2020 - 2021

LG BECON HVAC SOLUTION GUIDE

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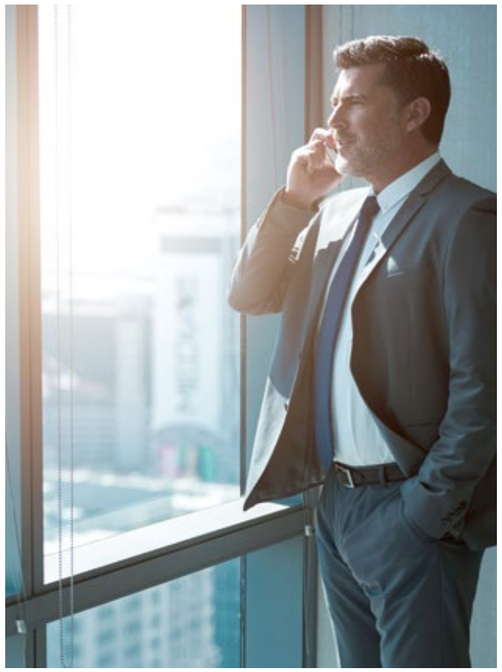
BENEFITS OF LG BECON HVAC SOLUTION

Benefits for Building Owners

Efficient Management & Cost Reduction
- Fault Detection Diagnosis enables easy maintenance
- Requires no extra manpower for regular maintenance
- With diverse control systems, maintenance cost is minimized

Reliability at Every Stage
- Ultimate Inverter Compressor developed and manufactured in Korea
- Corrosion resistant Ocean Black Fin for harsh conditions operation
- Smart Oil management (Auto Oil balancing and Active Oil return) decreases compressor damage

Customized Comfort and Solution
- Compatible option between Heat pump and Heat recovery system is possible



Benefits for Developers & Construction Companies

Green Solutions
- Optimized for LEED / BREEAM certification
- Renewable energy solution provided through geothermal application

Maximizing Space Utilization
- Large capacity in compact size enhances space utilization

Smart Building Solutions
- Seamless integration with current Building Management Systems
- Wi-Fi control available for anytime, anywhere access (via the 'LG ThinQ' mobile app)
- Energy management and control according to usage and planning is possible with LG's centralized control solution

Benefits for Consultants

Versatile Solutions
- Air-Cooled, Water-Cooled, Heating, and Air Handing Unit interlocking solutions

Professional Design Support
- LATS (LG Air conditioner Technical Solution) for draft energy estimation, model selection, HVAC design and 3D designing
- CFD Analysis to ensure suitable solutions and prevent malfunctions
- Energy simulation offered to find the optimal solution

Optimized Convenience with HVAC Design
- Flexible and longer piping length facilitates HVAC designing process
- Meets any type of customer requirements of diverse environment, design conditions, and building applications

Benefits for End-users

Minimizing your Operation Costs
- Excellent cost savings through energy saving solutions
  : Energy Management, Schedule Control, Time Limit, Group Control

Smart Management
- Intuitive control and monitoring provides a more comfortable environment with smart management functions.
- Air purify solution keeps providing clean air
  : Air Purify Control, Air Quality Level, Visual Navigation, Operation Trend, Comfort Level Display

Expandability
- Without additional device, AC Smart 5 / ACP 5 provides BACnet IP & Modbus TCP interface for BMS integration as well as its own management function
- Interlocking with 3rd party equipment

The perfect choice for innovative building management

LG BECON HVAC SOLUTION

Innovative building management solution in your hands.
Our optimized solutions provide integrated control for customers configuration of various equipment in building and intuitive interface to maximize efficiency of operations.

ENERGY SAVING

SMART MANAGEMENT

EASY EXPANDABILITY

SMART MANAGEMENT

Standard III
Remote Controller

Premium
Remote Controller

Wi-Fi Modem
(with LG ThinQ)

EASY EXPANDABILITY

Modbus Gateway

ACP LonWorks

Dry Contact

ACP 5

ACS IO Module

ACU IO Module

ENERGY SAVING

PDI

AC Smart 5

AC Manager 5

AC Ez Touch

KEY BENEFITS

ENERGY SAVING

Energy Saving

LG BECON HVAC SOLUTION prevents energy waste through energy reduction solutions optimized for a variety of business environments, providing excellent cost reduction.

- Energy Management (Usage Graph & Navigation)
- Capacity Control
- Time Limit
- Pre-Cooling and Heating

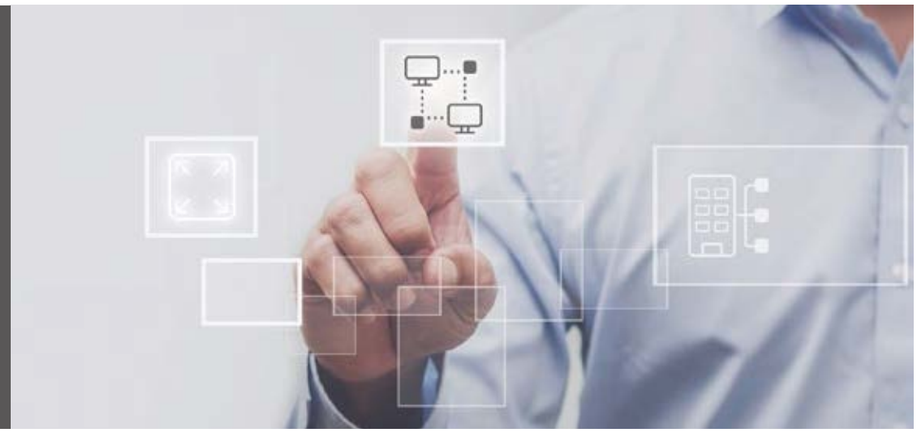
SMART MANAGEMENT

Smart Management

Comfort and convenience play a major factor in the effectiveness of an HVAC Control Solution. We provides smart management with control and monitoring, as well as a more pleasant environment through an air purify solution anytime anywhere.

- Air Purify Solution
- Environment Display (Temperature, Humidity, CO_2, Air Quality Level)
- User Friendly Interface
- Visual Navigation
- IPv6 Network (HTML5)
- Operation Trend View & Energy Report

EASY EXPANDABILITY



Easy Expandability

Integrated management of LG HVAC Control Solution links operations of LG Air conditioners with external systems for expanded coverage. The embedded BMS enables direct connection with other systems without any additional BMS gateways to enable communication. Units' operations (on / off, air flow adjustment, Etc) can be configured through triggers such as Air quality, humidity, CO_2, and room occupancy sensors. Also, 3rd Party Thermostat controllers are connectable with LG HVAC System.

- BMS Protocol Embedded
- Interlocking with 3rd Party Equipment

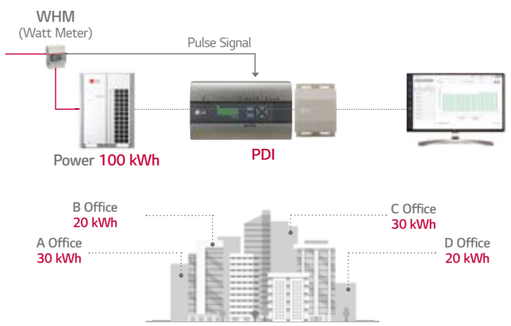
VARIOUS INTEGRATED SOLUTIONS

Retail

AC Ez Touch, PDI
Customized operation maintains the comfort of retail space

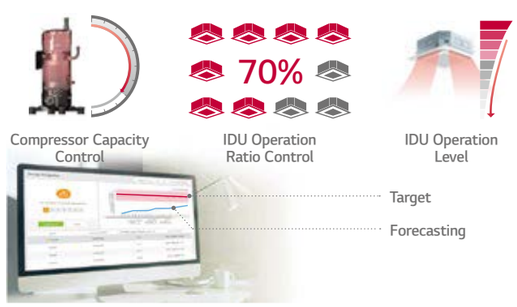
Power Consumption Distribution Solution

In case of shared power consumption in a building, a solution to distribute the power consumption amount per tenant might be necessary. Electricity charges can be billed to each tenant by using output from the LG Power Distribution Indicator (PDI). An administrator is able to check the power usage for each space and date as needed. If the PDI is used in conjunction with an LG central controller, the results can be exported to Excel.



Energy Management Solution

Since HVAC systems use a significant portion of any building's total amount of energy, the energy saving functions of a controller can make a big difference. The energy navigation function enables you to set target values for energy consumption over a certain period of time. In addition, to achieve that value, the administrator can set the energy saving logic in 7 steps and predict the expected usage relative to the target value. Active self-management enables energy savings through out the building.



Hospitality

Dry Contact
Meeting diverse needs

Refrigerant Leak Detection Solution

Real-time refrigerant leak detection ensures a safe environment.
When refrigerant concentration exceeds 6,000ppm for 5 seconds, the indoor unit will stop operation and alert users with a buzzer or light switch (Dry contact option).

Interlocking Solution Using Dry Contact

3rd party thermostats can be used to control LG Air conditioners in a room by using a multi point dry contact. The dry contact enables basic control of air conditioners as well as making it possible to report the status and any errors impacting the indoor unit. The Standard III remote control has a DO port. With this DO port, it is possible to interlock the indoor unit with 3rd party devices such as lighting, a fan, or a radiator, based on things like operation mode or current temperature. The indoor unit can be interlocked with various types of input such as card key-tag, door sensor, human detection sensor etc. so that the air conditioner is automatically operated. In addition, the dry contact option settings enable operation of air conditioner to maintain proper temperature when the occupant is absent. This solution makes sure that the room does not overheat or become too cold when unoccupied so that energy cost can be saved.

VARIOUS INTEGRATED SOLUTIONS

Residential

Standard III, Wi-Fi Modem
Creating a comfortable home

Easy Control

Wired remote controller is easy for usage.

Easy
- Navigation buttons, easy to use.
- Easy installation setting

Convenient
- Flexible display
  - Dual display with air conditioner.
  - Zoom selected directory to increase legibility.

Visible
- Indoor CO_2 level, Air Purify quality level, Humidity
- Alarm for filter change / Remained time to change filters

Energy Management

Users can check power consumption and running time report. (Weekly, Monthly, Yearly) Various energy managing settings such as energy target setting, alarm pop-up indication, time limit control and home leave operation are available for efficient management.

Air Purify Solution

Anywhere! Anytime! Control IDU with Wi-Fi Modem through LG ThinQ.

Air Quality Level Monitoring
- Easily Check Air Quality Status
  - PM10
  - PM2.5
  - PM1.0
  - Graph View of measurement history Day, Week, Month, Year

Air Purify Control
- Air Purify Set / Clear

Purification

Mobile Remote Control
- Using a Wi-Fi modem, control and monitor air purify from your LG ThinQ App.
  - Temp. / Mode / Fan / Air Flow and so on

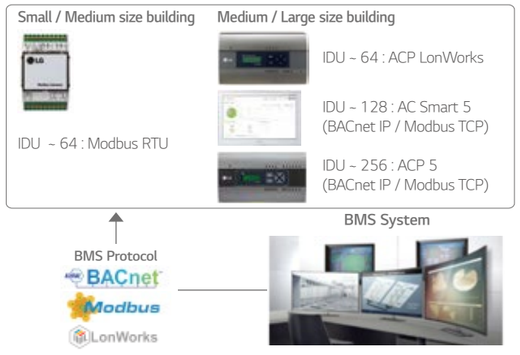
* Wi-Fi modem (PWFMDD200) is an accessory.

Office

AC Smart 5
Supporting efficiency with flexibility

Integration Solution with BMS

There are many BMS protocols used for the control of buildings' various systems such as HVAC, lighting, power and security. LG has a wide range of gateway products for different protocols such as BACnet, Modbus, and LonWorks.
In addition, LG gateways include Stand-alone central control capability to act as a back-up controller of the BMS if needed.



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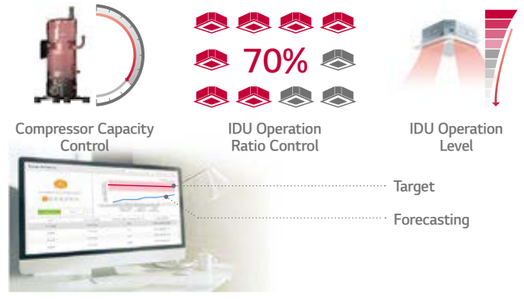


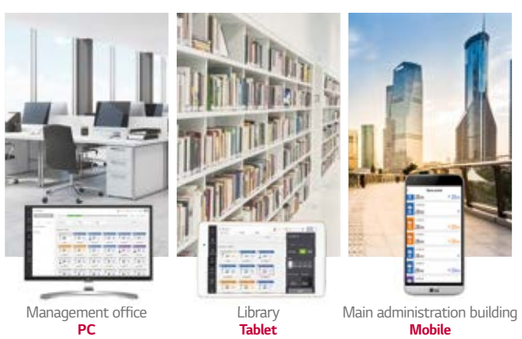
VARIOUS INTEGRATED SOLUTIONS

Education

AC Manager 5
Large capacity in compact size enhances space utilization

Total Control of Any Device

In order to manage multiple spaces and multiple buildings, the administrators should be able to control systems from wherever they are. The LG central controller can be controlled from any web browser that supports HTML5. Now through the implementation of HTML5, the interface will look great and perform well on any device.



Air Purify Total Solution

Total management of air purify creates clean school environment for everyday. Using LG central controller, you can check the air condition of multiple zones at once and improve the overall air quality through simple control.

Air Quality Level Monitoring
System Air Conditioner

Commercial Air Purifier

Air Purify Control

- Easy setting of Air Purify function (Set / Clear)

View Air Quality Trends

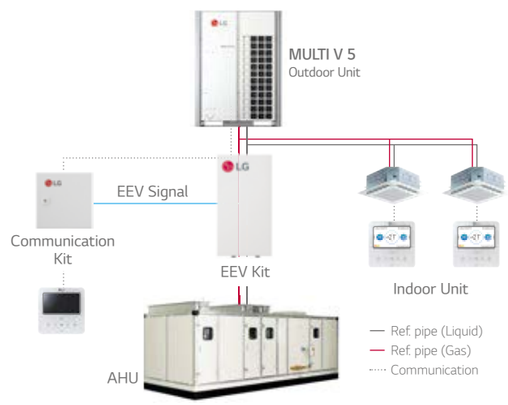
- Daily (per hour), Period (30 days) shows trends
- Excel output / easy to manage

Public Facility

AHU Comm.Kit
Suitable for large public facilities through group control

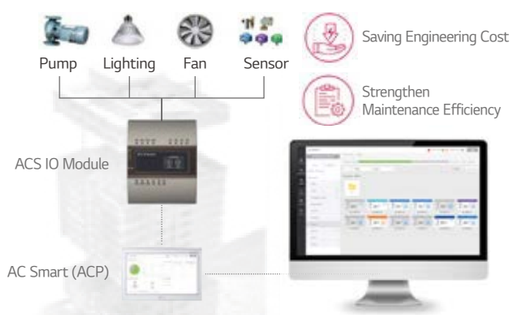
Air Handling Unit (AHU) Solution

AHU is a suitable solution for cooling and heating in large space. With an LG AHU Comm.Kit (for both return air / supply air control) connected to the DX coil of the AHU, LG VRF system can be applied to deliver conditioned air.



Interlocking Solution by Using ACS IO Module

It is costly to introduce a BMS system to control multiple devices or systems in a small building. With the ACS / ACU IO Module, various IO contact points (DI, DO, UI, AO) can be interlocked and integrated, while control is possible from the LG central controller. This enables an efficient management of lighting, pumps and other devices in the building in conjunction with the HVAC system.



LG BECON HVAC SOLUTION
LINE UP

Individual Control

Wired Remote Controller

Standard

Standard III (White)

PREMTB100

Standard III (Black)

PREMTBB10

Standard II (White)

PREMTB001

Standard II (Black)

PREMTBB01

Premium

PREMTA000
PREMTA000A
PREMTA000B

Simple

PQRCVCL0QW

PQRCVCL0Q

PQRCHCA0QW
(Simple for Hotel)

PQRCHCA0Q
(Simple for Hotel)

Wireless Remote Controller

PWLSSB21H (Heat Pump)
PWLSSB21C (Cooling Only)

Wi-Fi Modem

For Indoor Unit
PWFMDD200

Centralized Control

Display

AC Ez

PQCSZ250S0
(Indoor Unit ~ 32)

AC Ez Touch

PACEZA000
(Indoor Unit ~ 64)

AC Smart 5

PACS5A000
(Indoor Unit ~ 128)
BACnet IP / Modbus TCP

Platform

ACP 5

PACP5A000
(Indoor Unit ~ 256)
BACnet IP / Modbus TCP

AC Manager 5

PACM5A000
(Indoor Unit ~ 8,192)

Gateway

ACP LonWorks

PLNWKB000
(Indoor Unit ~ 64)

Modbus RTU gateway

PMBUSB00A

PI485

For Indoor Unit (ERV)
PHNFP14A0

For Outdoor Unit
(SINGLE / MULTI / THERMA V)
PMNFP14A1

Centralized Control

Facility Integrator

PDI
(Power Distribution Indicator)

Premium (8 ports) PQNUD1S40
Standard (2 ports) PPWRDB000

ACS IO Module
(Input / Output Module)

PEXPMB000

Chiller Option Kit

PCHLLN000

ACU IO Module
UIO

PEXPMB300

UO

PEXPMB200

UI

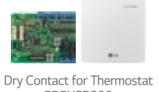
PEXPMB100

Integration Device

Indoor Unit

Dry Contact

Simple Dry Contact
PDRYCB000



Dry Contact for Thermostat
PDRYCB300

Dry Contact for Thermostat
(For using universal input)
PDRYCB320

2 Points Dry Contact (For Setback)
PDRYCB400

For Modbus
PDRYCB500

Control Accessory

Group Control Wire

PZCWRCG3

Remote Temperature Sensor

PQRSTA0

Zone Controller

4 Zones by thermostat
ABZCA

Outdoor Unit

IO Module
(Input / Output Module)

For MULTI V IV, 5
PVDSMN000

Variable Water Flow Control Kit

For MULTI V WATER IV
PWFCKN000

Low Ambient Kit

For MULTI V IV, 5
PRVC2

Cool / Heat Selector

PRDSBM

AHU Kit

Communication Kit

Return / Room Air Control
PAHCMR000

Discharge / Supply Air Control
PAHCMS000

Controller Module

Main Module
PAHCMM000

Communication Module
PAHCMC000

Control Kit

PAHCNM000
(Max. 3 Outdoor Units)

Water Communication Module

PAHCMW000

EEV Kit
(Electronic Expansion Valve)

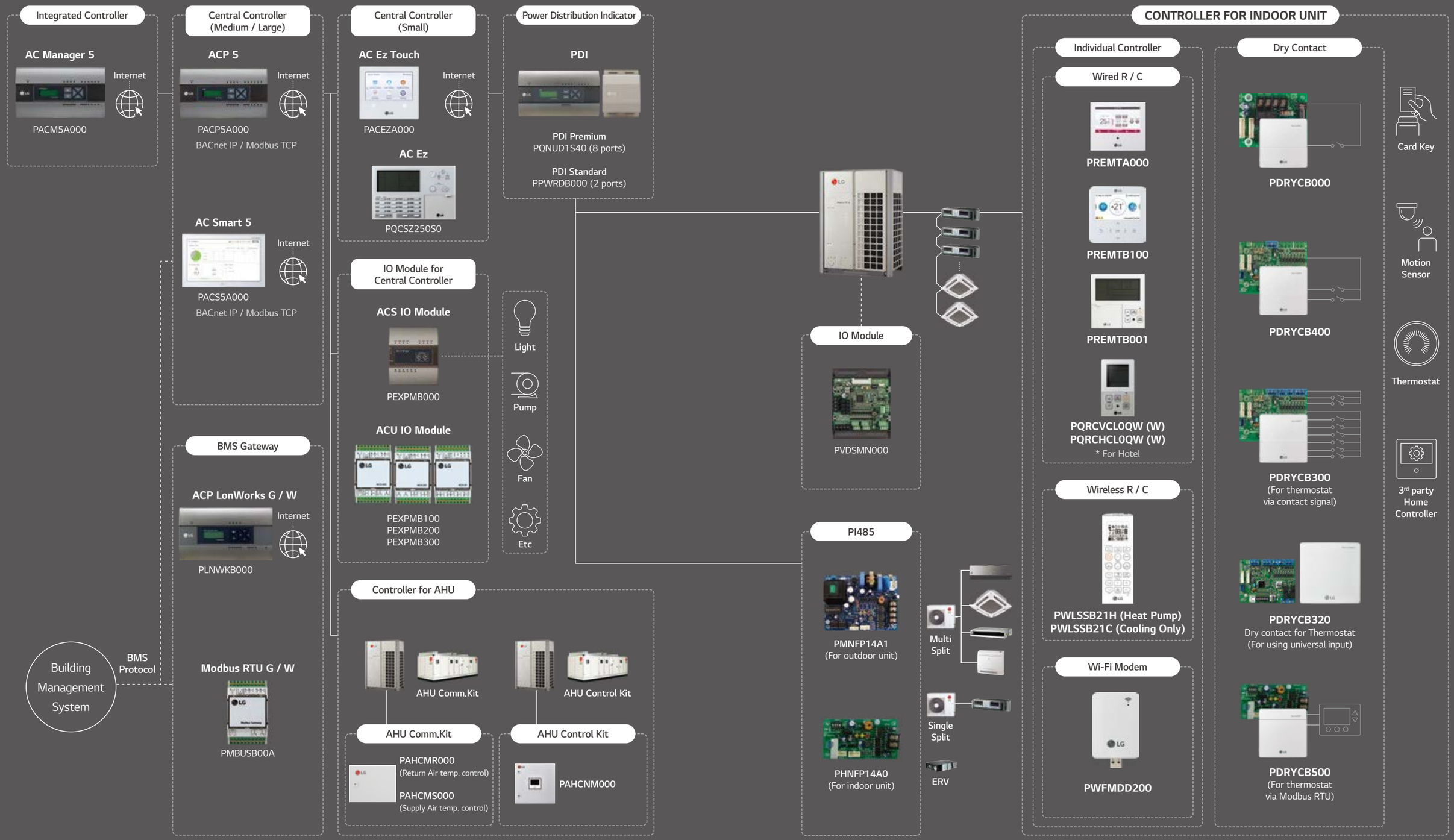
PRLK048A0 (~ 28 kW)
PRLK096A0 (~ 56 kW)

PRLK396A0
(~ 112 kW)

PRLK594A0
(~ 168kW)

CONTROL SYSTEM ARCHITECTURE

LG BECON HVAC SOLUTION offers a diverse range of effective control solutions that satisfy specific needs of each building and its user scene. These control systems are equipped with user-friendly interface, flexible interlocking environment, energy management and smart individual controller for optimized controlling conditions and smart building management



CONTENTS

LG BECON HVAC SOLUTION

INDIVIDUAL CONTROL

FEATURE FUNCTIONS

Controller Name		Wired Remote Controller					Wireless Remote Controller	Wi-Fi Modem
		Premium	Standard III	Standard II	Simple	Simple (Hotel)		
Model Name								
		PREMTA000 PREMTA000A PREMTA000B	PREMTB100 PREMTBB10	PREMTB001 PREMTBB01	PQRCVCL0QW PQRCVCL0Q	PQRCHCA0QW PQRCHCA0Q	PWLSSB21H (H / P) PWLSSB21C (C / O)	PWFMDD200
Basic	On / Off	○	○	○	○	○	○	○
	Fan Speed Control	○	○	○	○	○	○	○
	Temperature Setting	○	○	○	○	○	○	○
	Mode	○	○	○	○	-	○	○
	Auto Swing	○	○	○	○	○	○	
	Vane Control (Louver Angle)	○	○	○	○	○	○	○
	E.S.P (External Static Pressure)	○	○	○	○	○	-	-
	Electric Failure Compensation	○	○	○	○	○	-	○
	Indoor Temperature Display	○	○	○	○	○	○	
	All Button Lock (Child Lock)	○	○	○	○	○	-	-
	Schedule / Timer	Weekly - Yearly	Weekly - Yearly	Weekly	-	-	Sleep / On / Off	Weekly
	Wi-Fi AP Mode Setting	○	○	○	○	○	○	-
Advanced	Additional Mode Setting [1]	○	○	○	-	-	-	-
	Time Display	○	○	○	-	-	○	-
	Humidity Display	○	○	-	-	-	-	-
	Advanced Lock (Mode, Set point, Set point range, On / Off Lock)	Advanced Lock	Advanced Lock	-	-	-	-	-
	Filter Sign	○	○	○	-	-	-	-
	Energy Management [2]	○	○	○	-	-	-	-
	Dual Set Point	○	○	-	-	-	-	-
	Human Detection	-	○	-	-	-	-	-
	Temp, Humidity Compensation	○	○	-	-	-	-	-
	Air Purify Control	-	○	-	-	-	○	○
	Air Quality Level	-	○	-	-	-	-	○
	Dual Vane (6 Airflows mode)	-	○	-	-	-	○	○
ETC	Operation Status LED	○	○	○	○	○	-	-
	Wireless Remote Controller Receiver	○ [3]	-	○ [3]	○ [3]	○ [3]	-	-
	Display	5 inch Color	4.3 inch Color	4.3 inch mono	2.6 inch mono	2.6 inch mono	2 inch mono	-
	Size (W x H x D, mm)	137 x 121 x 16.5	120 x 120 x 16	120 x 120 x 16	64 x 120 x 15	64 x 120 x 15	51 x 153 x 26	-
	Black Light Control for Screen Saver	○	○	-	-	-	-	-

※ ○ : Applied, - : Not Applied
1) It might not be indicated or operated at the partial product.
2) Centralized control (PACEZA000 / PACS5A000 / PACP5A000 / PLNWKB000) and PDI (PQNUD1S40 / PPWRDB000) should be installed for this function.
3) For ceiling type duct
Note : 1. Indoor unit should have functions requested by the controller.
2. If you need more detail, please refer to the manual of product. (http://partner.lge.com : Home > Doc.Library > Manual)

STANDARD III
WIRED REMOTE CONTROLLER

4.3” COLORED SCREEN
WITH MODERN DESIGN

STANDARD III
WIRED REMOTE CONTROLLER

PREMTB100 (White), PREMTBB10 (Black)

Size (W x H x D, mm) : 120 x 120 x 16

NEW
MODERN DESIGN

CONVENIENCE

SCHEDULE

COMFORT
& RELIABILITY
(Air Purify)

ENERGY
MANAGEMENT

INTERLOCKING

Design
- 4.3 inch color LCD / Intuitive GUI
- Seamless design / Touch button
- Humidity sensor embedded

Comfort & Air Purification
- CO_2 level monitoring (For ERV)
- Air quality level monitoring
- Air purify control

Energy Contents
- Power consumption monitoring
- Operation time monitoring
- Temperature setback
- Time limit control

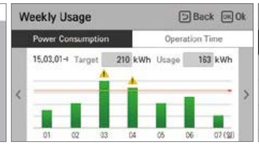
Advanced Functions
- Comfort cooling setting
- Smart Load Control setting
- Outdoor unit low noise setting
- Defrost noise setting
- ODU capacity control
- Schedule functions

• PROVIDES OPTIMIZED CONTROL PERFORMANCE IN
ANY BUSINESS ENVIRONMENT EXCELLENT USABILITY
WITH MODERN DESIGN & EASY INTERFACE

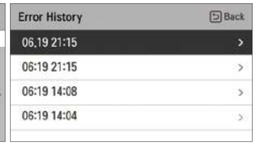
STANDARD III
WIRED REMOTE CONTROLLER

Cool Heat Dry Fan Auto

Comfort Level



Energy Contents



Error History

PREMTB100 (White) / PREMTBB10 (Black)

4.3 inch colored screen with modern design.

