with LG HVAC Controllers

CONTROLLER	INDIVIDUAL CONTROLLER			CENTRAL CONTROLLER				PDI
	PREMIUM	STANDARD III	STANDARD II	AC EZ TOUCH	AC SMART 5	ACP 5	AC MANAGER 5 <sup>1)</sup>	PREMIUM
								
Model no.	PREMTA000	PREMTB101 PREMTB111	PREMTB001	PACEZA000	PAC5SA000	PACP5A000	PACM5A000	PQNUD1S40
PAHCMR000	○	○	○	○	○	○	○	○
PAHCMS000	-	○	-	-	○	○	○	-

- ※ ○ : Applied, - : Not Applied  
 1) AC Manager 5 is an integrator, so the installation with AC Smart 5 or ACP 5 is required.  
 Note : 1. Dry contact for indoor unit (PDRYCB000 / 400 / 300 / 500) is not applied.  
 2. For more details, please refer to the product data book.

# Outdoor Unit Compatibility

## For Small Size Application (~ 15 kW) - Single Split

TYPE	MODEL	UU25 / UU35	UU50	UU70 / UU85	UU100 / UU125 UU140 / UU150
Communication Kit	PAHCMR000	-	○	○	○
	PAHCMS000	-	○	○	○
Control Kit	PAHCNM000	-	-	-	-

## For Medium-Large Size Application (~ 672 kW) - MULTI V

TYPE	MODEL	MULTI V					MULTI V WATER				
		i	S	IV	III	S	S	IV	II	S	
Communication Kit	PAHCMR000	○	○	○	○	○	○	○	○	○	○
	PAHCMS000	○	○	○	○	○	○	○	○	○	X
Control Kit	PAHCNM000	○	○	○	○	○	○	○	○	○	X

## EEV Kit Compatibility

EEV KIT MODEL	CAPACITY INDEX (kW)		AHU APPLICATION KITS (MAXIMUM CONNECTABLE EEV KITS)			CONNECTION BY ODU SYSTEM		
	MIN.	MAX.	PAHCMR000	PAHCMS000	PAHCNM000	MULTI V		SINGLE SPLIT
						HEAT PUMP	HEAT RECOVERY	
PRLK048A0	3.6	28	○ (1)	○ (1)	○ (6)	○	○	-
PRLK096A0	28.1	56	○ (1)	○ (1)	○ (6)	○	○ (Max. 33.7 kW)	-
PRLK396A0	56.1	112	○ (1)	○ (1)	○ (6)	○	-	-
PRLK594A0	112.1	168	-	○ (1)	○ (3)	○	-	-

※ ○ : Applied, - : Not applied

Note 1. Table of the outdoor unit compatibility is based on European regional model.

2. When connecting outdoor units in other areas, please check whether they are compatible or not.

3. Expansion application kit compatibility is based on capacity index of the system, it may changed according to system design condition.

# Control Kit

## Field Supplied Item

LIST	REQUIRED SPECIFICATION	APPLY LOCATION
Temperature / Humidity Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Temperature range : -40°C ~ 70°C - Humidity range : 0 ~ 95 % RH	Supply air duct, Return air duct, Outdoor air duct (optional)
Temperature Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Temperature range : -50°C ~ 50°C	Supply air duct, Return air duct, Outdoor air duct (optional)
Damper Actuator	- Power : AC 24 V - Input / output signal : DC 0 ~ 10 V - Torque : 15 N·m - Operation time : 150 s - Rotation Angle : 90°	Outdoor air damper, Exhaust air damper, Mixed damper
Filter Differential Pressure Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Range : 0 ~ 1,000 Pa - Switch type : Relay open / close	Filter
Static Pressure Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Range : 0 ~ 1,000 Pa	Supply air duct
CO <sub>2</sub> Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Range : 0 ~ 2,000 ppm	Return air duct
Smoke Detector	- Power : AC 24 V - Type : Contact	Return air duct

## Various Control with Control Kit – Multiple MULTI V + EEV Kits

Field Supplied Item (3<sup>rd</sup> party)