Model Name	PREMTB100 / PREMTBB10
On / Off	○
Fan Speed Control	○
Temperature Setting	○
Mode	Cool / Heat / Dry / Fan / Auto
Additional Mode Setting [1]	Energy-Saving Cooling / Robot Cleaning / Heater / Humidification / Comfort Cooling
Auto Swing	○
Vane Control (Louver direction)	○
E.S.P (External Static Pressure) [2]	○
Reservation	Simple / Sleep / On & Off timer / Weekly / Yearly / Holiday
Time Display	○
Electric Failure Compensation	○
Lock	All / On & Off / Mode / Set temperature range
Filter Sign	○ (Remain time + Alarm)
Energy Management	Check Energy Usage [3] / Check Operation Time / Target Setting (Energy, Operation Time) / Time Limit Operation / Alarm Popup / Initialization Usage Data
Operation Status LED	○
Air Purify Control [4]	○
Air Quality Level [4]	○
Indoor Temperature Display	○
Indoor Humidity Display	○
Human Detection	○
Display	4.3 inch TFT color LCD (480 x 272)
Size (W x H x D, mm)	120 x 120 x 16
Black Light for Screen Saver	○
Home Leave	2 set points control

※ ○ : Applied, - : Not Applied
1) The function is available in some product. (Refer to the product data Book).
2) This function is available for duct type.
3) This function requires PDI (PQNUD1S40 / PPWRDB000) to be installed.
4) This function is available for indoor units that provide corresponding function.
Note : 1. Indoor unit needs to have functions requested by the controller.
2. 2 set points control works normally with MULTI V Heat Recovery and Single Split Heat Pump. But in case of MULTI V Heat Pump, It may not work properly.

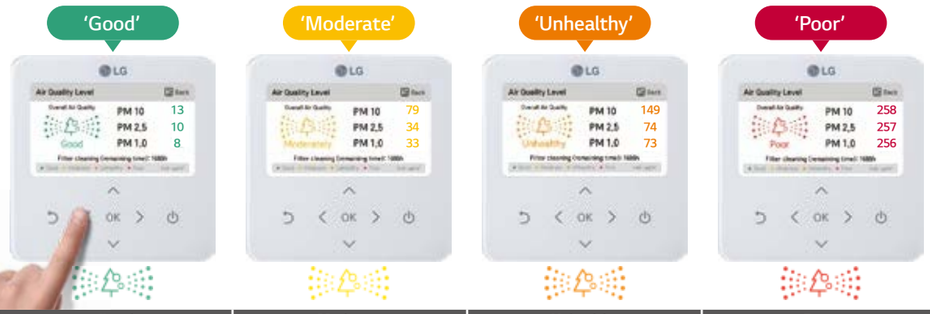
STANDARD III
WIRED REMOTE CONTROLLER

Features & Benefits

Air Quality Level Display

Easy check for indoor air quality

· PM10 / PM2.5 / PM1.0 · Status / Monitoring



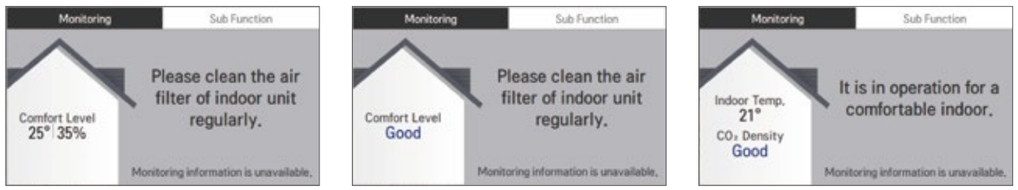
Classification	Good	Moderate	Unhealthy	Poor
* PM10 (㎍ / m³)	0 ~ 54	55 ~ 154	155 ~ 254	255 ~
* PM2.5 (㎍ / m³)	0 ~ 12	13 ~ 35	36 ~ 55	56 ~
* PM1.0 (㎍ / m³)	0 ~ 12	13 ~ 35	36 ~ 55	56 ~

Note : Display color may change depending on the region / country.
This function is available for indoor units that provide corresponding function.
* PM (Particulate matter)
- PM10 : Coarse Particulate matter / PM2.5 : Fine Particulate matter / PM1.0 : Ultra Fine Particulate matter
- PM designated as a carcinogen as like an asbestos, widely known as carcinogen.
If the dust diameter is under 10 micrometers, it is PM10. And under 2.5 micrometers, it's PM2.5.

Environment Display

Displaying environment information for the more user comfort

Temperature / Humidity / Comfort level / CO_2 concentration



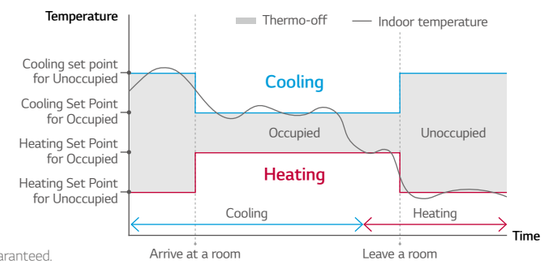
Dual Set Point

Auto changeover for convenience

- Indoor unit will keep the indoor temperature within the range of dual set point by automatically switch the unit operation.

Setback for energy savings and comfort

- In the user's absence, the room temperature will remain between two set points rather than switching off providing quick comfort when the mode is changed to occupied.



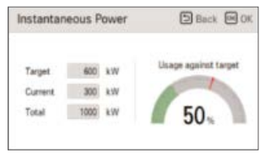
※ This function is for Heat Recovery system or Single heat pump. Otherwise it is not guaranteed.

Energy Savings

Energy Management

- Energy Monitoring & Alarm
Real-time and day / week / month / year energy usage monitoring is possible. In addition, it can set target for energy usage and operation time, and alarm will be displayed when exceeded.

※ PDI (PQNUD1S40 / PPWRDB000) is required.



Instantaneous Power Check

Energy Usage Target Setting

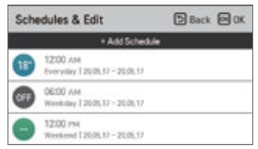
Time Limit Control

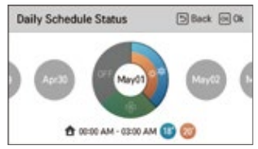
- Monitoring the unit's continuous running time.
And prevent the wasting energy by turning the unit off automatically.

Schedule Function

Simple Schedule Status

Standard III remote controller provides clock type daily schedule.





Exception Day Settings

Possible to set up exceptional date on regular schedule.

External Device On / Off

External Equipment Control

User can control the external equipment through additional contact signal output.

Customized Interlocking Control

User can create a automatic control pattern.
For example controlling the external heater switches on when temperature drops below or rises above a certain temperature.

PREMIUM
WIRED REMOTE CONTROLLER

Full Touch Screen

PREMTA000 [1] / PREMTA000A [2] / PREMTA000B [3]

5 inch full touch screen with a premium design.

* Supported languages list
1) English / Portuguese / Spanish / French
2) English / Italian / Russian / Chinese
3) English / German / Polish / Czech

Model Name	PREMTA000 / PREMTA000A / PREMTA000B
On / Off	○
Fan Speed Control	○
Temperature Setting	○
Mode	Cool / Heat / Dry / Fan / Auto
Additional Mode Setting [1]	Energy-Saving Cooling / Robot Cleaning / Heater / Humidification
Auto Swing	○
Vane Control (Louver direction)	○
E.S.P (External Static Pressure) [2]	○
Reservation	Simple / Sleep / On / Off / Weekly / Yearly / Holiday
Time Display	○
Electric Failure Compensation	○
Child Lock	○
Filter Sign	○ (Remain time + Alarm)
Energy Management	Check Energy Usage [3] / Check Operation Time / Target Setting (Energy, Operation Time) / Time Limit Operation / Alarm Popup / Initialization Usage Data
Operation Status LED	○
Indoor Temperature Display	○
Wireless Remote Controller Receiver	○ [4]
Display	5 Inch TFT color LCD (480 x 272)
Size (W x H x D, mm)	137 x 121 x 16.5
Black Light for Screen Saver	○
Home Leave	2 Set Points Control

※ ○ : Applied, - : Not Applied
1) It might not be indicated or operated at the partial product.
2) This function is available for duct type.
3) This function requires PDI (PQNUD1S40 / PPWRDB000) to be installed.
4) For ceiling type ducted unit
Note : 1. Indoor unit needs to have functions requested by the controller
2. 2 set points control works normally with MULT V Heat Recovery and Single Split Heat Pump. But in case of MULTI V Heat Pump, It may not work properly

Features & Benefits

Easy Energy Management

- Check the operation hour or electricity usage
- Comparison of usage compared to last year
- Set the target usage and time

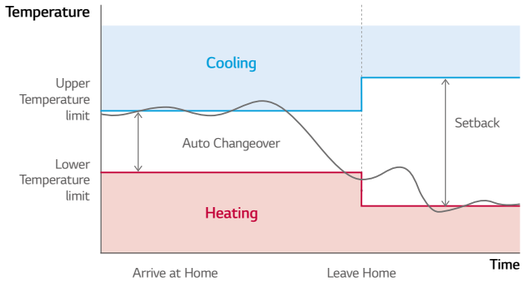
Easy Scheduling

- Daily, Weekly, Yearly schedule function
- Schedule pattern setting
- Schedule copy

Dual Set Point

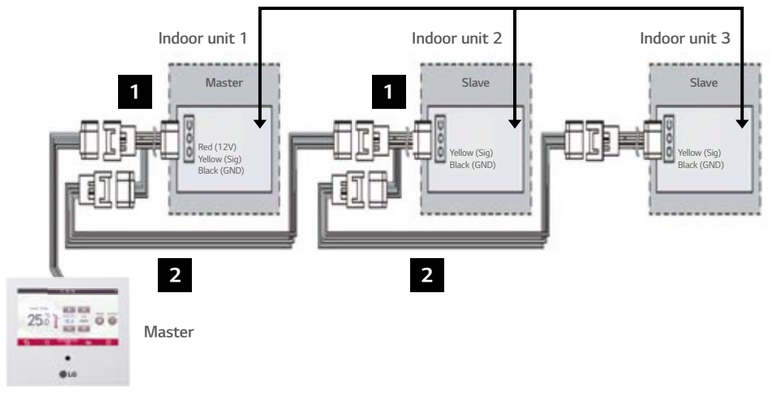
- Auto changeover switching the operation mode automatically
- Setback (Leave Home) Changing status by occupied / unoccupied

* This function is only for Heat Recovery system and Single heat pump.



Group Control

- Max. 16 Indoor units by one remote controller



STANDARD II WIRED REMOTE CONTROLLER

PREMTB001 (White) / PREMTBB01 (Black)

Providing easy control of one or a group of indoor units with various functions.

Features & Benefits

• Wired remote controller that can implement various functions such as scheduling or filter alert.

Model Name	PREMTB001 / PREMTBB01
On / Off	○
Fan Speed Control	○
Temperature Setting	○
Mode	Cool / Heat / Dry / Fan / Auto
Additional Mode Setting	Energy-Saving Cooling / Robot Cleaning / Heater / Humidification
Auto Swing	○
Vane Control (Louver direction)	○
E.S.P (External Static Pressure)	○
Reservation	Simple / Sleep / On / Off / Weekly / Holiday
Time Display	○
Electric Failure Compensation	○
Child Lock	○
Filter Sign	○ (Remain time + Alarm)
Operation Status LED	○
Indoor Temperature Display	○
Wireless Remote Controller Receiver	○ 1)
Size (W x H x D, mm)	120 x 120 x 16
Black Light	○
Power Consumption Monitoring	○ 2)
Check Model Information	○

※ ○ : Applied, - : Not Applied
1) For ceiling type ducted unit
2) This function requires PDI (PQNUD1S40 / PPWRDB000) to be installed.
Note : Indoor unit needs to have functions requested by the controller.

SIMPLE WIRED REMOTE CONTROLLER

PQRCVCL0QW (White) / PQRCVCL0Q (Black)
PQRCHCA0QW (White) / PQRCHCA0Q (Black)

A simple way to control office or hotel systems in a compact design.

Features & Benefits

• Small remote control with minimal functionality.

Model Name	PQRCVCL0QW / PQRCVCL0Q	PQRCHCA0QW / PQRCHCA0Q
On / Off	○	○
Fan Speed Control	○	○
Temperature Setting	○	○
Mode	Cool / Heat / Dry / Fan / Auto	-
Auto Swing	○	○
Vane Control (Louver direction)	○	○
E.S.P (External Static Pressure)	○	○
Electric Failure Compensation	○	○
Child Lock	○	○
Indoor Temperature Display	○	○
Wireless Remote Controller Receiver	○ 1)	○ 1)
Size (W x H x D, mm)	70 x 121 x 16	70 x 121 x 16
Black Light	○	○

※ ○ : Applied, - : Not Applied
1) For ceiling type ducted unit
Note : Indoor unit needs to have functions requested by the controller.

WIRELESS REMOTE CONTROLLER

PWLSSB21H (Heat Pump), PWLSSB21C (Cooling Only)

Handy and portable wireless type

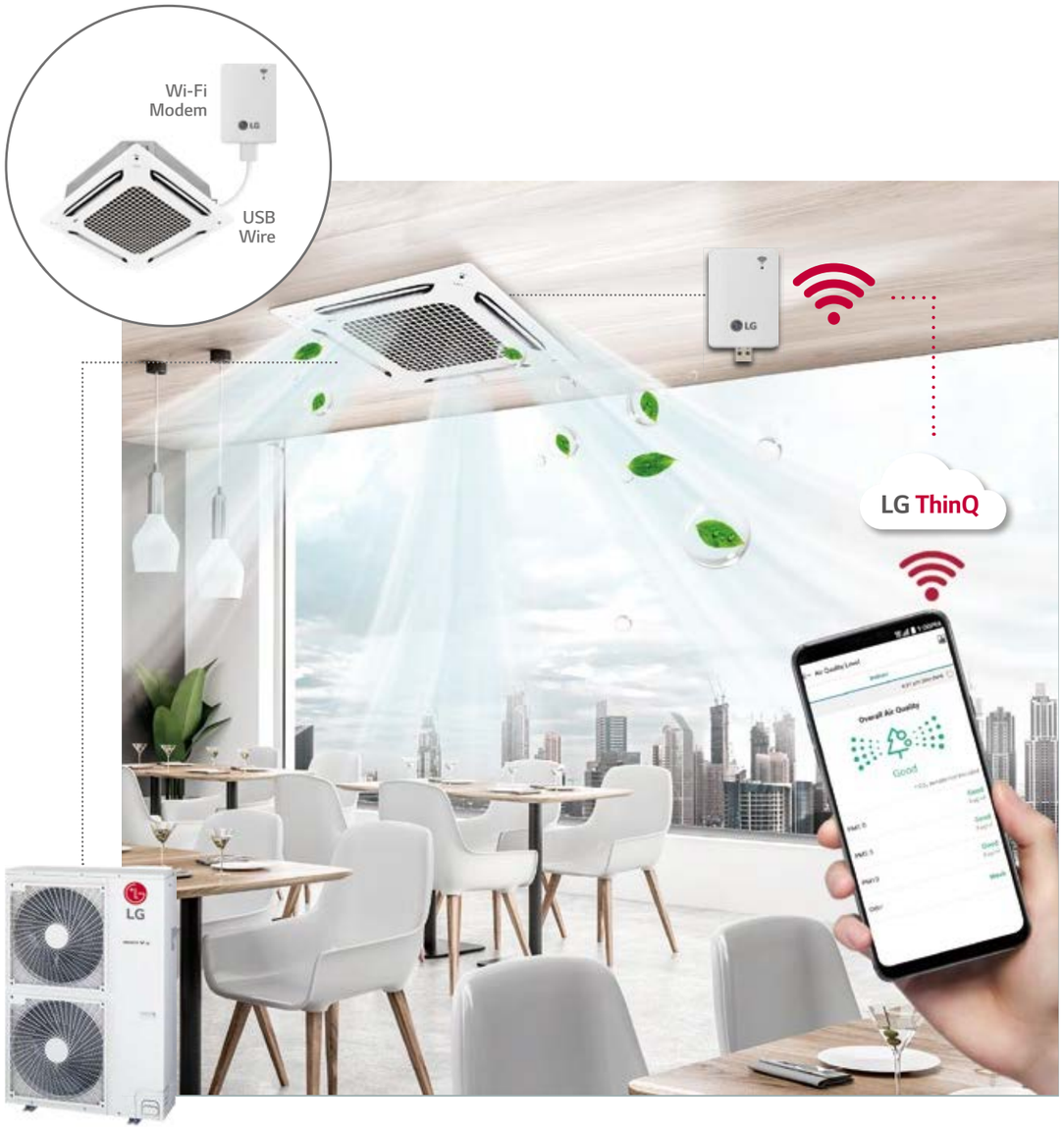
Features & Benefits

• Easy to use while moving.
• Main functions are available.

Model Name	PWLSSB21H (H / P), PWLSSB21C (C / O)
On / Off	○
Fan Speed Control	○ 1)
Temperature Setting	○
Mode	Cool / Heat / Dry / Fan / Auto
Additional Mode Setting	Plasma Purification / Energy-Saving Cooling / Robot Cleaning / Auto Dry
Auto Swing	○
Vane Control (Louver direction)	○
Reservation	Sleep / On / Off
Time Display	○
Indoor Temperature Display	○
Sleep Mode Auto	Max. 7 hours
Size (W x H x D, mm)	51.4 x 153 x 26

※ ○ : Applied, - : Not Applied
1) For some products, you can use "slow" fan speed function.

WI-FI MODEM



※ Search "LG ThinQ" on Google play or Appstore then download the app.
※ Internet service with Wi-Fi connection has to be available.

PWFMDD200

Control conditioners by using internet devices as Android or iOS smartphones.

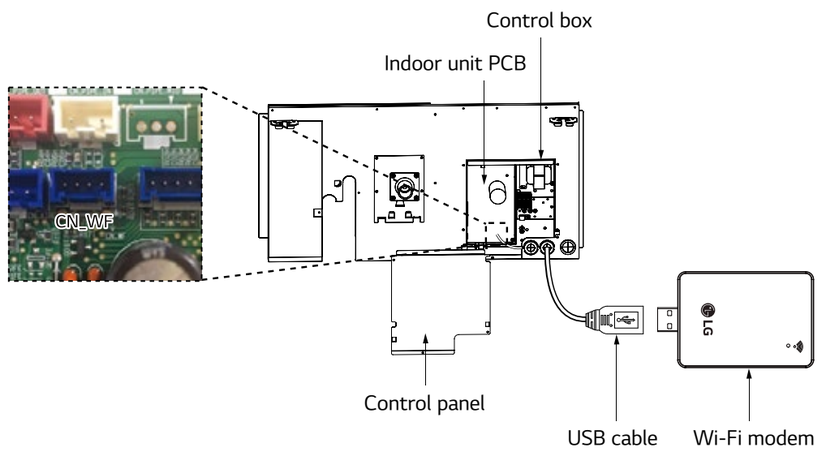
Features & Benefits

- User can enjoy anytime, anywhere access with Wi-Fi equipped device through LG's ThinQ mobile app.
- This allows the user to access the unit remotely to switch unit on or off before or after leaving the vicinity.
- LG's exclusive Home Appliances control app (LG ThinQ) is available.
- Simple operation for various functions.
  - On / Off
  - Operation Mode
  - Current / Set Temperature
  - Fan Speed
  - Vane Control [1)]
  - Reservation (Sleep, Weekly On / Off)
  - Energy Monitoring [2)]
  - Filter Management
  - Error Check
  - Air Purify [3)]

Model Name	PWFMDD200
Size (W x H x D, mm)	48 x 68 x 14
Interfaceable Products	System Air Conditioner [3)]
Connection Type	Indoor unit 1:1
Communication Frequency	2.4 GHz
Wireless Standards	IEEE 802.11b / g / n
Mobile Application	LG ThinQ (Android v4.1(Jellybean) or higher, iPhone iOS 9.0 or higher)
Optional Extension Cable	PWYREW000 (10m extension)

Note : 1. Functionality may be different according to each IDU model.
2. User interface of application shall be revised for its design and contents improvement.
3. Application is optimized for smartphone use, so it may not be well functioning with tablet devices.
1) Vane Control may not be possible according to the type of Indoor unit.
2) LG Centralized controller and PDI installation is required for this function.
3) For the compatibility with Indoor unit, please contact regional LG office.

Installation Scene



※ The Wi-Fi communication distance and reliability may be vary due to the type of Wi-Fi router and the installation environment, Please refer to the manual.

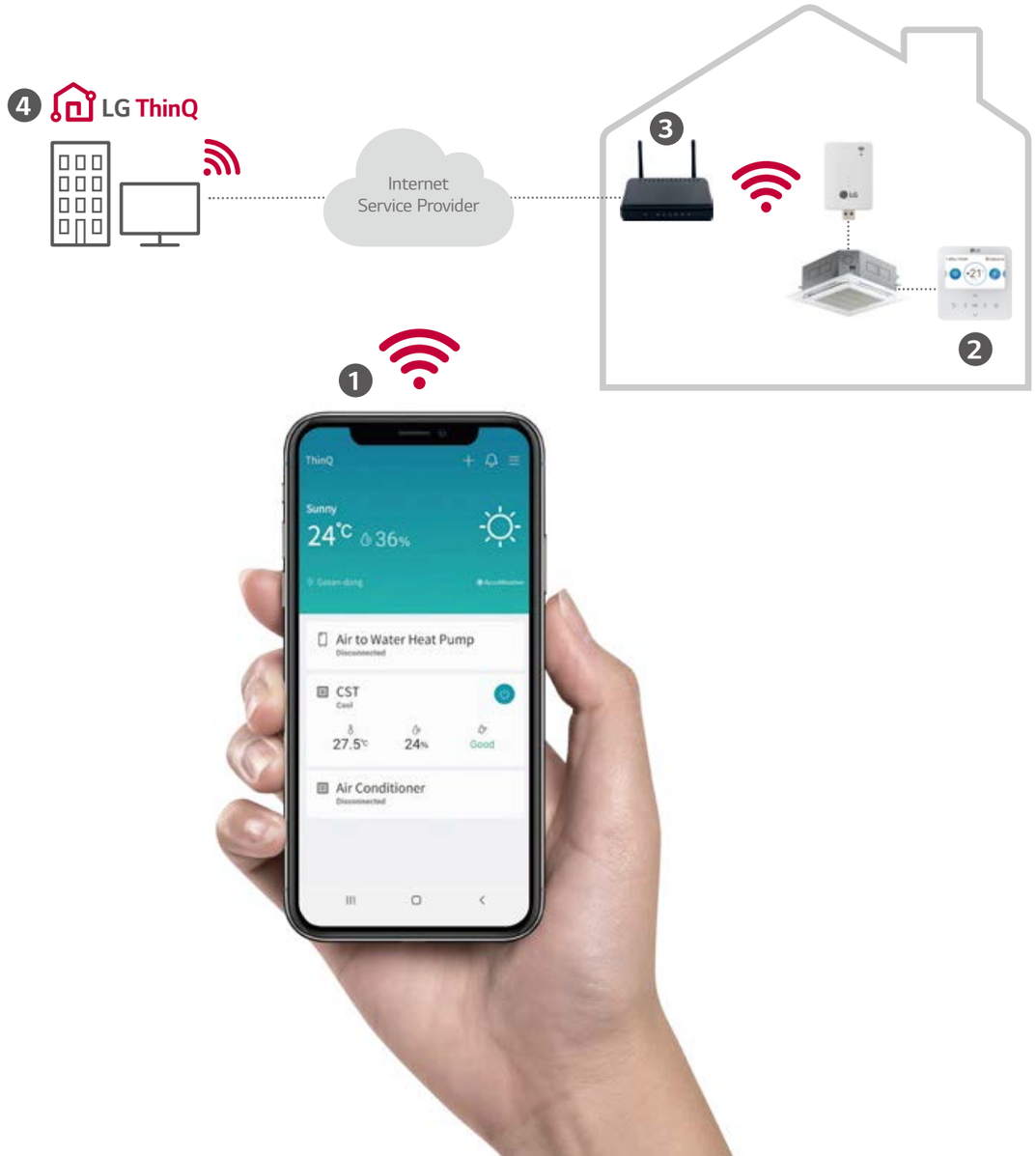
WI-FI MODEM

LG ThinQ Connectivity

Connection (Pairing) Order

❶ Make LG account on LG ThinQ (Application) and login.
❷ Select the installed product and set AP (Access Point) mode by wired / wireless remote controller.
❸ Select the Wi-Fi network that will be used and insert the passwords.
❹ Product registration progress is completed.

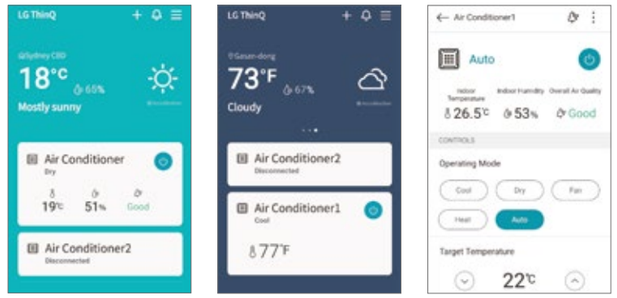
* 5GHz networks may not be supported.



LG ThinQ Mobile App

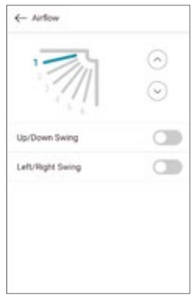
Simple operation for various functions

On, Off, Current Temp., Mode, Set Temp.

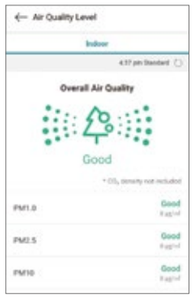


<Day> <Night>

Vane Control



Air Purify



Easy Management

Reservation

Energy Monitoring

Smart Diagnosis

Filter Management

CENTRALIZED CONTROL

FEATURE FUNCTIONS

Controller Name			AC Ez	AC Ez Touch	AC Smart 5 [6]	ACP 5 [6]	ACP LonWorks	AC Manager 5 [7]
Model Name								
			PQCSZ250S0	PACEZA000	PACS5A000	PACP5A000	PLNWKB000	PACM5A000
Product	DO		-	-	2	4	2	-
	DI		-	1	2	10	2	-
	Max. Connectable No.	IDUs	32	64	128	256	64	8,192
		ERV	32	64	128	256	64	8,192
		A / C + ERV	32	64	128	256	64	8,192
		AHU	-	-	16	16	16 [5]	16 x 32
		Chiller	-	-	5 Optional [4]	10 Optional [4]	-	10 x 32
		Commercial Air Purifier [1]	-	-	64	128	-	128 x 32
Compatibility	Air Conditioner		○ [3]	○	○	○	○	○
	Ventilation (ERV / ERV DX)		○ [4]	○	○	○	○	○
	Heating		-	○	○	○	○	○
	AHU		-	-	○	○	○	○
	Chiller		-	-	○ [5]	○ [5]	-	○
	Commercial Air Purifier [1]		-	-	○ [5]	○ [5]	-	○
	ACS IO		-	-	○ [5]	○ [5]	○ [5]	○
Additional Function	Add Drawing		-	-	○ [5]	○ [5]	○ [5]	○
	Group Management		-	○	○ [5]	○ [5]	○ [5]	○
	Auto Changer Over		-	○	○ [5]	○ [5]	○ [5]	○
	Set Back		-	○	○ [5]	○ [5]	○ [5]	○
	Dual Setpoint		-	○	○	○	○ [5]	○
	Change Alarm		-	Filter	Filter	Filter	Filter	Filter
	Indoor Unit Lock		○ [8]	○	○	○	○ [5]	-
	Cycle Monitoring		-	-	○	○	○ [5]	○
	Air Purify		-	○ [5]	○ [5]	○ [5]	-	○
Schedule			○	○	○ [5]	○ [5]	○ [5]	○
Auto Control	Peak Control	Priority Control	-	○	○	○	○ [5]	○
		Outdoor Unit Capacity Control	-	-	○ [5]	○ [5]	○ [5]	○
	Time limit control		-	-	○ [5]	○ [5]	○ [5]	○
	Interlocking		-	-	○ [5]	○ [5]	○ [5]	○
Energy Navigation			-	-	○ [5]	○ [5]	-	○
Energy Report	Power		-	○	○	○	○ [5]	○
	Gas		-	-	○	○	○ [5]	○
	Run time		-	-	○ [5]	○ [5]	○ [5]	○
	Save to PC / USB (Excel)		-	-	PC / USB [5]	PC	PC	PC
Trend Reporting			-	-	-	-	-	○
History	Report (Control / Error)		-	Error	○ [5]	○ [5]	○ [5]	○
	Send Email		-	-	○ [5]	○ [5]	○ [5]	○
	Save to PC / USB (Excel)		-	-	PC / USB [2]	PC [2]	○ [5]	PC [2]
etc	Summer Time		-	○	○ [5]	○ [5]	○ [5]	○
	Outdoor Unit Oil-Return Operation		-	-	○ [5]	○ [5]	○ [5]	-
	User Authority		-	Password	○ [5]	○ [5]	○ [5]	○
	PC Access		-	○	○ [5]	○ [5]	○ [5]	○

※ ○ : Applied, - : Not Applied
1) The Commercial Air purifier must additionally install PI485 (PHNFP14A0).
2) Save to PC / USB function will be available from 2021.
3) Except for some feature (Individual lock, Limit temp., etc.)
4) Except for some feature (User mode, additional function, etc.)
5) This function is not applied for BMS points.
6) Without additional device, ACP 5 and AC Smart 5 provide BACnet IP and Modbus TCP interface for BMS.
7) ACP 5 or AC Smart 5 is required.
8) Hard Lock

AC EZ TOUCH

Features & Benefits

PACEZA000

Smart management with 5 inch touch screen for small site.

Model Name	PACEZA000
Size (W x H x D, mm)	137 x 121 x 25
Interfaceable Products	MULTI V / ERV / ERV DX / Hydro Kit / THERMA V
Maximum number of units	64
Individual / Group Control	On & Off / Mode / Temperature / Fan speed
Individual Controller Lock	Temperature / Mode / Fan speed / All
Error Check	○
Slave Mode (Interlocking with higher level controller)	○
Schedule	Weekly / Monthly / Yearly / Exception day
Remote Access	By client S / W
Emergency Stop & Alarm Display	○
Power Consumption Monitoring (with PDI)	○
Auto Changeover / Setback	○
Temperature Limit	○
Operation History	Error record
ODU Low Noise [1]	○
Daylight Saving Time	○
External IO Port	DI 1
IPv6 Support	○
Air Purify Control	○
Air Quality Level	○

※ ○ : Applied, - : Not Applied
1) It is only available in some products.

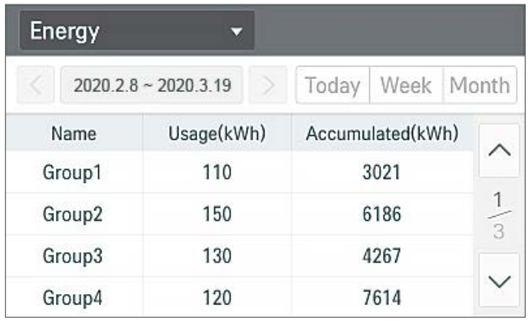
PC Access

Users can control each space efficiently through PC access.

* IPv6 supported
- Fixed Public IP is recommended. If not, router's configuration of NAT is required.
- Open port 80 & 9300

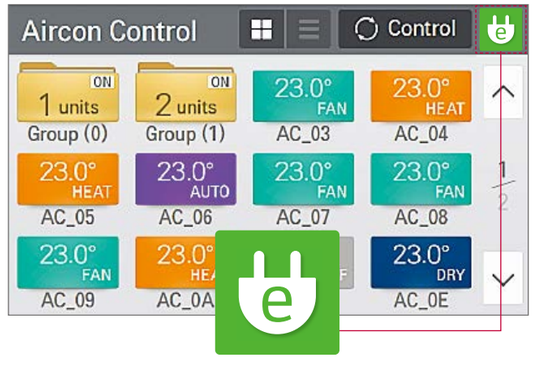
Energy Statistics (with PDI)

Statistics of operational status (Time, Power consumption) are provided to help make intelligent system operation decisions.

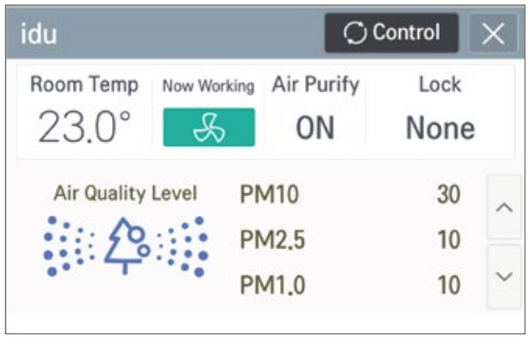


Energy Mode

When using energy mode function, operation Modes from cooling to fan or heating to off mode by force.
(It is available only for operating indoor unit)



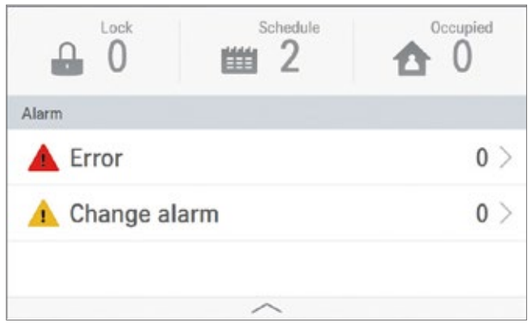
Air Purify Control & Monitoring



AC EZ TOUCH

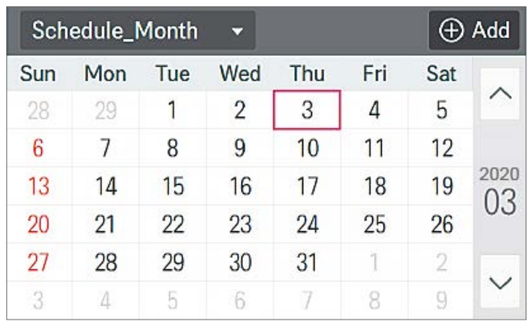
Alarm Indicator

It shows errors and alarm information. Users can respond immediately according to alarm indicator therefore HVAC system is monitored consistently.



Schedule

Schedule control allows user to set the events in advance to maximize system performance. Also, by blocking unnecessary operation, it prevents a waste of energy.



Group / Individual Control

User can control each indoor unit individually or by group by simply clicking each unit on control screen.

AC EZ

• MULTI V 5
• MULTI V IV
• MULTI V III
• MULTI V II

• MULTI V WATER IV
• MULTI V WATER II

• MULTI V S

• MULTI SPLIT
• SINGLE SPLIT

• ERV

● Appropriate PI485 should be used according to PDB.

PQCSZ250S0

Easy to manage up to 32 indoor units, including ERV with simple interface.

Features & Benefits

- 32 indoor units control
- Weekly Schedule
- Individual / Group Control

Model Name	PQCSZ250S0
Size (W x H x D, mm)	190 x 120 x 20
Interfaceable Products	MULTI V / ERV / ERV DX
Display	LED / LCD Display
Power	DC 12V
Maximum number of units	32
Individual / Group Control	On & Off / Mode / Temperature / Fan speed
Individual Controller Lock	All
Error Check	○
Slave Mode (Interlocking with higher level controller)	○
Schedule	Weekly

※ ○ : Applied, - : Not Applied

AC SMART 5

10” WITH HTML5 GUI
TOUCH SCREEN
FOR EASY CONTROL

AC SMART 5

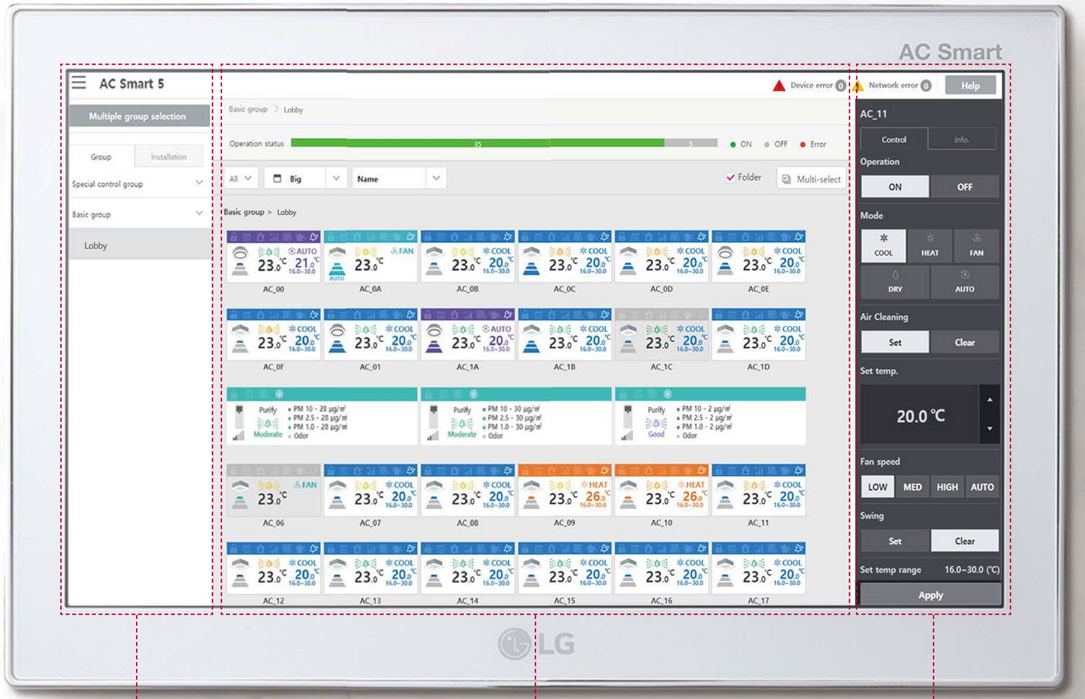
PACS5A000

Size (W x H x D, mm) : 253.2 x 167.7 x 28.9

MAX. 128
IDU CONTROL

SCHEDULE

MAP VIEW
(Visual navigation)



MENU BAR

STATUS VIEWING

CONTROL MENU

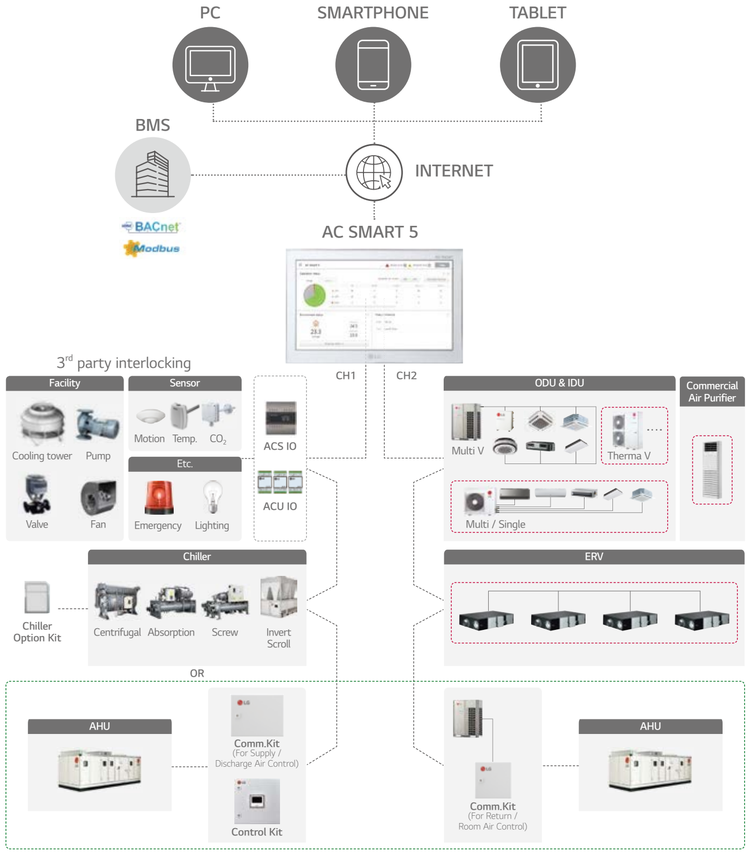
ENERGY
MONITORING

AIR PURIFY

MULTI LEVEL
GROUPING

• THE CENTRAL CONTROLLER ALLOWS CONTROL OF THE LG HVAC SYSTEM TO VARIOUS PLATFORMS
(Touch screen, PC, Smartphone, Tablet)

AC SMART 5



- According to CH1 setting, normal ODU can be connected to CH1. (Flexible wiring design with 2 ports)
- Appropriate PI485 should be used according to PDB (Product Data Book).
- For details, refer to the product PDB or manual.

PACS5A000

10-inch touch screen with HTML5 GUI (Graphic User Interface) for easy control.

Model Name	PACS5A000
Size (W x H x D, mm)	253.2 x 167.7 x 28.9
Interfaceable Products	MULTI V / ERV / ERV DX / Hydro kit / THERMA V / AHU Kit / LG Chiller [1] / Commercial Air Purifier
Maximum number of units	128
Individual / Group Control	On & Off / Mode / Temperature / Fan speed
Individual Controller Lock	Temperature / Mode / Fan speed / All
Advanced Function Setting and Display [2]	Comfort Cooling / ODU Low Noise / ODU Defrost Mode / Comfort Level display / CO_2 Level display (for ERV / ERV DX) / Night Time Free Cooling (for ERV / ERV DX)
Error Check	○
Slave Mode (Interlocking with higher level controller)	○
Schedule	Weekly / Monthly / Yearly / Exception day
Web Access	○
Emergency Stop & Alarm Display	○
Power Consumption Monitoring (with PDI)	○
Auto Changeover / Setback	○
Temperature Limit	○
Operation Time Limit	○
Visual Navigation	○
Operation Trend	○
Air Purify Control	○
Air Quality Level	○
Interlock Control	○
Virtual Group Control	○
ODU Capacity Control	○
Energy Navigation (with PDI)	○
Daylight Saving Time	○
External IO Port	DI 2 / DO 2
BMS Integration [3]	BACnet IP / Modbus TCP
IPv6 Support	○

※ ○ : Applied, - : Not Applied
1) Chiller Option Kit (PCHLLN000) is required.
2) It is only available in some products.
3) For the detail point list, please refer to the installation manual.

AC SMART 5

Features & Benefits

Air Purify Total Solution

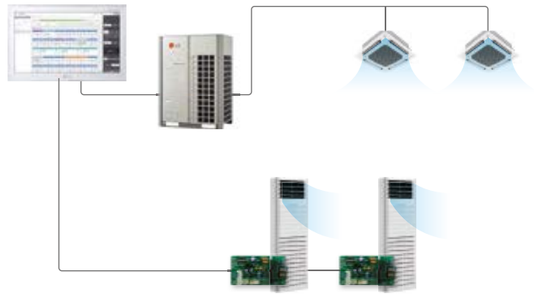
Air Purify Control

- Easy setting of Air Purify function (Set / Clear)

Air Quality Level Monitoring

System Air Conditioner

Commercial Air Purifier



* The Commercial Air purifier must additionally install PI485(PHNFP14A0).

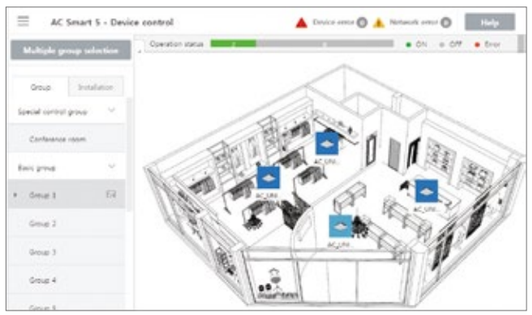
Advanced Network Accessibility

AC Smart 5 reflects the state of the art of network technology trend. IPv6 (Internet Protocol version 6), which is the most recent version of the Internet Protocol provides accessibility to the IPv6 compatible network environment. In addition, HTML5 allows you to easily control LG HVAC system on a variety of platforms (PC, Mobile, Tablet), at any time and from any location, not just on the touch screen.

HTML5 web design

Visualized Control

Visual navigation enables controlling and monitoring the unit on floor plan view for the intuitive management.

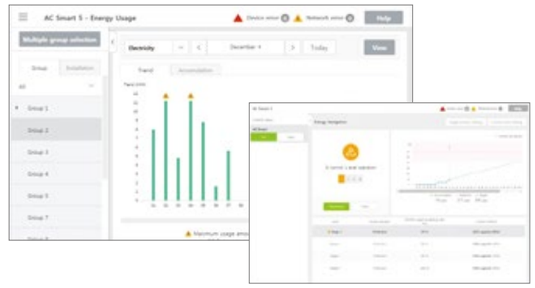


Multi Level Group Composition

User can make frequent and multi level group to control and monitor the device easily.

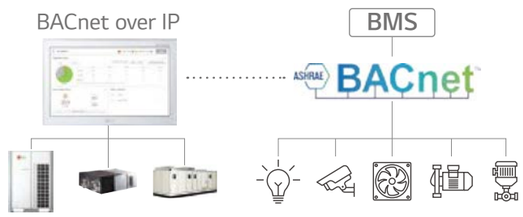
Energy Management

The energy navigation function allows the air conditioner's operational energy usage to be manged monthly, weekly and yearly. By analyzing present energy consumption and comparing with the plan, overuse of system operational costs can be prevented.



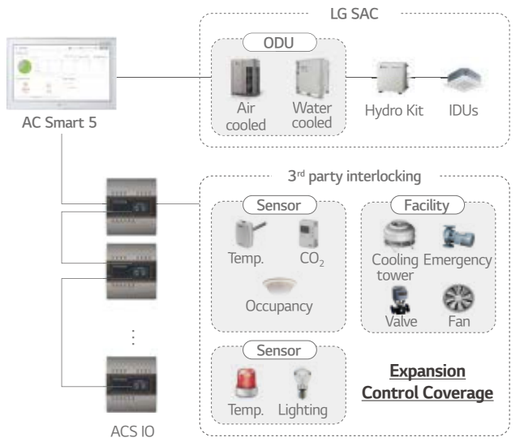
Building Management System (BMS) Integration

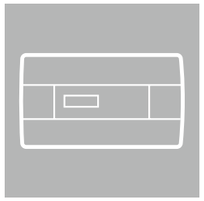
Without additional device, AC Smart 5 provides BACnet IP & Modbus TCP interface for BMS integration as well as its own management function.



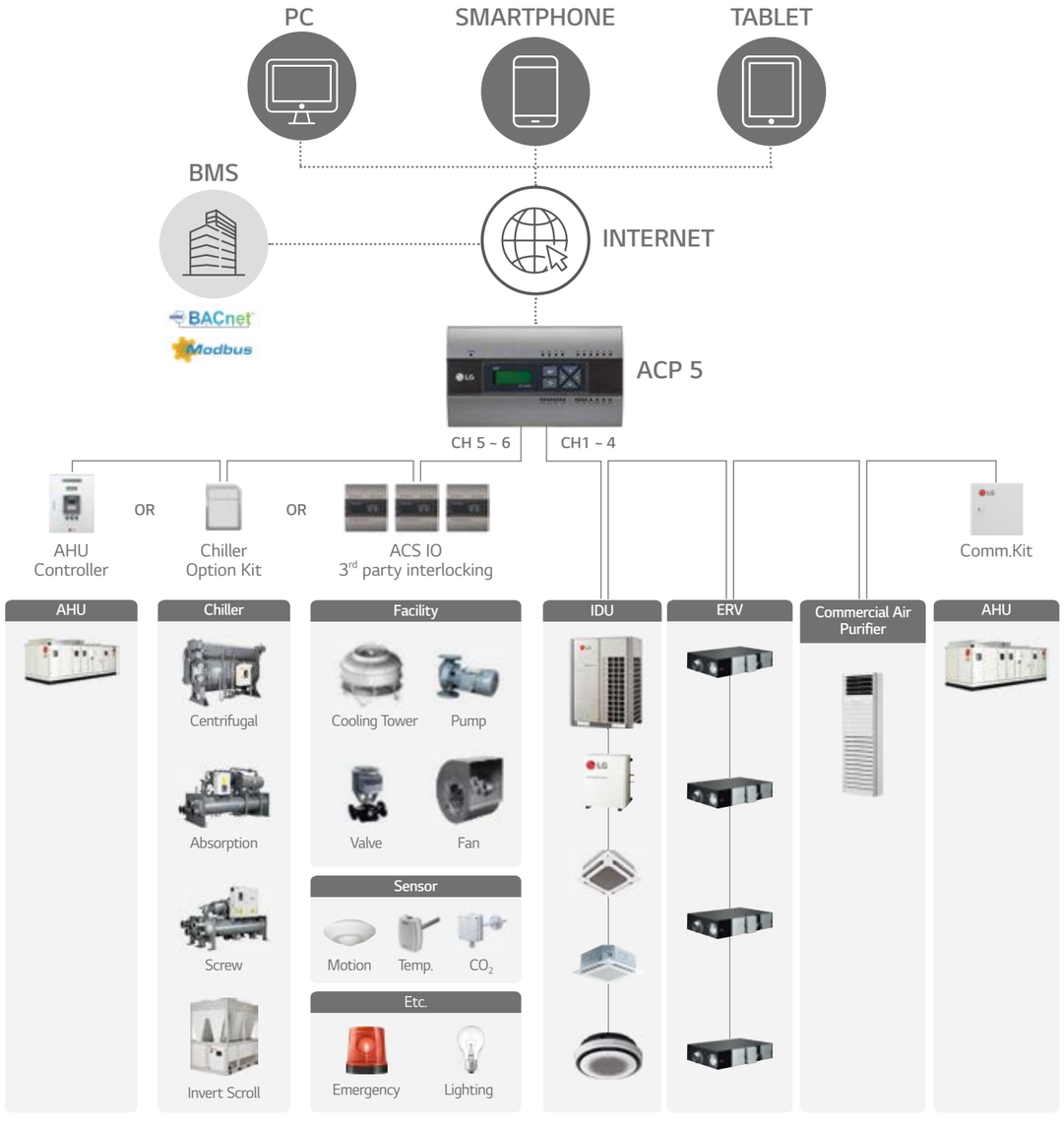
Interlocking with 3rd Party Equipment

AC Smart 5 can make operation scenario with 3rd party equipment by ACS IO Module. Control coverage is expanded. (Air conditioner only → Sensors, Fans, Pumps, Switches···)





ACP 5



PACP5A000

Advanced solution for BMS integration up to 256 units via BACnet and Modbus protocol as well as its own smart management function with web server interface.

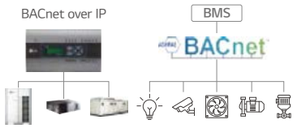
Model Name	PACP5A000
Size (W x H x D, mm)	270 x 155 x 65
Interfaceable Products	MULTI V / ERV / ERV DX / Hydro kit / THERMA V / AHU Kit / LG Chiller [1] / Commercial Air Purifier
Maximum number of units	256
Individual / Group Control	On & Off / Mode / Temperature / Fan speed
Individual Controller Lock	Temperature / Mode / Fan speed / All
Advanced Function Setting and Display [2]	Comfort Cooling / ODU Low Noise / ODU Defrost Mode / Comfort Level display / CO_2 Level display (for ERV / ERV DX) / Night Time Free Cooling (for ERV / ERV DX)
Error Check	○
Schedule	Weekly / Monthly / Yearly / Exception day
Web Access	○
Emergency Stop & Alarm Display	○
Power Consumption Monitoring (with PDI)	○
Auto Changeover / Setback	○
Temperature Limit	○
Operation Time Limit	○
Visual Navigation	○
Operation Trend	○
Air Purify Control	○
Air Quality Level	○
Interlock Control	○
Virtual Group Control	○
ODU Capacity Control	○
Energy Navigation (with PDI)	○
Daylight Saving Time	○
External IO Port	DI 10 / DO 4
BMS Integration [3]	BACnet IP / Modbus TCP
IPv6 Support	○

※ ○ : Applied, - : Not Applied
1) Chiller Option Kit (PCHLLN000) is required.
2) It is only available in some products.
3) For the detail point list, please refer to the installation manual.

Advanced Network Accessibility

Energy Navigation

BACnet IP & Modbus TCP



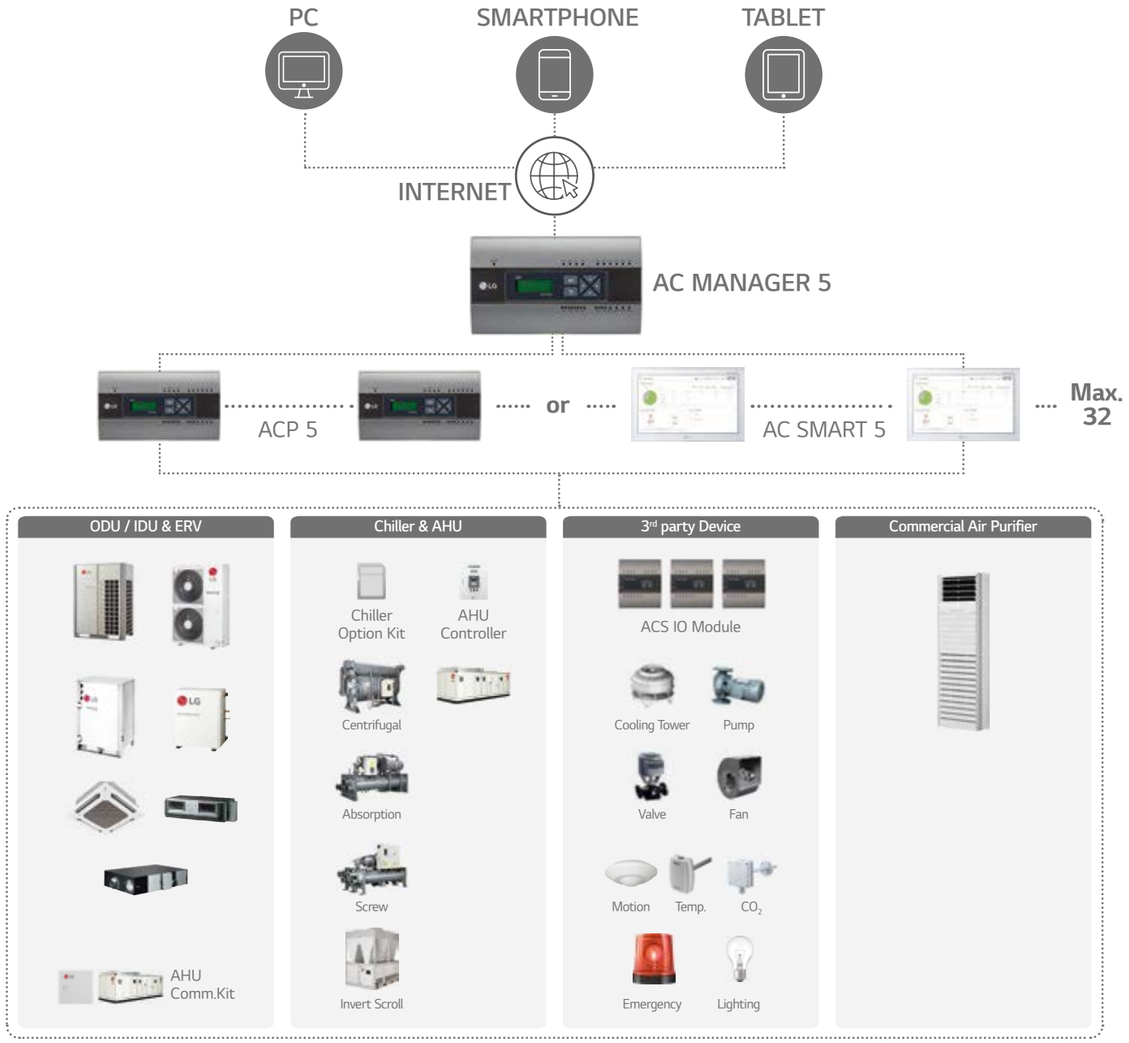
Air Purify Control / Monitoring

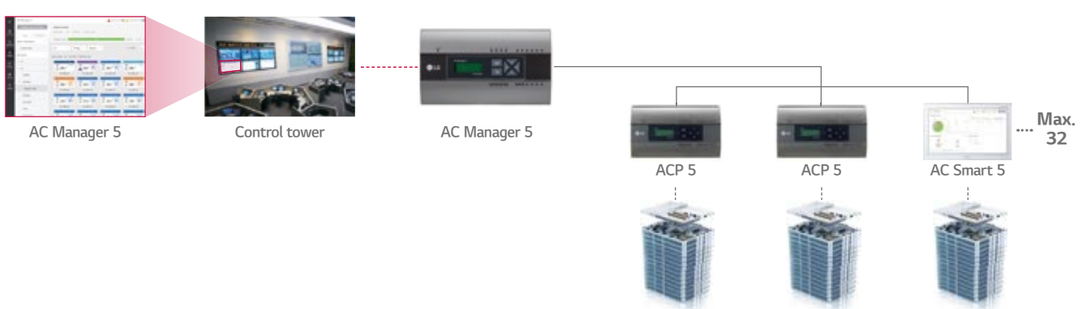
* Fix Public IP is mandatory.
* Router's Configuration of NAT is mandatory. Open port 80 & 9300.

Integrated Management

The Commercial Air Purifier can be used with LG central controller to monitor and control.

AC MANAGER 5





PACM5A000

Multiple ACP and AC Smart integration solution to manage multi sites up to 8,192 units as a single system.

reddot award
User Interface Design

Model Name	PACM5A000
Size (W x H x D, mm)	270 x 155 x 65
Interfaceable Products	MULTI V / ERV / ERV DX / Hydro kit / THERMA V / AHU Kit / LG Chiller [1] / Commercial Air Purifier
Maximum number of units	8,192 (Supports 32 ACP 5 or AC Smart 5)
Individual / Group Control	On & Off / Mode / Temperature / Fan speed
Individual Controller Lock	Temperature / Mode / Fan speed / All
Error Check	○
Schedule	Weekly / Monthly / Yearly / Exception day
Web Access	○
Emergency Alarm Display	○
Power Consumption Monitoring (with PDI)	○
Auto Changeover / Setback	○
Temperature Limit	○
Operation Time Limit	○
Visual Navigation	○
Operation Trend	○
Air Purify Control	○
Air Quality Level	○
Interlock Control	○
Virtual Group Control	○
ODU Capacity Control	○
Energy Navigation (with PDI)	○

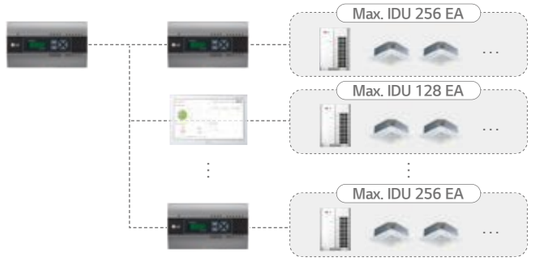
※ ○ : Applied, - : Not Applied
1) Chiller Option Kit (PCHLLN000) is required for ACP 5 or AC Smart 5.
Note : AC Manager 5 required for ACP 5 or AC Smart 5

AC MANAGER 5

Features & Benefits

Up to 8,192 Connections for Indoor Units

Administrators can easily and conveniently manage a variety of LG HVAC equipment. Also, it is available to manage many buildings or areas at one place via AC Manager 5.



Advanced Network Accessibility & User Friendly GUI

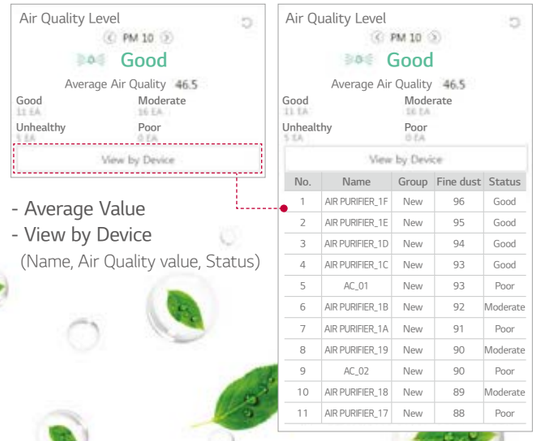
As an advanced central controller, AC Manager 5 offers flexible interface for each user by assessing the device screen and automatically customizing the layout to provide the most optimized interface.

Smart Air Purify Solution

Total management of air purify function creates clean environment for everyday.

Air Quality Multi Status view

Air Quality Summary Widget



- Average Value
- View by Device
  (Name, Air Quality value, Status)

Air Purify Control

- Easy setting of Air Purify function (Set / Clear)

View Air Quality Trends

- Daily (per hour), period (30 days) shows trends
- Excel output / easy to manage

Energy Navigation & Energy Usage Graph

Energy navigation is the function to set the target usage amount to limit the monthly power consumption and to control so that the total accumulated power consumption does not exceed the target usage amount. It performs total of 7 control levels with the estimated / actual usage amount exceeding ratio compared to the monthly target usage amount. For the control method, there are indoor unit operation ratio, outdoor unit capacity control, and indoor unit operation control.

Peak Control

This function can reduce electricity use. There are two kinds of control logic. Energy saving effect by indoor unit operation rate control. Load management effect by outdoor unit capacity control.

Multi Level Group Composition

User can make frequent and multi level group to control and monitor the device easily.

ACP LONWORKS GATEWAY

PLNWKB000

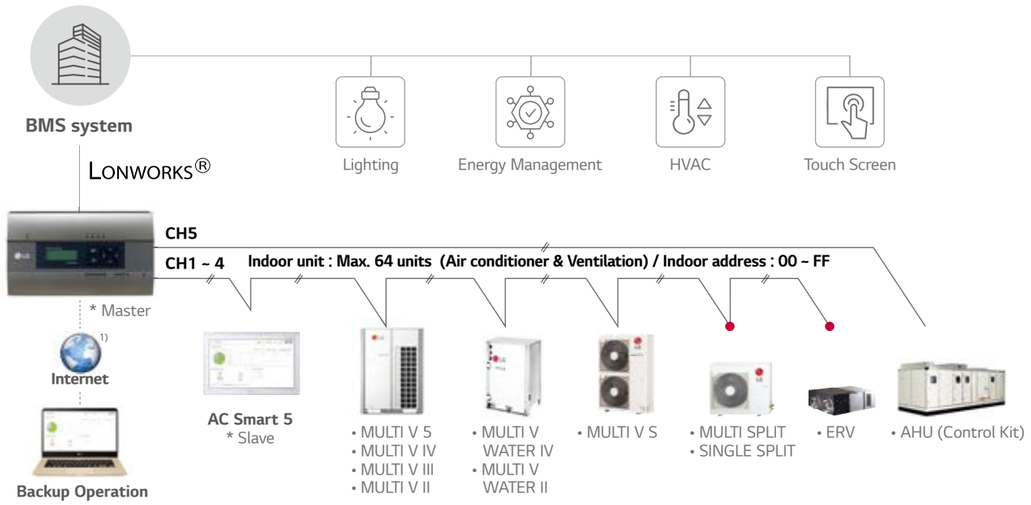
LonWorks easily link LG Air conditioners and other existing building systems.
By including ACP control function, the controlling continues even when error occurs with BMS.

Features & Benefits

- Connect to use LonWorks protocol and LG Air conditioner protocol.
- Process ability (Max. connection) : Indoor unit 64EA, AHU Control Kit : Max. 16EA
- Self installation verification using internet (Web Server Included) - Diagnosis of communication status on LG Air conditioner network
- It offers a variety of functions as ACP which allows the customer to efficiently control various types of equipment from the customer's own Integration.

Control	Monitoring
On / Off Command	On / Off
Operation Mode Setting	Operation Mode
Lock	Lock
Temperature	Temperature
Fan Level	Fan Level
Fan Direction Auto	Fan Direction Auto
Mode Lock	Mode Lock
Fan Level Lock	Fan Level Lock
Temperature Lock	Temperature Lock
Temperature Lower Limit	Temperature Lower Limit
Temperature Higher Limit	Temperature Higher Limit
Peak Convert Cycle	Peak Convert Cycle
Peak Setting	Peak Setting
Temperature Unit	Temperature Unit
Total Temperature Lock	-
Total On / Off	-
Total Temperature	-
-	Product Type
-	Product Address
-	Current Temperature
-	Alarm
-	Power
-	Error Code
-	Peak Current Operating Percent
-	Total Accumulate Power

※ ○ : Applied, - : Not Applied



1) Assignment of public IP address is required to access central controller through internet.

● Appropriate PI485 should be used according to PDB (Product Data Book).

PI485

PI485 converts LG Air conditioners protocol to the RS485 protocol for the central controller.

PMNFP14A1

- Power : Single phase AC 220V 50 / 60Hz
- **1 for Each Outdoor Unit**
  - MULTI V MINI (ARUN40GS2A / ARUV40GS2A Only needs PI485)
  - SINGLE SPLIT - MULTI SPLIT - THERMA V

PHNFP14A0

- Power : Connected with the Indoor Units
- **1 for Each Indoor Unit**
  - Indoor Unit (ERV)

MODBUS RTU GATEWAY

PMBUSB00A

Providing Modbus RTU connection between LG Air conditioners and BMS.

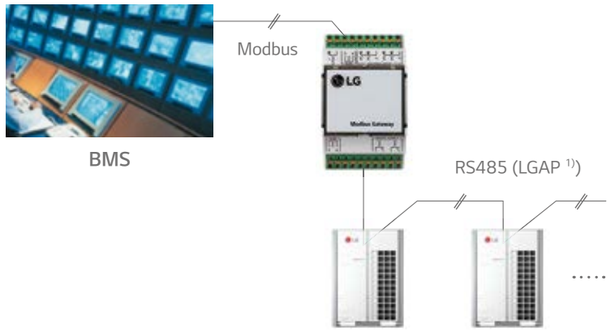
Features & Benefits

• Function
- Modbus RTU communication with Modbus master controller
- Modbus RTU slave (RS485) / 9,600 bps
- Applicable for MULTI V 5, ERV, Heating
- Size (W x H x D, mm) : 53.6 x 89.7 x 60.7
- Max. 16 IDUs with single module / Max. 64 IDUs with 4 modules
- Power : DC 12V

Installation Scene

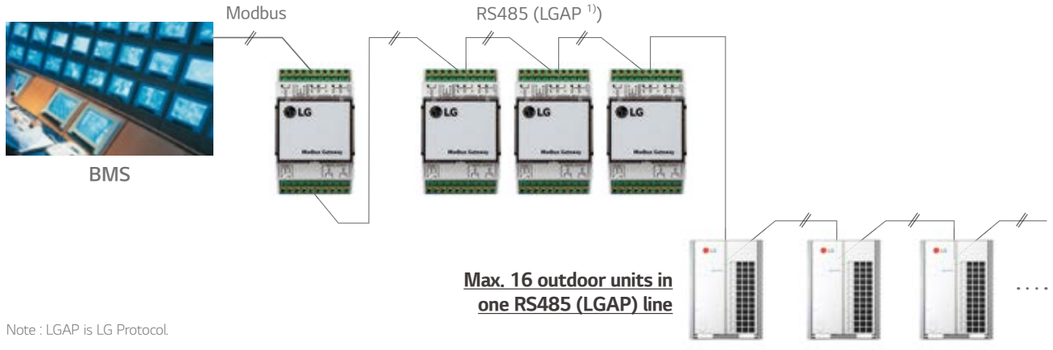
• Single Module

Max. 16 indoor units with a single module



• Multiple Module

Max. 64 indoor units with 4 modules in one Modbus communication line



Note : LGAP is LG Protocol.

Modbus Gateway Memory Map

Baud Rate : 9,600 bps, Stop Bit : 1 stop bit, Parity : None Parity, Byte size : 8 bits

Coil Register (0 x 01)

No.	Data Bit			Function	Register
	Air Conditioner	ERV / DX ERV	Hydro Kit & THERMA V		
1	Operate (On / Off)	Operate (On / Off)	Operate (On / Off)	0 : Stop / 1 : Run	Register = N X 16 + ① (N = Indoor Unit Central Address)
2	Auto Swing	Aircon Operate (On / Off)	Hot Water Mode (On / Off)	0 : Disable / 1 : Enable	
3	Filter Alarm Release	Filter Alarm Release 1)	Reserved	0 : Normal / 1 : Alarm Release	
4	Lock Remote Controller	Lock Remote Controller	Lock Remote Controller	0 : UnLock / 1 : Lock	
5	Lock Operate Mode	Lock Operate Mode 1)	Reserved	0 : UnLock / 1 : Lock	
6	Lock Fan Speed	Lock Fan Speed 1)	Reserved	0 : UnLock / 1 : Lock	
7	Lock Target Temp.	Lock Target Temp. 1)	Reserved	0 : UnLock / 1 : Lock	
8	Lock IDU Address	Lock IDU Address 1)	Reserved	0 : UnLock / 1 : Lock	
9	Reserved	Quick Ventilate	Reserved	0 : Disable / 1 : Enable	
10	Reserved	Energy Save	Reserved	0 : Disable / 1 : Enable	

1) : This register value is applied 'DX Ventilator' ONLY.

Discrete Register (0 x 02)

No.	Data Bit			Function	Register
	Air Conditioner	ERV / DX ERV	Hydro Kit & THERMA V		
1	Connected IDU	Connected IDU	Connected IDU	0 : Disconnected / 1 : Connected	Register = N X 16 + ① (N = Indoor Unit Central Address)
2	Alarm	Alarm	Alarm	0 : Normal / 1 : Alarm	
3	Filter Alarm	Filter Alarm 1)	Hot Water Only 2)	• 0 : Normal / 1 : Alarm Hydro Kit • 0 : Normal / 1 : Hot Water Only	
4	Reserved	Reserved	Target Temp. Select	0 : Air / 1 : Water	
5	Reserved	Reserved	Error Division 2)	0 : CH type error / 1 : BC type error	

1) : This register value is applied 'DX Ventilator' ONLY.
2) : This register value is applied 'Hydro Kit' ONLY.

Holding Register (0 x 03)

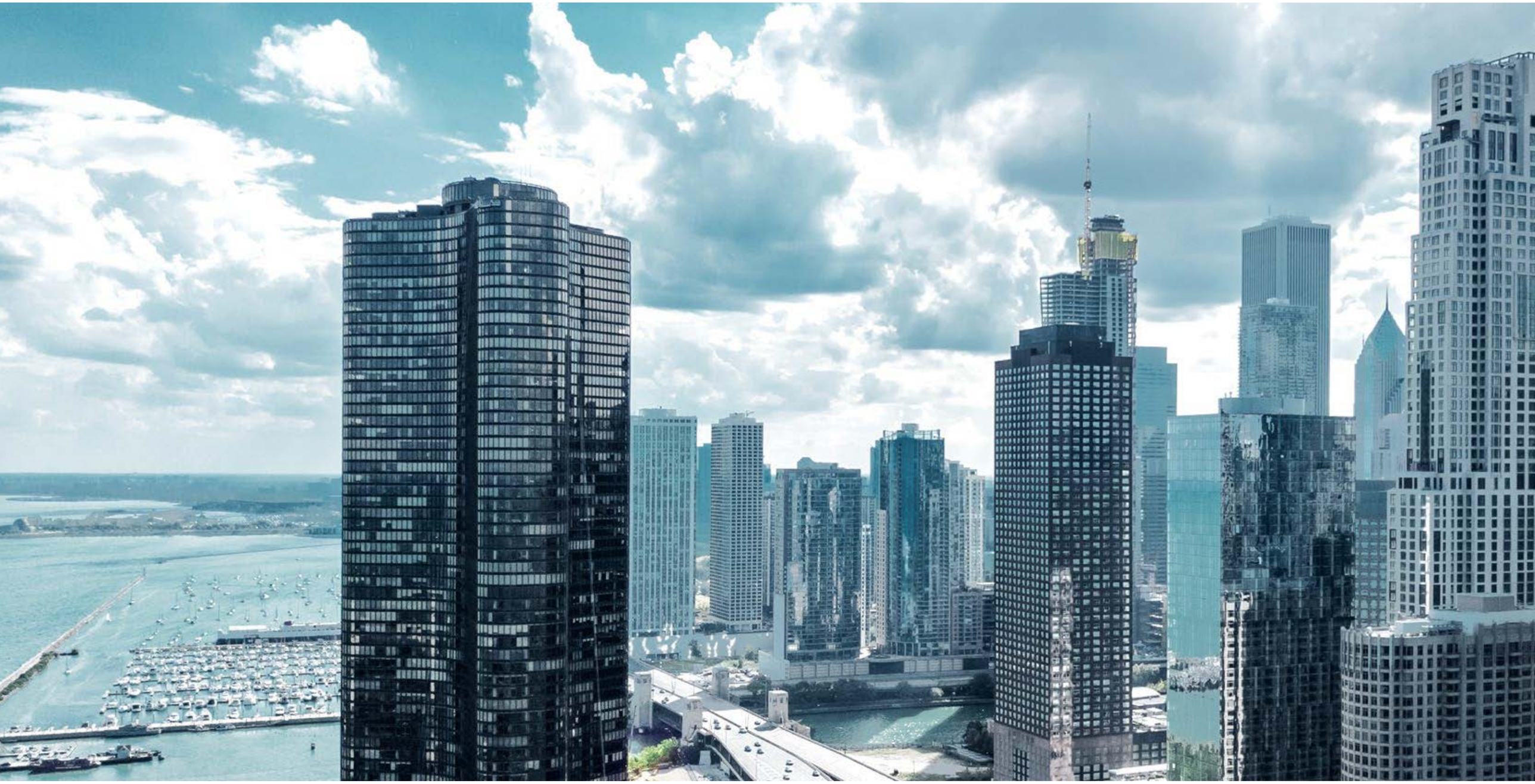
No.	Data Bit			Function	Register
	Air Conditioner	ERV / DX ERV	Hydro Kit & THERMA V		
1	Operate Mode	Operate Mode	Connected IDU	• 0 : Cooling, 1 : Dehumidifying, 2 : Fan, 3 : Auto, 4 : Heating Hydro Kit (Middle Temp. DHW) / AWHP • 0 : Cooling, 3 : Auto, 4 : Heating Hydro Kit (High Temp. DHW)	Register = N X 20 + ① (N = Indoor Unit Central Address)
2	Fan Speed	Fan Speed	Target Temp. DHW 2)	1 : Low, 2 : Mid, 3 : High, 4 : Auto	
3	Target Temp.	Target Temp. 1)	Target Temp. 2)	16.0 ~ 30.0 [°C] x 10	
4	Target Temp. Limit (Upper)	Target Temp. Limit 1) (Upper)	Reserved	16.0 ~ 30.0 [°C] x 10	
5	Target Temp. Limit (Lower)	Target Temp. Limit 1) (Lower)	Reserved	16.0 ~ 30.0 [°C] x 10	
6	Reserved	Vent. Operate Mode	Reserved	0 : HEX, 1 : Auto, 2 : Normal	

1) : This register value is applied 'DX Ventilator' ONLY.
2) : This value range can be between 0 ~ 127 [°C]. And it would be limited by upper & lower value according to the setting of remote controller.

Input Register (0 x 04)

No.	Data Bit			Function	Register
	Air Conditioner	ERV / DX ERV	Hydro Kit & THERMA V		
1	Error Code	Error Code	Error Code	0 ~ 255 ※ Please refer to the product error table.	Register = N X 20 + ① (N = Indoor Unit Central Address)
2	Room Temp.	RA Temp.	Room Temp.	-99.0 ~ 99.0 [°C] x 10	
3	Pipe In Temp.	OA Temp. 1)	Water Inlet Temp.	-99.0 ~ 99.0 [°C] x 10	
4	Pipe Out Temp.	SA Temp. 1)	Water Outlet Temp.	-99.0 ~ 99.0 [°C] x 10	
5	Reserved	Pipe In Temp. 1)	Sanitary Tank Temp.	-99.0 ~ 99.0 [°C] x 10	
6	Reserved	Pipe Out Temp. 1)	Solar Temp. 2)	-99.0 ~ 99.0 [°C] x 10	

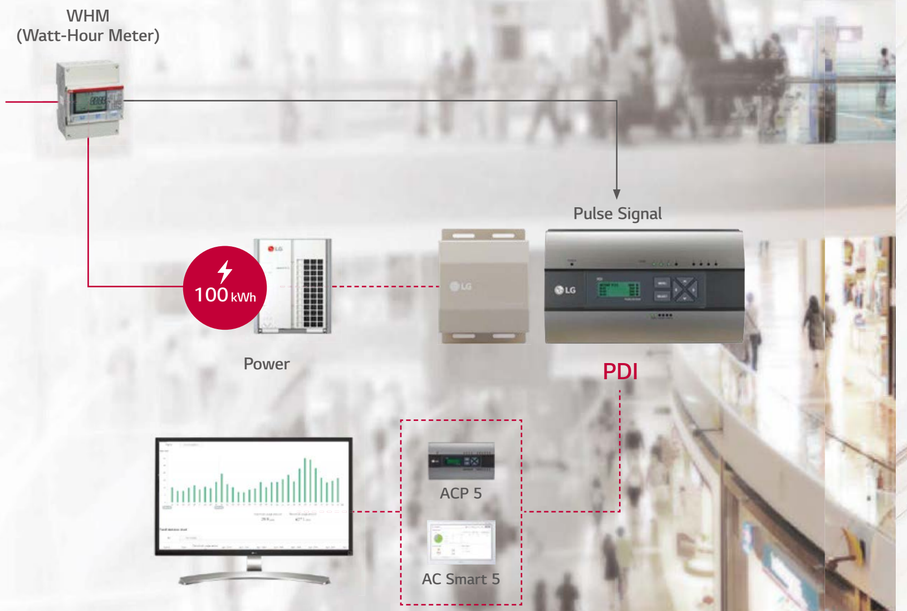
1) : This register value is applied 'DX Ventilator' ONLY.
2) : This register value is applied 'AWHP' ONLY.



INTEGRATION DEVICE

PDI
(POWER DISTRIBUTION INDICATOR)

PDI SHOWS DISTRIBUTED POWER CONSUMPTION OF UP TO 128 INDOOR UNITS



PDI
(POWER DISTRIBUTION INDICATOR)

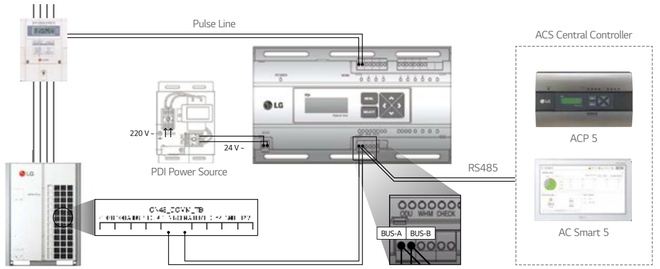
PQNUD1S40 (Premium, 8 ports)
PPWRDB000 (Standard, 2 ports)
Size (W x H x D, mm) : 270 x 155 x 65

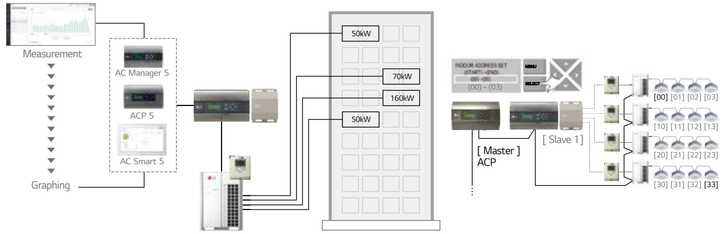
POWER SUPPLY

PDI

ENABLES TOTAL AND
INDOOR POWER
CONSUMPTION MONITORING

PDI
(POWER DISTRIBUTION INDICATOR)





Note : 1. Power cable and type could be different from this scene depending on the Outdoor unit's specification.
2. Measured power consumption could be different between PDI and Watt meter.
3. Applicable Central Controller : ACP 5, ACP LonWorks, AC Smart 5, AC Ez Touch
(Combination : we recommend to connect separated watt meter for Outdoor units to have correct power distribution value)

PQNUD1S40 (Premium, 8 ports)
PPWRDB000 (Standard, 2 ports)

PDI shows distributed power consumption of up to 128 indoor units.

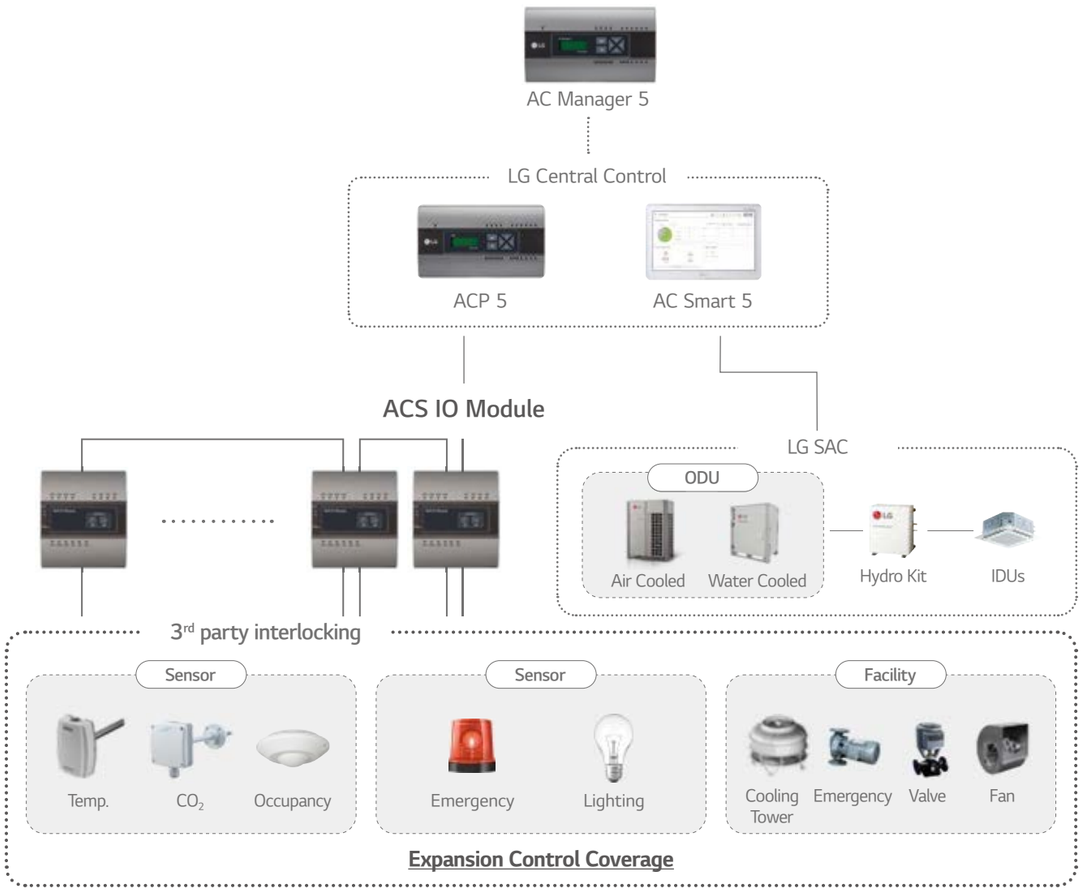
Features & Benefits

- Enables total and indoor power consumption monitoring.
- With LG central control connectivity, energy monitoring, energy savings operations and target usage setting functions are enabled.
- Enables gas consumption and electricity distribution.

Model Name	PQNUD1S40	PPWRDB000
Size (W x H x D, mm)	270 x 155 x 65	
Interfaceable Products	Air conditioner, ERV DX	
Maximum Number of Power Meters	EHP : 8 Watt meter GHP : 4 Watt meter / 4 Gas meter	EHP : 2 Watt meter GHP : 1 Watt meter / 1 Gas meter
Maximum Number of Indoor Units	MULTI V : 128	
Data Backup When Power Outage	○	
Power Input	PDI : AC 24V, Transformer : AC 220V	

※ ○ : Applied, - : Not Applied

ACS IO MODULE

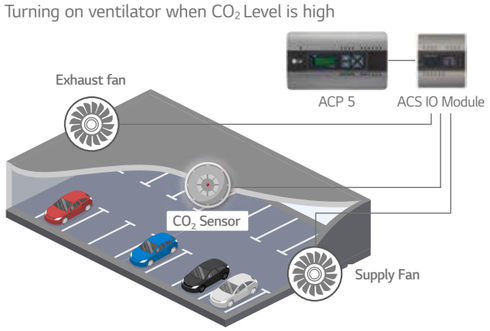


※ DI : Digital Input, DO : Digital Output, UI : Universal Input, AO : Analog Output / Please contact our regional office to have connectable relay specification for analog output

Case. 1

Parking Lot Ventilation

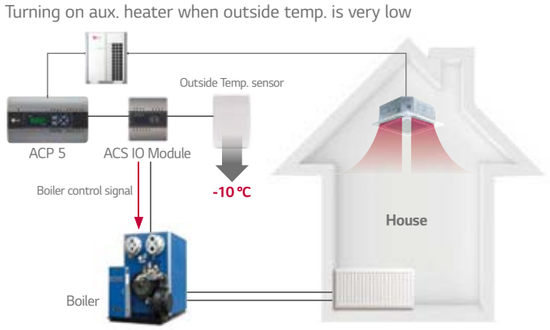
Turning on ventilator when CO_2 Level is high



Case. 2

Auxiliary Heater

Turning on aux. heater when outside temp. is very low



PEXPMB000

This module can be connected with ACP 5 or AC Smart 5 controller if additional I / O points such as DI / DO and AI / AO for 3rd party devices control and monitoring are needed.

Features & Benefits

- Interlocking with 3rd party equipment LG Central controller can make operation scenario with 3rd party equipment by ACS IO Module.
- Control coverage is expanded. (Air conditioner only → Sensors, Fans, Pumps, Switches ···)

Model Name		PEXPMB000
Linkable Products		PACS5A000, PACP5A000
Communication	RS-485	1 ch
I / O	Digital Input	3 ports
	Digital Output	3 ports
	Universal Input [1]	4 ports
	Analog Output	4 ports

Value Spec		Min.	Max.
Analog Input	NTC 10k	0.68kΩ	177kΩ
	PT 1000	803Ω	1,573Ω
	Ni 1000	871.7Ω	1,675.2Ω
	DC (Voltage)	0V	10V
	DC (Current)	0mA	20mA
Analog Output	-	0V	10V
Digital Input	Binary Input (Non Voltage)	-	-
Digital Output	Normal open	-	30VAC / 30VDC, 2A

※ O : Applied, - : Not Applied

1) The type of UI (Universal Input) is selectable among Digital Input and Analog Input.

ACU IO MODULE

PEXPMB300 / PEXPMB200 / PEXPMB100

This module can be connected with ACP 5 or AC Smart 5 controller if additional I / O points such as UIO / UI / UO for 3rd party devices control and monitoring are needed.

ACU.UIO

PEXPMB300

ACU.UO

PEXPMB200

ACU.UI

PEXPMB100

Features & Benefits

- Interlocking with 3rd party equipment LG Central controller can make operation scenario with 3rd party equipment by ACU IO Module.
- Applicable devices are expanded. (Air conditioner only → Sensors, Fans, Pumps, Switches ···)

Module Name	PEXPMB300	PEXPMB200	PEXPMB100
Linkable Products		PACS5A000, PACP5A000	
Communication RS-485	2 ch 1)	1 ch	1 ch
Digital Input	-	-	3 ports
Digital Output	2 ports	6 ports	-
Universal Input 2)	4 ports	-	6 ports
Analog Output	2 ports	4 ports	

Value Spec		Min.	Max.
Analog Input	DC (Voltage)	0V	10V
Analog Output	DC (Voltage)	0V	10V
Digital Input	Binary Input (Non Voltage)	-	-
Digital Output	Normal Open	-	30VDC, 1A

※ ○ : Applied, - : Not Applied
1) 1 ch is reserved for internal communication.
2) The type of UI (Universal Input) is selectable among Digital Input and Analog Input.

CHILLER OPTION KIT

PCHLLN000

LG central controller 5 series with Chiller Option Kit can provide LG chiller remote control and cycle monitoring.

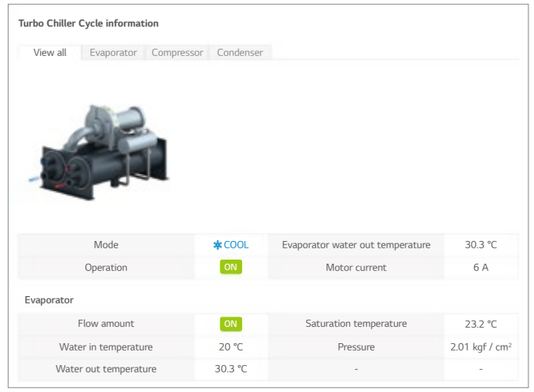
Model Name	PCHLLN000
Monitoring Points	Evaporator status / Compressor status (Scroll, Screw, Centrifugal chiller only) / Condenser status / Generator status (Abs. chiller only)
On / Off	○
Target Temp. setting	○
Mode	Scroll chiller only
Schedule	○
Interfaceable Products	Scroll, Screw, Centrifugal, Absorption (LG Only)

※ ○ : Applied, - : Not Applied

Installation Scene

- Chiller Option Kit installation of ACP, AC Smart should be conducted by a specialized installation service engineer.
- Chiller Option Kit installation can be achieved with a SD Card.
- The SD Card can install Chiller Option Kit in one ACP, AC Smart. Insert the SD Card in the ACP, AC Smart. If a backup SD Card is inserted, replace it with a Chiller Option Kit SD Card.

Cycle Display Example



DRY CONTACT

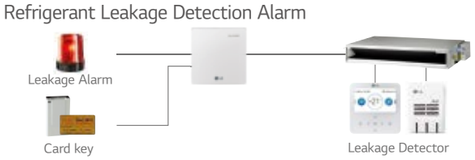
PDRYCB000

Simple Dry Contact (1 input)

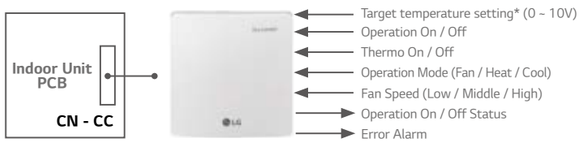
PDRYCB400

Dry Contact for 2 Input

Refrigerant Leakage Detection Alarm

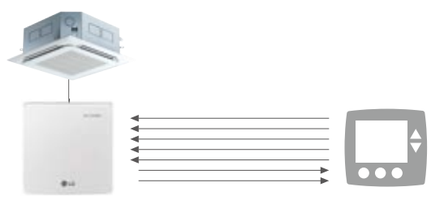


PDRYCB300 / PDRYCB320*



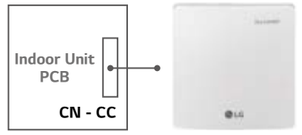
* Available only for PDRYCB320.

Dry Contact for Thermostat

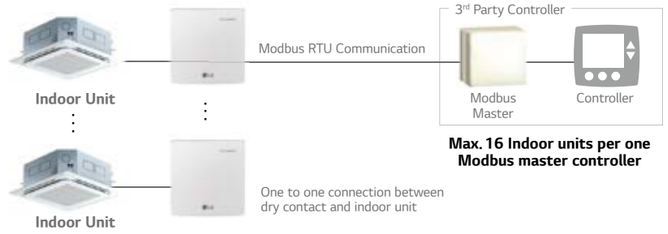


※ Please contact our regional office to have full compatible room controller list.

PDRYCB500



Dry Contact for Modbus



※ Please contact our regional office to check the compatibility with 3rd party room controller.

Specification

Connection between an indoor unit and external devices to control various functions.

Model Name			PDRYCB000	PDRYCB400	PDRYCB300	PDRYCB320*	PDRYCB500
Case			○	○	○	○	○
Input Port			1	2	8	8	-
Universal Input port			-	-	-	1	-
Comm. Protocol			-	-	-	-	Modbus RTU
Power			AC 220V	Connect to Indoor unit PCB (CN_CC) : DC 12V			
Control	IDU	On / Off	○	○	○	○	○
		Operation Mode	-	○	○	○	○
		Set Temp.	-	(Select & Fix)	(Select & Fix)	(Select & Fix)	○
		Fan Speed	-	-	○	○	○
		Thermo-Off	-	(Select & Fix)	○	○	-
		Energy Saving	-	(Select & Fix)	-	-	-
		Lock / Unlock	-	(Select & Fix)	-	-	-
	Heating	On / Off	○	-	○	○	-
		DHW On / Off	-	-	○	○	-
		Thermo-Off	-	-	○	○	-
		Operation Mode	-	-	○	○	-
		Silent Mode	-	-	○	○	-
		Emergency Mode	-	-	○	○	-
	ERV	On / Off	○	-	-	-	○
		Operation Mode	-	-	-	-	○
		Aircon Mode	-	-	-	-	○
		Additional Mode	-	-	-	-	○
		Fan Speed	-	-	-	-	○
Output		Operation Status	○	○	○	○	○
		Error	○	○	○	○	○
		Room Temp.	-	-	-	-	○

※ ○ : Applied, - : Not Applied

Note : 1. Compatibility of PDRYCB300 / PDRYCB320
- Can use with all types of aircon indoor units after 2010.
  (Cassette, Ducted, Convertible, Applied PAC, Wall mounted, Console)
- Can use with new single package AK-W model after 2020. 1Q
  (The previous version Single package is not compatible)
- Heating : 3 series AWHP split and Monobloc models
  4 generation Hydro Kit

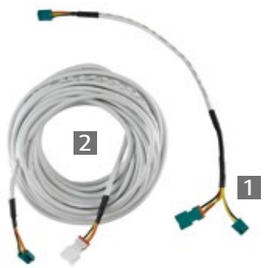
2. Compatibility of PDRYCB400
- Can use with all types of air conditioner indoor units after 2010.
  (Cassette, Ducted, Convertible, Applied PAC, Wall mounted, Console)
- Can use with new single package AK-W model after 2020. 1Q
  (The previous version Single package is not compatible)
- Can not use with AWHP, Hydro Kit models.

3. (Select & Fix) : This function is preset by rotary switch.

GROUP CONTROL WIRE

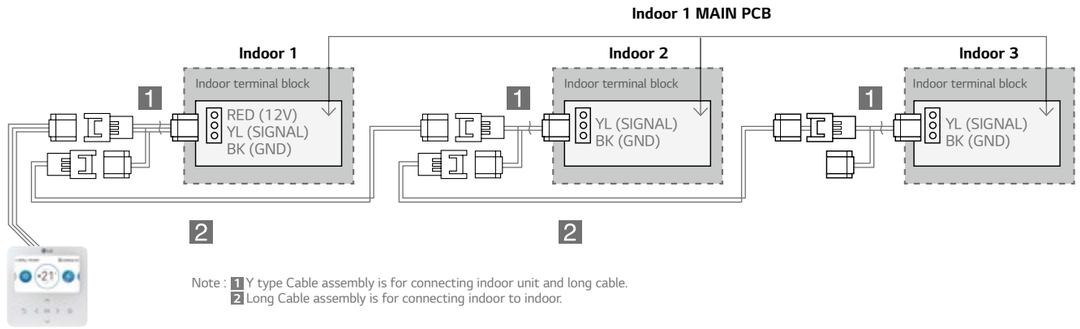
PZCWRCG3

Cables used to connect a wired remote controller up to 16 indoor units.



Model Name	PZCWRCG3
1 Y-type Cable	0.25m Length
2 Long Cable	9.6m Length

Installation Scene



Note : 1 Y type Cable assembly is for connecting indoor unit and long cable.
2 Long Cable assembly is for connecting indoor to indoor.

REMOTE TEMPERATURE SENSOR

PQRSTA0

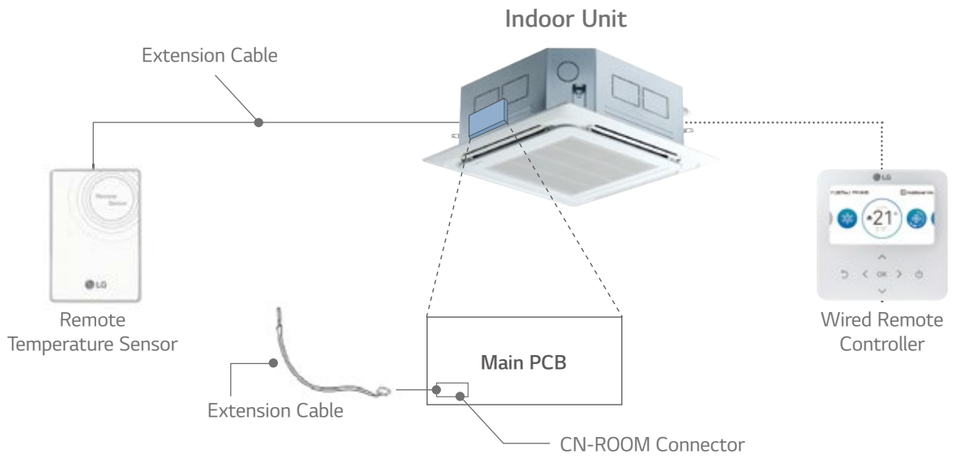
Sensor for detecting the room temperature.

Features & Benefits

- It detects the exact room temperature instead of indoor unit's air temperature sensor.
- Applied to Ceiling Mounted Cassette, Ceiling Concealed Duct, THERMA V and Hydro Kit.
- Extension cable (15m) is included.

Installation Scene

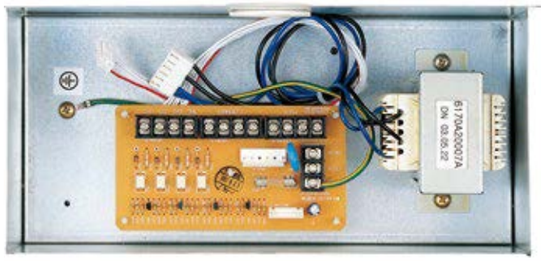
1. Wire to the control box in the indoor unit by removing the existing thermistor and connect the extension cable its place.
2. Cut the extension cable to the appropriate length and connect the screw terminal of the remote sensor.



ZONE CONTROLLER

ABZCA

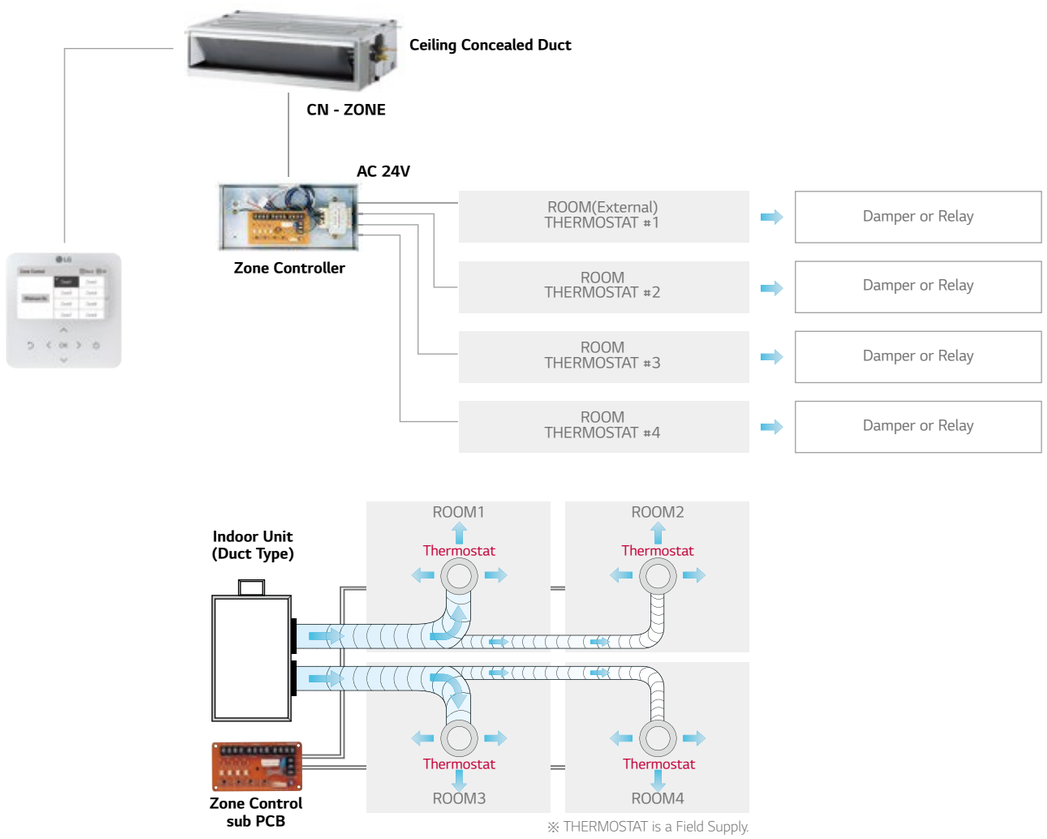
Controls air conditioning in up to 4 zones by external thermostat.



Features & Benefits

- Controls different zones (up to 4 zones) by external thermostat (AC 24V)
- Maintain proper air volume of each zone
- Auto variation of dampers
- Auto control of fan speed and On / Off operation

Installation Scene



※ THERMOSTAT is a Field Supply.

IO MODULE

PVDSMN000

Interface module between the outdoor unit of system air conditioner and the external device.

Features

Function
- Demand control
- Low noise operation
- Output outdoor or indoor unit operation status
- Output error status

Description
- IO Module is communication interface module for connection between MULTI V 5 and external IO (Input / Output Module) devices.

Models Applied

- MULTI V IV, 5
- MULTI V WATER IV
- MULTI V S

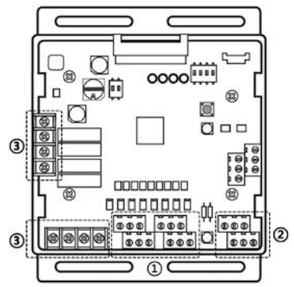
Note : IO Module is not compatible for MULTI V III and MULTI V S R32.

Part Description

1) Digital Input Part (DI : Dry Contact Input)
   - Demand control by contact input (3 Step)
   - Low Noise Operation input
   - Priority Setting input : Setting the priority of demand control command (Capacity control for external signal from DDC vs Peak control by LG Central controller)
     - Open : External signal has priority to central controller (Default)
     - Close : Central controller has priority to external signal

2) Analog Input Part (AI : DC 0 ~ 10V)
   - Demand control by analog input (10 Step)

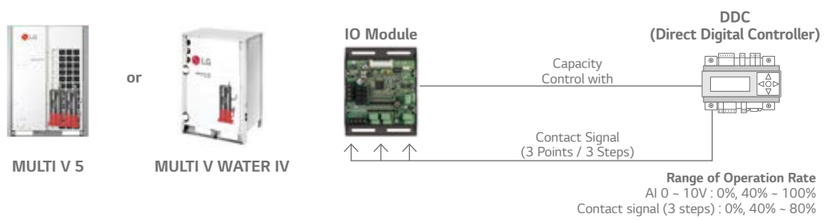
3) Digital Output Part (DO : AC 250V, Max. 1A)
   - Error status relay output
   - Operation status relay output
   - Valve control



IO MODULE

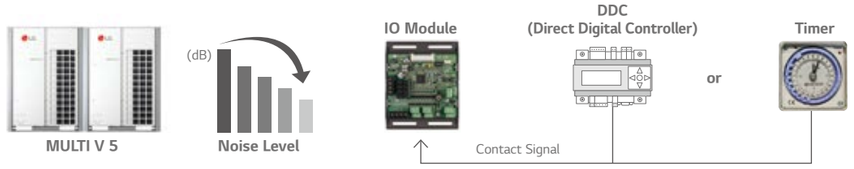
ODU Capacity Control

Provides variable settings for ODU Capacity Control according to input method to reduce the power consumption.
IO Module supports 2 types of input signal : Analog Inputs (0 ~ 10V, 10 steps) and contact signals (3 steps)



Low Noise Operation

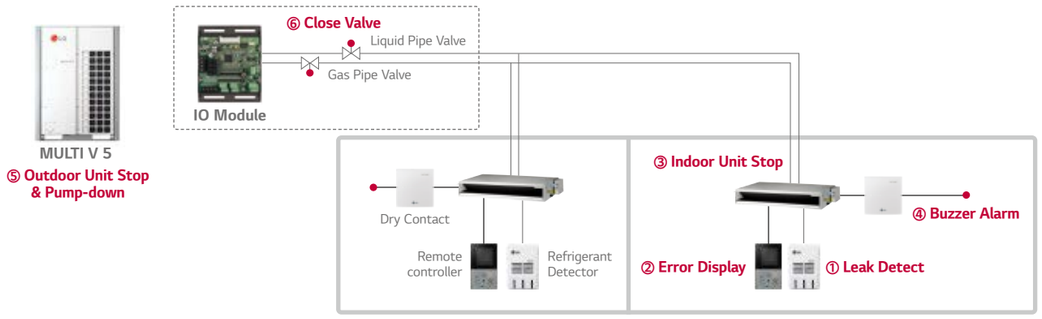
To reduce noise level, control outdoor unit's fan speed by dry contact input.



※ 8 HP (22.4kW) model, Sound power level can be changed by outdoor unit operation status and low noise operation input signal.

Refrigerant Leakage Detection with Pump-down

For safety, IO module closes refrigerant valve when Pump-down operation.



※ If the concentration of the refrigerant in the air exceeds 6,000 ppm more than 5 seconds, the function will be activated.
(Refer to operation sequence which written in red, 1~6)

VARIABLE WATER FLOW CONTROL KIT

PWFCKN000 (MULTI V WATER IV)

Accessory for controlling the water flow.

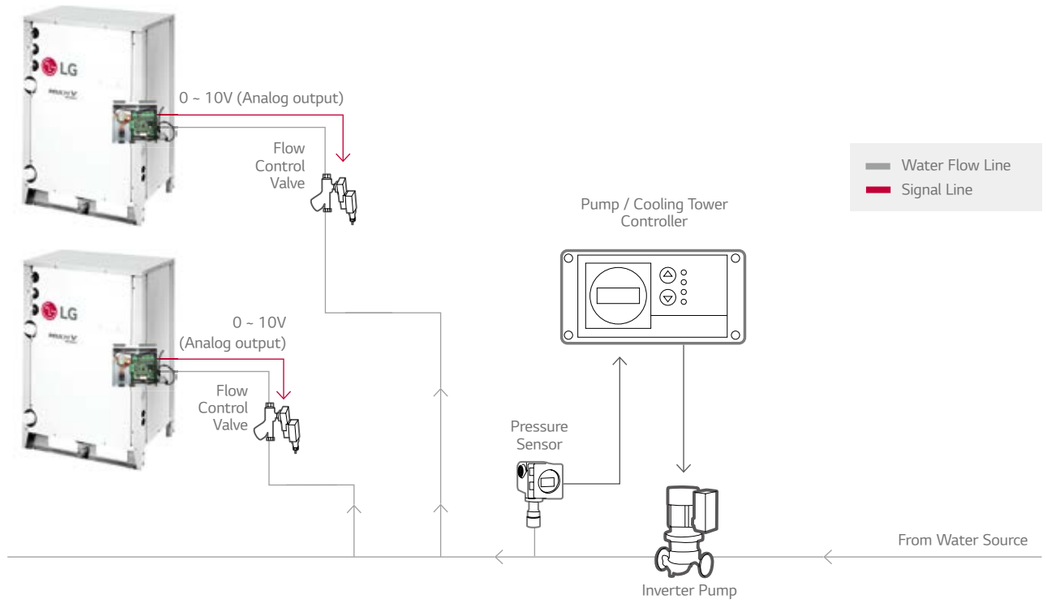
Features

Function
- Water pump or valve control (0 ~ 10V)
- Minimum output voltage setting available
- Operation, error output (AC 250V, Max. 1A)
- Dry contact input and analog output for demand control
- Digital output for operation, error status (AC 250V, Max. 1A)

Description
- Water flow consumption reduction
- Pump electricity consumption reduction
- Including IO Module (Dry contact input, Analog input / output, Digital output)
  : Using Dry contact and variable water flow control function simultaneously.

Installation Scene

- Flow Control Valve : Regulates the flow or pressure of a fluid, normally responding to signals generated by independent devices.
- Flow Meter : Measures mass flow rate of a fluid traveling through a tube.
  (The mass flow rate is the mass of the fluid traveling past a fixed point per unit time.)
- Pressure Sensor : Measures the pressure.



LOW AMBIENT KIT

PRVC2

External integration module for cooling operation with -25 °C low ambient temperature.

Features

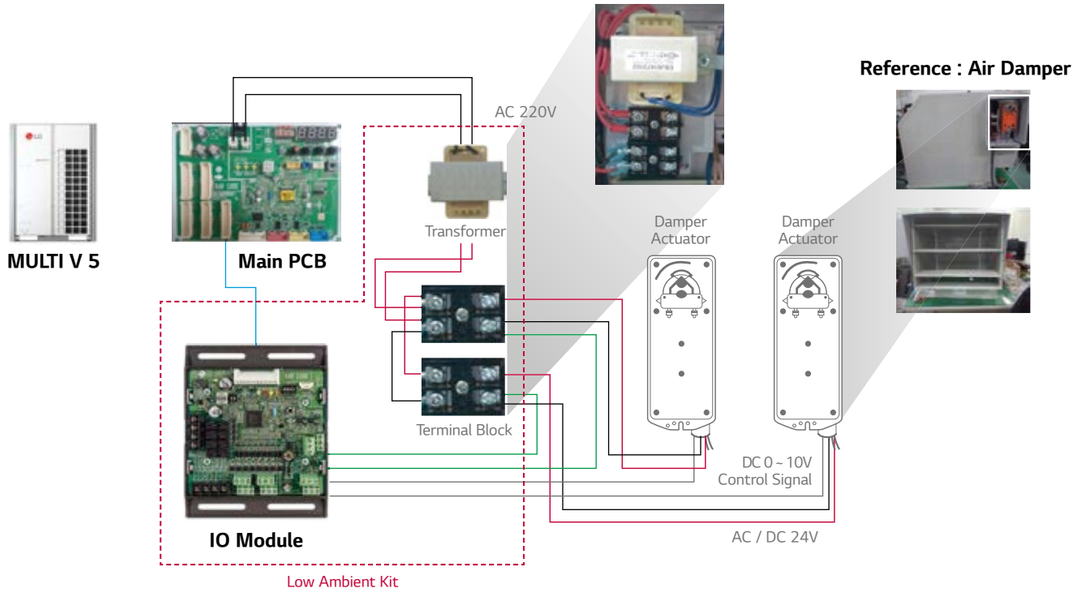
Function
- -25 °C Low ambient cooling operation by Low ambient kit and hood with damper (Analog output 0 ~ 10V)
- Demand control
- Low noise operation
- Output outdoor or indoor unit operation status (AC 250V, Max. 1A)
- Output error status (AC 250V, Max. 1A)

Description
- Low ambient kit supports -25 °C cooling operation by making stable condensing pressure with reducing air flow rate from hood and damper control given 0 ~ 10V proportional to condensing pressure.
- Low ambient kit provides IO Module function.
- External snow hood and air damper are required for this item.
- Transformer and terminal block are included.

Models Applied

- MULTI V 5

Installation Scene



Note
1. Damper Actuator can accept only DC 24V power input.
2. Do not input AC power. Otherwise it will cause a serious damage.
3. The IO Module can control maximum three actuators.
4. Case of one valve, the slave signal connector must not use.
5. The power (AC / DC 24V) and signal (DC 0 ~ 10V) line is recommended by AWG22 (1/32 in, (0.644 mm), 0.016 Ω / ft (0.053 Ω / m)).

COOL / HEAT SELECTOR

PRDSBM

Cooling only, heating only, and fan mode can be selected.

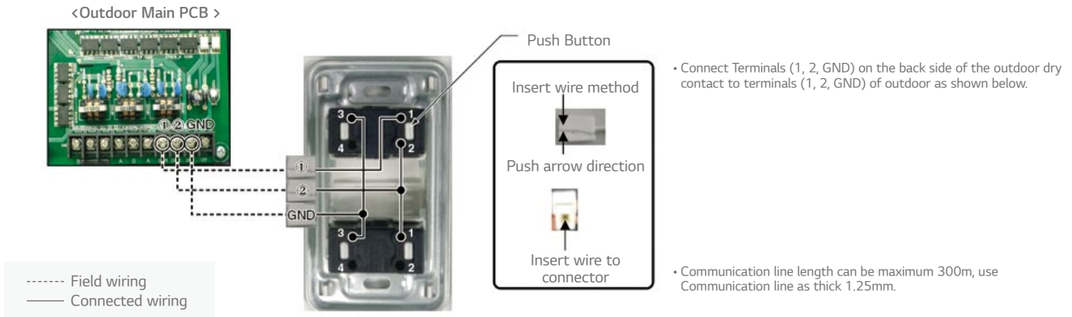
Features

- Indoor unit mode control without central controller.
- Select operation mode : Cooling, Heating, Fan mode
- Mode lock for cooling & heating mixing error-proof during the change of season.

Models Applied

- MULTI V 5
- MULTI V IV
- MULTI V WATER S
- MULTI V WATER II
- MULTI V S
- MUL TI V PLUS II, MULTI V PLUS
- MULTI V WATER IV

Installation Scene



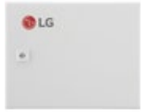
- Connect Terminals (1, 2, GND) on the back side of the outdoor dry contact to terminals (1, 2, GND) of outdoor as shown below.
- Communication line length can be maximum 300m, use Communication line as thick 1.25mm.

AHU KIT

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

COMMUNICATION KIT

PAHCMR000



PAHCMS000

CONTROL KIT

PAHCNM000

EEV KIT

PRLK048A0
PRLK096A0

PRLK396A0

PRLK594A0

CONTROLLER MODULE

PAHCMM000

PAHCMC000

Specifications

Control Application Kit

Type	Model	Dimensions (mm)			Power Supply	IP Rating	Description
		W	H	D			
Communication Kit	PAHCMR000	300	300	155	1Ø, 220 ~ 240 V, 50 / 60 Hz	IP66	Return / Room air temperature control by DDC or LG individual / centralized controller.
	PAHCMS000	380	300	155	1Ø, 220 ~ 240 V, 50 / 60 Hz	IP66	Discharge air / Supply air temperature control by DDC or LG individual / centralized controller
Controller Module	PAHCMM000	162	90	61	DC 12V	IP20	Main Controller module
	PAHCMC000	108	90	61	DC 12V	IP20	Communication Controller module
Control Kit	PAHCNM000	500	500	210	1Ø, 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 [1)]
- Connected to various heat sources : MULTI V, MULTI V WATER, MULTI V S, SINGLE SPLIT

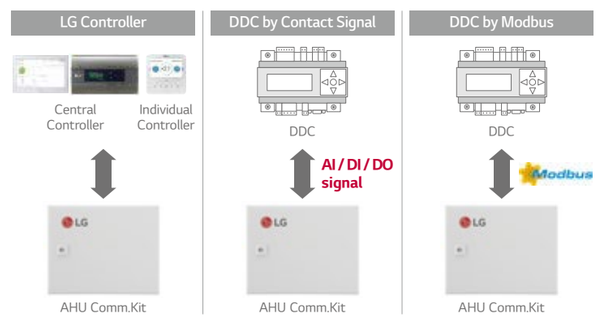
1) Maximum connectable EEV capacity for PAHCMR000, PAHCMC000 is 112 kW.

Diverse Options for Control

AHU communication kit can be connected to various control systems such as LG individual / central controller and DDC [1)]. 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



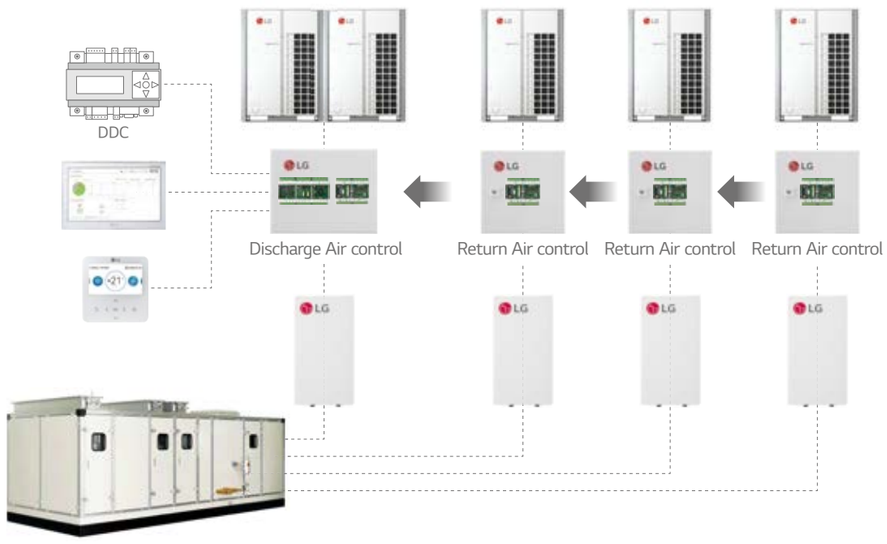
AHU KIT

Communication Kit

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



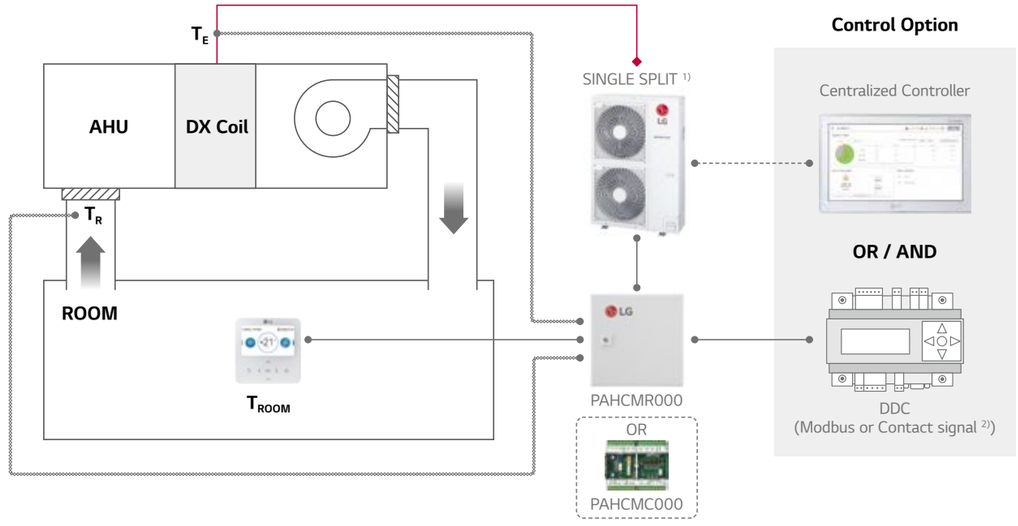
Communication Kit & Controller Module

Single Split Application

Single Split + Return / Room Air Temperature Control

Temp. Sensors
Comm. Line
Central Comm. Line to ODU
Ref. Pipe

T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



1) PI485 (PMNFP14A1) is required for centralized controller.
2) In case of applying DDC with contact signal, discharge air temperature should be measured and controlled by DDC.
Note : For more detail, please refer to the PDB.

AHU KIT

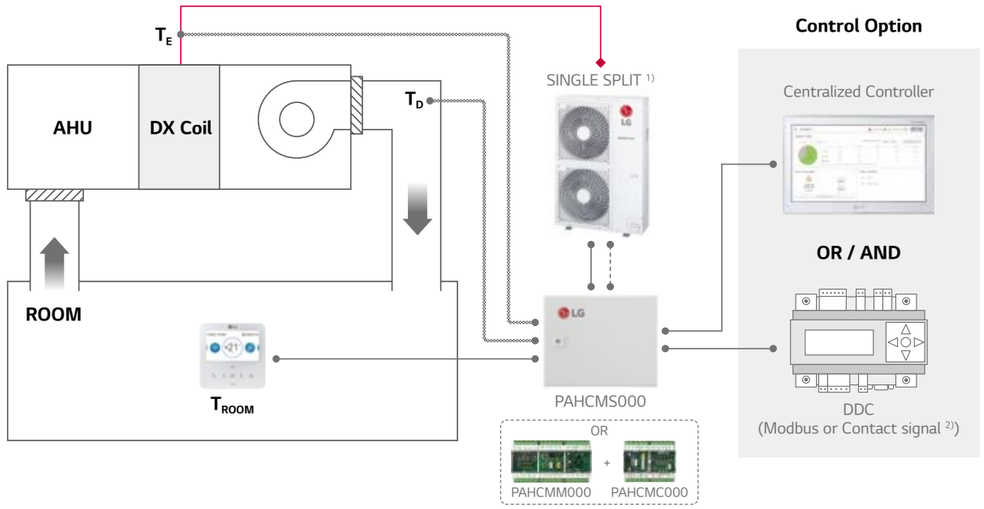
Communication Kit & Controller Module

Single Split Application

Single Split + Discharge Air Temperature Control

- Temp. Sensors
- Comm. Line
- Central Comm. Line to ODU
- Ref. Pipe

T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



1) PI485 (PMNFP14A1) is required for centralized controller.
2) In case of applying DDC with contact signal, discharge air temperature should be measured and controlled by DDC.
Note : For more detail, please refer to the PDB.

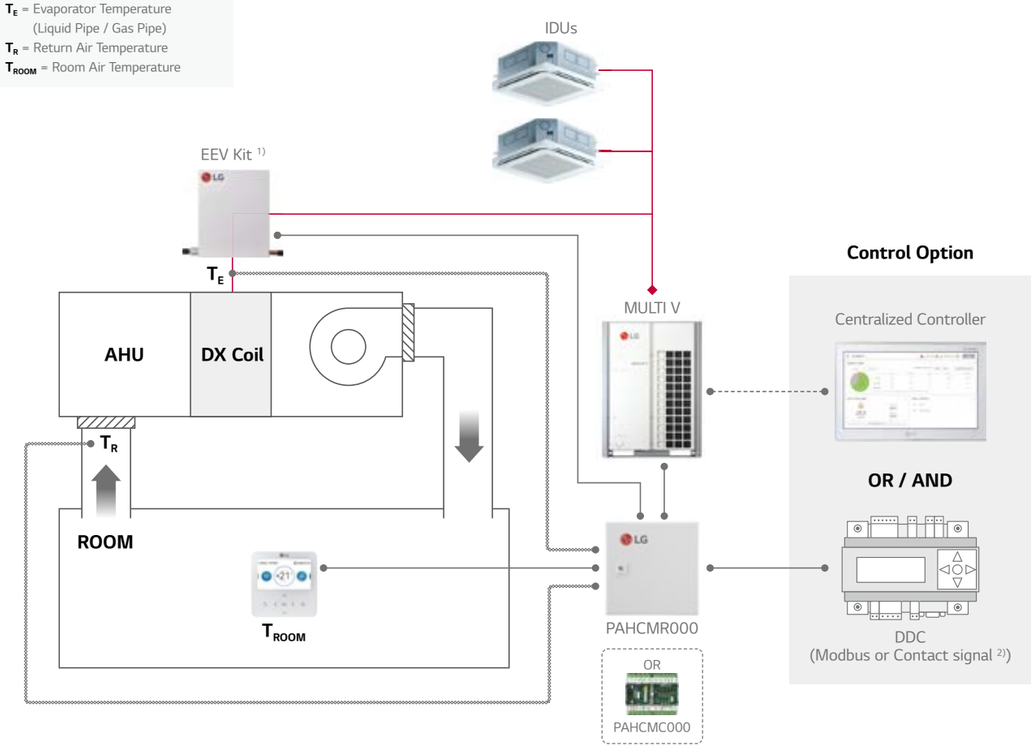
Communication Kit & Controller Module

MULTI V Application

MULTI V + EEV Kit + IDU + Return / Room Air Temperature Control

- Temp. Sensors
- Comm. Line
- Central Comm. Line to ODU
- Ref. Pipe

T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



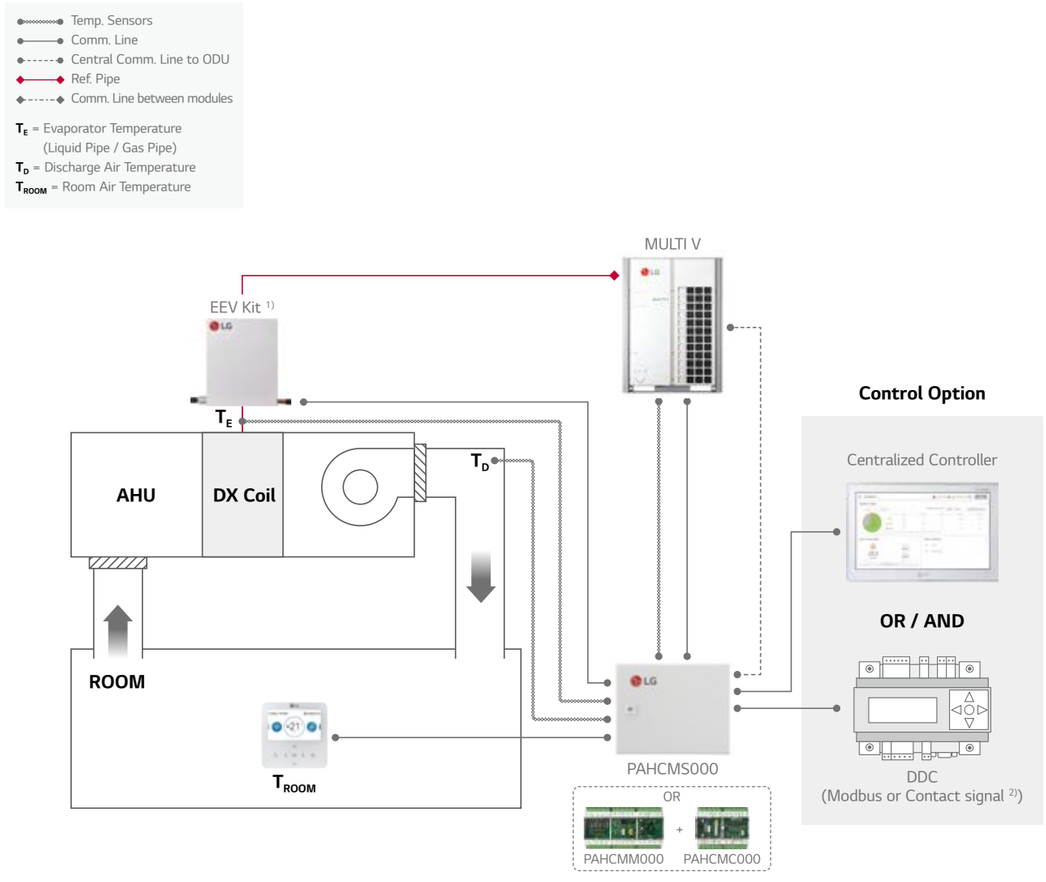
1) Multiple EEV kits can be applicable with multiple DX Coils and PAHCMR000s.
2) In case of applying DDC with contact signal, discharge air temperature should be measured and controlled by DDC.
Note : For more detail, please refer to the PDB.

AHU KIT

Communication Kit & Controller Module

MULTI V Application

MULTI V + EEV Kit + Discharge Air Temperature Control



1) Multiple EEV kits can be applicable with multiple DX Coils and PAHCMR000s.
2) In case of applying DDC with contact signal, discharge 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 (PAHCMC000)	PAHCMS000 (PAHCMM000 + PAHCMC000)	Type	Note
Control 1)	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 2)	16 ~ 30 °C	-	Analog Input (DC 0 ~ 10 V / 20mA)	-
	Discharge Air Temperature 2)	-	-	-	Discharge air temperature should be controller directly by DDC using 'ODU Capacity Control
	Fan Speed 3)	-	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 / 20mA)	-
	Emergency Stop	-	Stop / Normal	Digital Input (Non Voltage)	-
Monitor	Operation	On / Off	On / Off	Digital Output (Max. : DC 30 V / 1 A, AC 250V / 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
	Operation Mode	-	-	-	It needs to be checked through control signal
	Fan Speed	High / Middle / Low	High / Middle / Low	Digital Output (Max. : DC 30 V / 1 A, AC 250V / 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
	Defrost Operation	Defrost / Normal	Defrost / Normal	Digital Output (Max. : DC 30 V / 1 A, AC 250V / 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
	Error Alarm	Error / Normal	Error / Normal	Digital Output, Relay C contact (Max. : DC 30 V / 1 A, AC 250V / 1 A)	
	Compressor On / Off	-	On / Off	Digital Output, (Max. : DC 30 V / 1 A, AC 250V / 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 (PAHCMC000)	PAHCMS000 (PAHCMM000 + PAHCMC000)	Note
Control 1)	Operation On / Off	On / Off	On / Off	
	Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	
	Return (Room) Air Temperature	16 ~ 30 °C	-	
	Discharge Air Temperature 2)	-	○	Dip SW1-2 Discharge Temp. Control Type should be set 'On' Standard II : 16 ~ 30 °C Standard III 4) : 12 ~ 50 °C
	Fan Speed 3)	High / Middle / Low	-	
	Forced Thermal On / Off	-	-	
	ODU Capacity Control 2)	-	10 ~ 100%	Dip SW1-2 Discharge Temp. Control Type should be set 'On'
	Emergency Stop	-	-	
Monitor	Operation	On / Off	On / Off	
	Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	
	Return (Room) Air Temperature	○	-	Corresponding air temperature sensor connected to AHU Comm.Kit is required
	Discharge Air Temperature	-	○	
	Fan Speed	High / Middle / Low	High / Middle / Low	
	Defrost Operation	Defrost / Normal	Defrost / Normal	
	Error Alarm	Error / Normal, Error code	Error / Normal, Error code	
	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.

AHU KIT

Communication Kit Function

With LG Control System (Individual & Centralized Controller)

Function List		PAHCMR000 (PAHCMC000)	PAHCMS000 (PAHCMM000 + PAHCMC000)	Note
Control [1]	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
	Return (Room) Air Temperature [2]	16 ~ 30 °C	-	-
	Discharge Air Temperature [2]	-	○	Standard II : 16 ~ 30 °C Standard III [4] : 12 ~ 50 °C Central Controllers : 12 ~ 50 °C
	Fan Speed [3]	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	-
	Operation Mode	Cooling / Heating / Fan	Cooling / Heating / Fan	-
	Return (Room) Air Temperature	○	-	-
	Discharge Air Temperature		○	Standard II : 11 ~ 39.5 °C Standard III [4] : 0 ~ 100.0 °C Central : -50.0 ~ 100.0 °C
	Fan Speed	High / Middle / Low	High / Middle / Low	-
	Defrost Operation	On / Off	On / Off	Only with Individual Controller
	Error Alarm	Error Code	Error Code	Error code will be displayed on the screen
	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			Centralized Controller					BMS Gateway	PDI
	Premium	Standard III	Standard II	AC Ez	AC Ez Touch	AC Smart 5	ACP 5	AC Manager 5 [1]	ACP LonWorks	Premium Standard
										
Model no.	PREMTA000 PREMTA000A PREMTA000B	PREMTB100 PREMTBB10	PREMTB001	PQCSZ250S0	PACEZA000	PACS5A000	PACP5A000	PACM5A000	PLNWKB000	PQNUD1S40 PPWRDB000
PAHCMR000	○	○	○	○	○	○	○	○	○	○
PAHCMS000	-	○ [2]	○	-	-	○	○	○	-	-

※ ○ : Applied, - : Not Applied
1) AC Manager 5 is an integrator, so the installation with AC Smart 5 or ACP 5 is required.
2) Set temperature range of this model shall be extended April, 2020.
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 (~ 15kW) - Single Split

Type	Model	UUA1 (2.5 ~ 5.0 kW) [1]	UUB1 (5.0 ~ 8.0 kW) [1]	UUC1 (7.1 ~ 10.0 kW) [1]	UUD1 / UUD3 (10.0 ~ 15.0 kW) [1]
Communication Kit (Controller Module)	PAHCMR000 (PAHCMC000)	-	○	○	○
	PAHCMS000 (PAHCMM000 + PAHCMC000)	-	○	○	○
Control Kit	PAHCNM000	-	-	-	-

1) When connecting to Single Split outdoor unit, please check the compatibility to the regional sales office.

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

Type	Model	MULTI V				MULTI V WATER	
		5	IV	III	S	IV	II
Communication Kit (Controller Module)	PAHCMR000 (PAHCMC000)	○	○	○	○	○	○
	PAHCMS000 (PAHCMM000 + PAHCMC000)	○	○	○	○	○	○
Control Kit	PAHCNM000	○	○	○	○	○	○

EEV Kit Compatibility

EEV Kit Model	Capacity index (kW)		AHU Application Kits (Maximum connectable EEV Kits)			Connection by ODU system		
	Min.	Max.	PAHCMR000 (PAHCMC000)	PAHCMS000 (PAHCMM000 + PAHCMC000)	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)	○	-	-

※ O : 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.

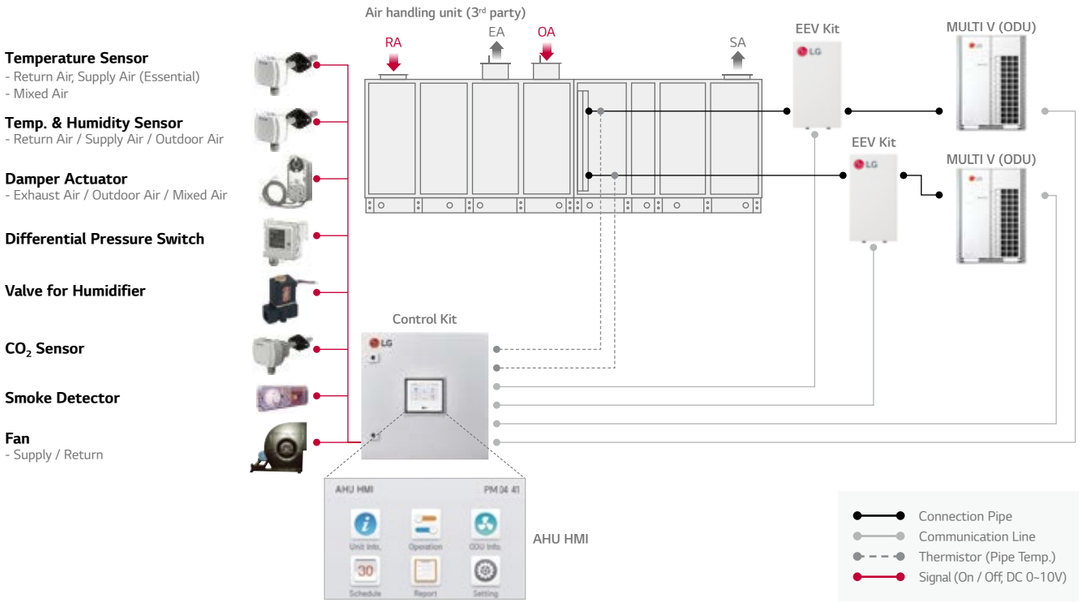
AHU KIT

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
Temperature Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Temperature range : -50 °C ~ 50 °C	Supply air duct, Return air duct, Mixed air duct
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	Filter
	- Switch type : Relay open / close	
Static Pressure Sensor	- Power : AC 24 V - Output signal : DC 0 ~ 10 V - Range : 0 ~ 1,000 Pa	Supply air duct
CO_2 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



WATER COMMUNICATION MODULE

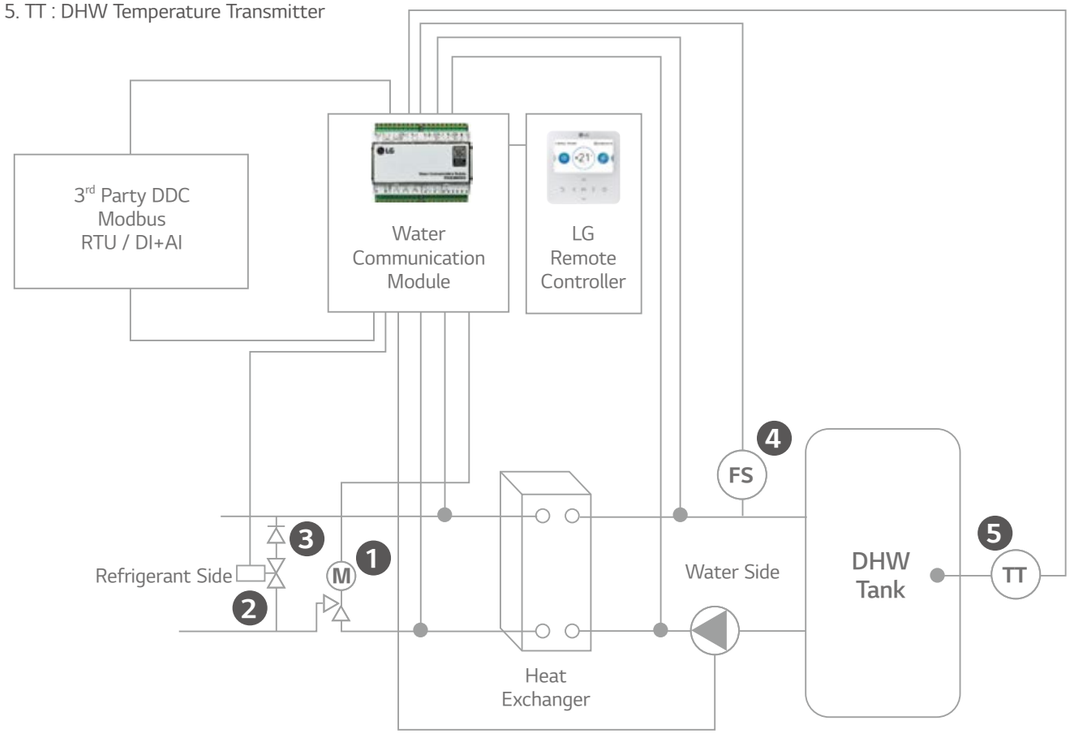
PAHCMW000

This module is intended to connect 3rd party plate heat exchanger to LG outdoor unit with the ability to control water temperature from 3rd party DDC or LG remote controller.

Overview

Interlocking with 3rd parties can make various solution with LG MULTI V outdoor unit.

1. EEV
2. Solenoid Valve (NC)
3. Non-Return Valve
4. FS : Flow Switch
5. TT : DHW Temperature Transmitter



• 3rd party solenoid, non-return valve, heat exchanger, flow switch and DHW temperature transmitter (Optional) must be purchased separately. (Field supplied items)

WATER COMMUNICATION MODULE

Features & Benefits

Interlocking with 3rd parties can make various solution with LG MULTI V outdoor unit.

Contents	Connection Port		Function
RS485	CH1 (A+ / B-)	Module Comm. Port	Communication Port Modbus
	CH2 (A+ / B-)	IDU Comm. Port	Communication with MULTI V Outdoor
UNIVERSAL INPUT (Cooling / Heating Setting)	UI1	Flow Switch	Flow Switch Input by 3rd party
	UI2	0 ~ 10V Set Temp.	Target Temp. Setting
	UI3	Cooling Thermostat Signal	Thermostat Cooling Signal
	UI4	Heating Thermostat Signal	Thermostat Heating Signal
UNIVERSAL INPUT (DHW Only)	UI1	Flow Switch	Flow Switch Input by 3rd party
	UI2	0-10V Set Temp.	Target Temp. Setting
	UI3	DHW Temperature Transmitter 0 ~ 10V	Measured Water Temp. Input by 3rd party 0 ~ 10 V sensor
	UI4	DHW Thermostat Signal	DHW Heating Signal
NTC	RI1	Water Inlet Sensor	PHEX Water Inlet Sensor
	RI2	Water Outlet Sensor	PHEX Water Outlet Sensor
REMO	+12V / SIG / GND	LG Remote Controller	-
SINGLE	Reserved	-	-
DIGITAL OUTPUT	DO1	Defrost / Mode	Output for defrost signal and / or cool mode
	DO2	Pump	Output signal for pump on / off
	DO3	Bypass	Output signal for PHEX Bypass Valve
NTC	RI3	Thermistor Pipe In	PHEX Ref. Inlet Pipe Sensor
	RI4	Thermistor Pipe Out	PHEX Ref. Outlet Pipe Sensor
EEV	+12V / 1 / 2 / 3 / 4	Expansion Valve	EEV Control

Compatibility & Accessory

EEV (LG MODEL)

Model	Capacity (kW)		PAHCMW000
	Min.	Max.	
PAEEVC000	3.6	28	HP / HR
PRLK048A0	3.6	28	HP / HR
PRLK096A0	28.1	56	HP

Note : Water communication module can accept plate heat exchangers from 3, 6 to 112 kW for combination with MULTI V Outdoor units.

LG Controllers

Controller	Individual Controller	Centralized Controller		Dry Contact
	Heating Standard III	AC EZ Touch	AC smart 5	
	PREMTW101	PACEZA000	PACS5A000	PDRYCB000

Specification for Field supply item

• The 3rd party can select the for best usable version

Solenoid valve for Bypass

Capacity (kW)		EEV type	System	Kv Value of solenoid and Non-Return Valve	Pipe size
Min.	Max.				
3.6	28	PAEEVC000 PRLK048A0	HP / HR	0.95	3 / 8" / 9.52mm
28	56	PRLK096A0	HP	1.9	1 / 2" / 12.7mm

Flow switch

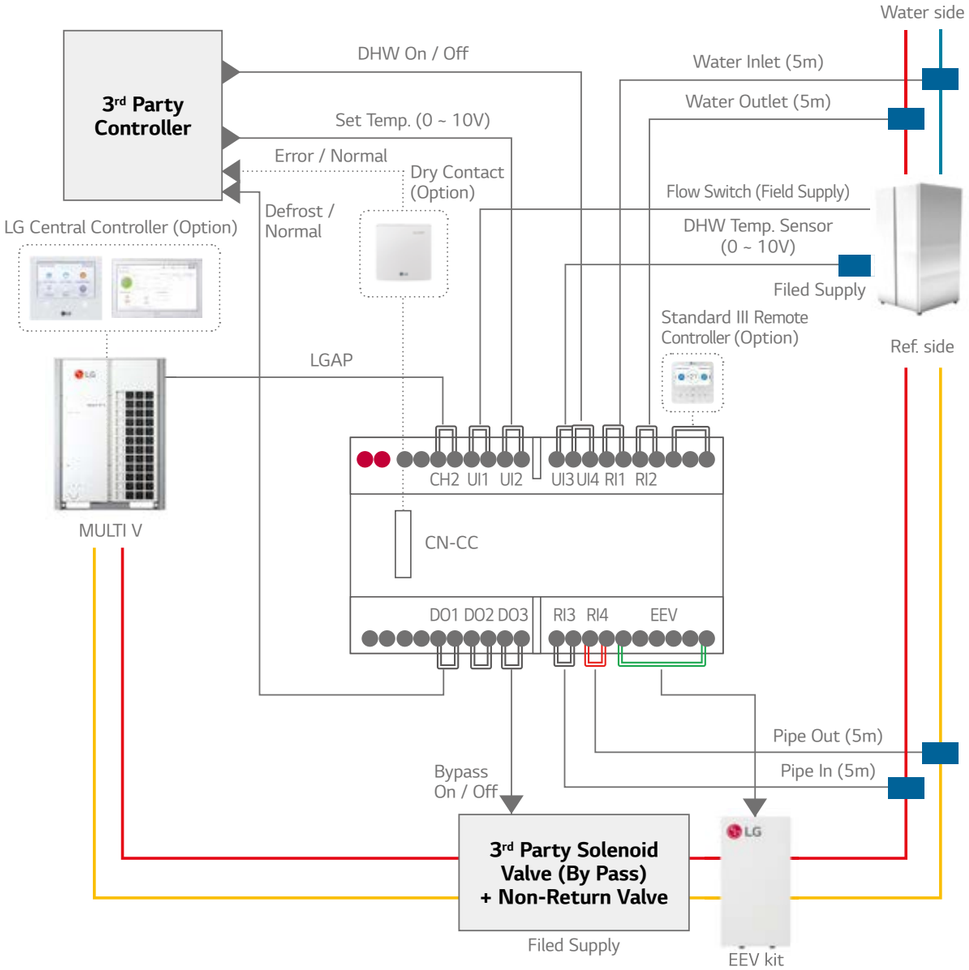
• The nominal flow and cut of flow can be calculated using the values below.

Controller	Nominal Flow	Flow switch Cut off
L / min*kW	3.29	1.23

* Example : ODU nominal Cooling Capacity 28 kW,
28 x 3.29 = 92.12 L / min. nominal flow,
28 x 1.23 = 34.44 L / min. flow switch cut off

Installation Scene with Contact Connection

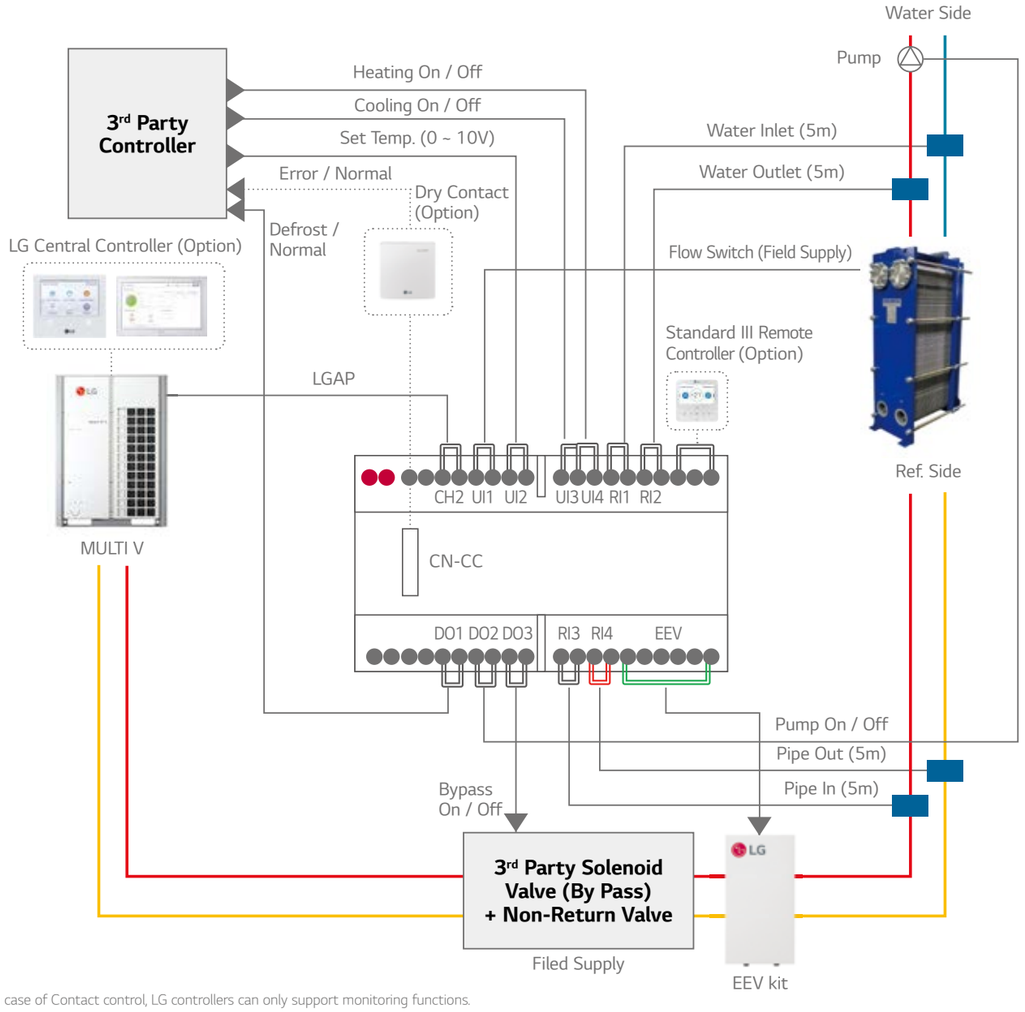
Contact signal + DHW Only Setting



WATER COMMUNICATION MODULE

Installation Scene with Contact Connection

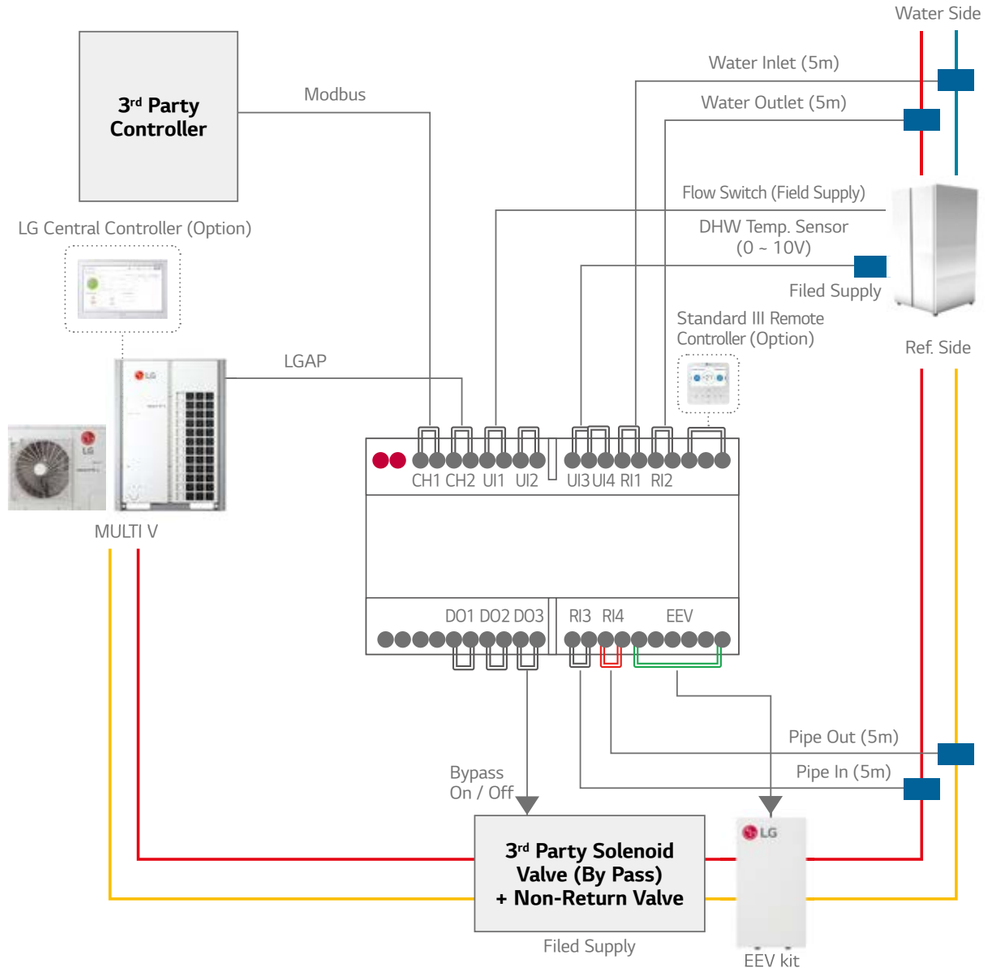
Contact signal + Heating / Cooling Setting



※ In case of Contact control, LG controllers can only support monitoring functions.

Installation Scene with Modbus / LG Control (Optional) Connection

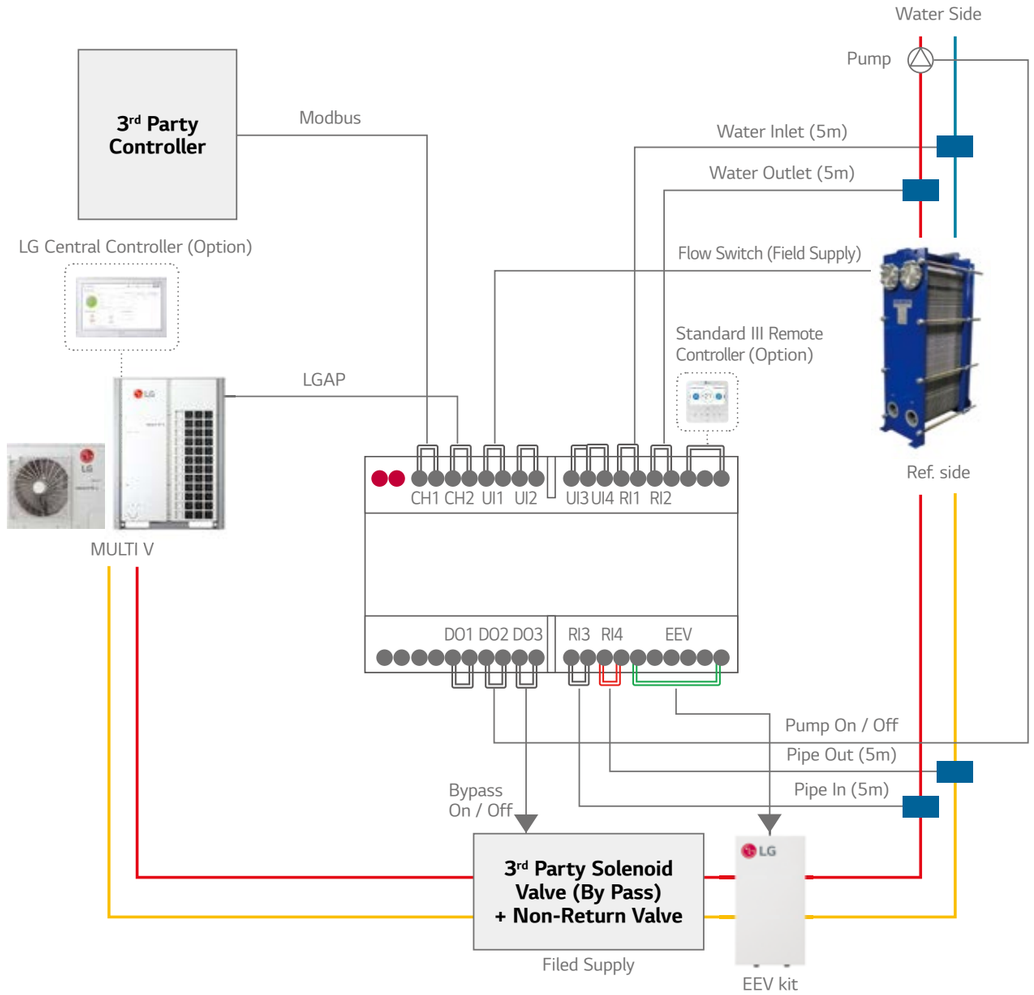
Modbus + DHW Only Setting

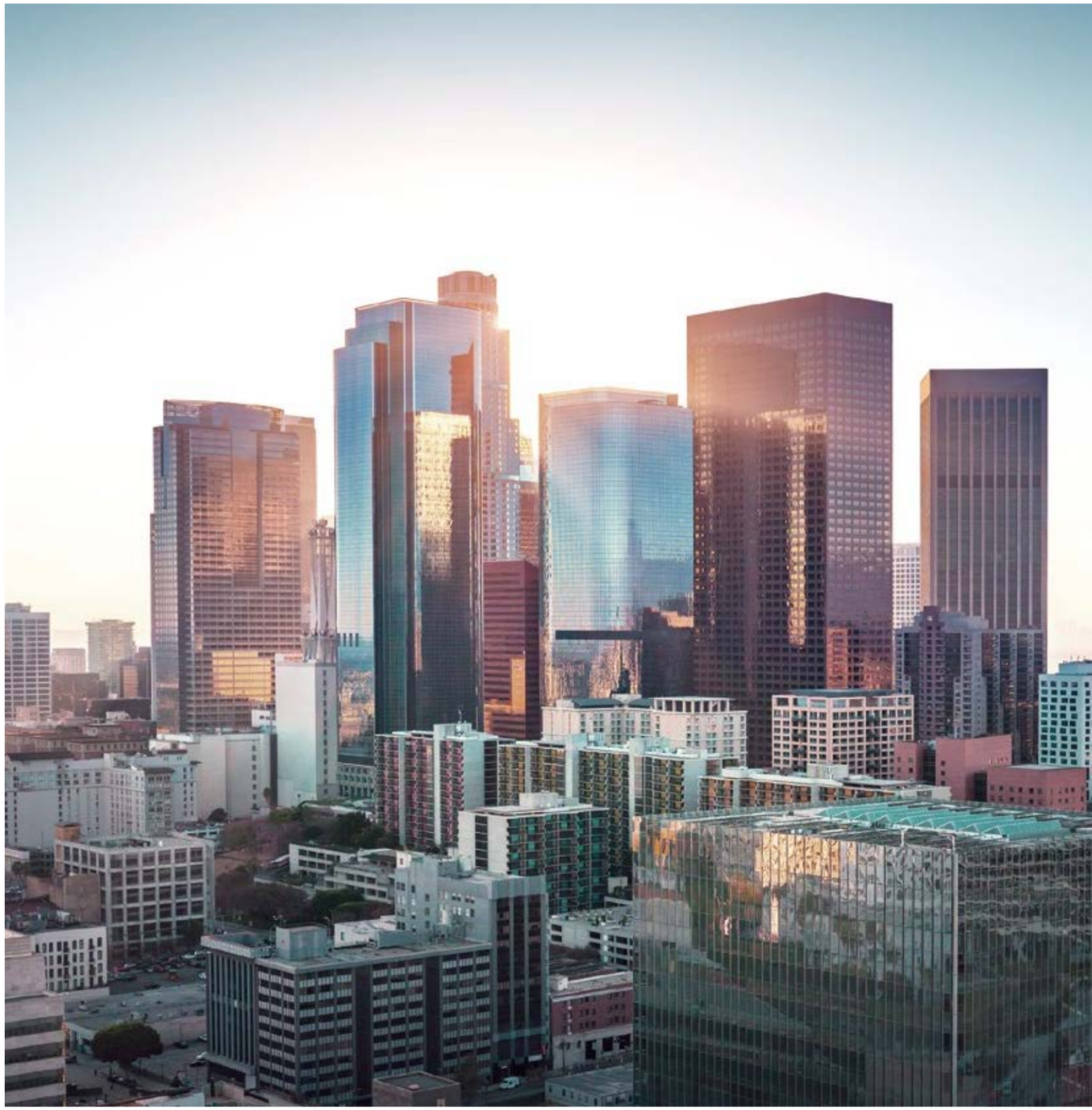


WATER COMMUNICATION MODULE

Installation Scene with Modbus / LG Control (Optional) Connection

Modbus + Heating / Cooling Setting





PROPOSAL CASE

HOTEL CONTROL SOLUTION

Guest Room

Air conditioner automatically switches off when guests depart

Integrated control of air conditioner with the hotel room controller

Air conditioner can be controlled with existing hotel thermostat

Prioritizes guest safety with refrigerant leak detection

Reception

Air conditioner control in conjunction with check-in or check out

Public Areas

Centralized management of the public areas

Design Proposal

Guest Room

The air conditioner automatically turns off when guests leave

PDRYCB400
2 contact point

Input
- Operation On / Off

Output
- Operation On / Off status
- Error alarm

Integrated control of air conditioner with the hotel room controller

PDRYCB500
Modbus RTU (9,600bps)

Function
- Operation
- Indoor temperature
- Error alarm
- Set run mode
- Set temperature
- Set fan speed

Control with existing hotel thermostat

PDRYCB300
PDRYCB320*
8 contact point

Input
- Universal Input*
- Operation On / Off
- Thermo On / Off
- Operation mode (Fan / Heat / Cool)
- Fan speed (Low / Middle / High)

Output
- Operation On / Off status
- Error alarm

* Available from April 2020.

Guest safety is the first priority

PRLDNVS0
Refrigerant leakage detector
- 6,000ppm

PREMTB100
Wired remote controller
- 4.3 inch color LCD
- Touch button

Lobby

Air conditioner control in conjunction with check-in or check out

PACS5A000
AC Smart 5
- BMS Integration (BACnet IP, Modbus TCP)

PACP5A000
ACP 5
- BMS Integration (BACnet IP, Modbus TCP)

SHOPPING MALL CONTROL SOLUTION

Retail

Proportionally distribute and manage the power consumption by tenants

Real-time system issue detection and alert

Maintenance Office

Reduces energy by checking operational trends

Atrium

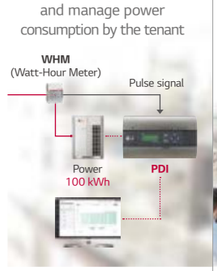
Integrated management of AHU applied to large spaces

Chiller and VRF integrated control

Design Proposal

Retail

Proportionally distribute and manage power consumption by the tenant



PPWRDB000
PDI Standard (2 ports)
- Max. 128 IDU

PQNUD1S40
PDI Premium (8 ports)
- Max. 128 IDU

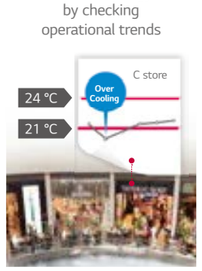
Fast problem detection and alarms

PACS5A000
AC Smart 5
- BMS Integration (BACnet IP, Modbus TCP)

PACP5A000
ACP 5
- BMS Integration (BACnet IP, Modbus TCP)

Maintenance Office

Reduces energy by checking operational trends



Atrium

Integrated management of AHU applied to large spaces

PAHCMR000
AHU Comm.Kit
- Return air

PAHCMS000
AHU Comm.Kit
- Discharge air

Chiller and VRF integrated control

PCHLLN000
Chiller Option Kit

+

PACP5A000
ACP 5

PACS5A000
AC Smart 5

HOSPITAL CONTROL SOLUTION

Hospital Ward

Proper airflow management for patients

Monitor the comfort level for each hospital ward

Control fan speed and air volume

Service Zone

Energy savings based on flexible scheduling

Lobby

Centralized management of AHU for large spaces

Design Proposal

Hospital Ward

Proper airflow management for patients

PTVSMA0
Human detection sensor

PREMTB100
Wired remote controller

- 4.3 inch color LCD
- Touch button

Monitor the comfort level for each hospital ward

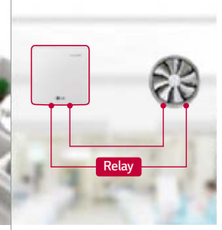
PACS5A000
AC Smart 5

- BMS Integration (BACnet IP, Modbus TCP)

PACP5A000
ACP 5

- BMS Integration (BACnet IP, Modbus TCP)

External device interlock control



PDRYCB400
2 contact point

Input
- Operation On / Off

Output
- Operation On / Off status
- Error alarm

Service Zone

Energy savings based on flexible scheduling

PACS5A000
AC Smart 5

- BMS Integration (BACnet IP, Modbus TCP)

PACP5A000
ACP 5

- BMS Integration (BACnet IP, Modbus TCP)

Lobby

Centralized management of AHU for large space

PAHCMR000
AHU Comm.Kit

- Return air

PAHCMS000
AHU Comm.Kit

- Discharge air

ACADEMIC INSTITUTION CONTROL SOLUTION

Class Room

Automatically save energy in the absence of students

Central controls prevent students from arbitrary control

Lecture Hall

Schedule management according to academic plan

Maintenance Office

Integrated management of distributed buildings

Centralized management with multiple interfaces

Design Proposal

Class Room

Automatically save energy in the absence of students

PTVSMA0
Human detection sensor

PREMTB100
Wired remote controller

- 4.3 inch color LCD
- Touch button

Central controls prevent students from arbitrary control

Lecture Hall

Schedule management according to academic plan

PACS5A000
AC Smart 5

- BMS Integration (BACnet IP, Modbus TCP)

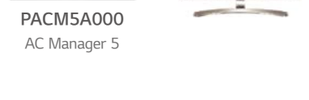
PACP5A000
ACP 5

- BMS Integration (BACnet IP, Modbus TCP)

Maintenance Office

Integrated management of distributed buildings

Centralized management with multiple interfaces



PACM5A000
AC Manager 5

OFFICE CONTROL SOLUTION

Maintenance Office

Energy savings and management throughout the building

Integrated management of HVAC with BMS system

Reduce costs by replacing BMS

Office Room

Reasonable power distribution to tenants

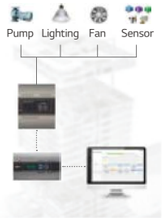
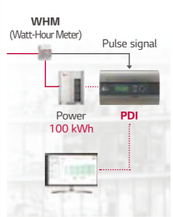
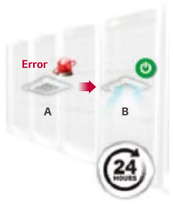
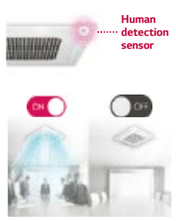
Server Room

24-hour backup management

Meeting Room

Energy savings based on occupancy detection

Design Proposal

Maintenance Office			Office Room	Server Room	Meeting Room
Energy savings and management throughout the building	Integrated management of HVAC with BMS system	Reduce costs by replacing BMS	Reasonable power distribution to tenants	Main equipment 24 hours back up management	Energy savings based on occupancy detection
					
PACS5A000 AC Smart 5 • BMS Integration (BACnet IP, Modbus TCP)	**PLNWKB000** LonWorks gateway	**PEXPMB000** ACS IO Module	**PPWRDB000** PDI Standard (2 ports) • Max. 128 IDU	**PACS5A000** AC Smart 5 • BMS Integration (BACnet IP, Modbus TCP)	**PTVSMA0** Human detection sensor
					
PACP5A000 ACP 5 • BMS Integration (BACnet IP, Modbus TCP)	**PMBUSB00A** Modbus RTU gateway	**PEXPM300** **PEXPM200** **PEXPM100** ACU IO Module	**PQNUD1S40** PDI Premium (8 ports) • Max. 128 IDU	**PACP5A000** ACP 5 • BMS Integration (BACnet IP, Modbus TCP)	**PREMTB100** Wired remote controller • 4.3 inch color LCD • Touch button

RESIDENTIAL CONTROL SOLUTION

Home

Anytime, anywhere air conditioner control and access

Integrate systems for smart connectivity throughout

Bed Room

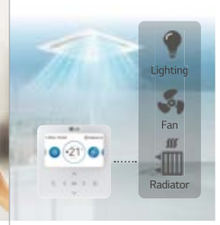
Use a familiar residential thermostat

Simple interlocking control by remote control

Apartment / Residence

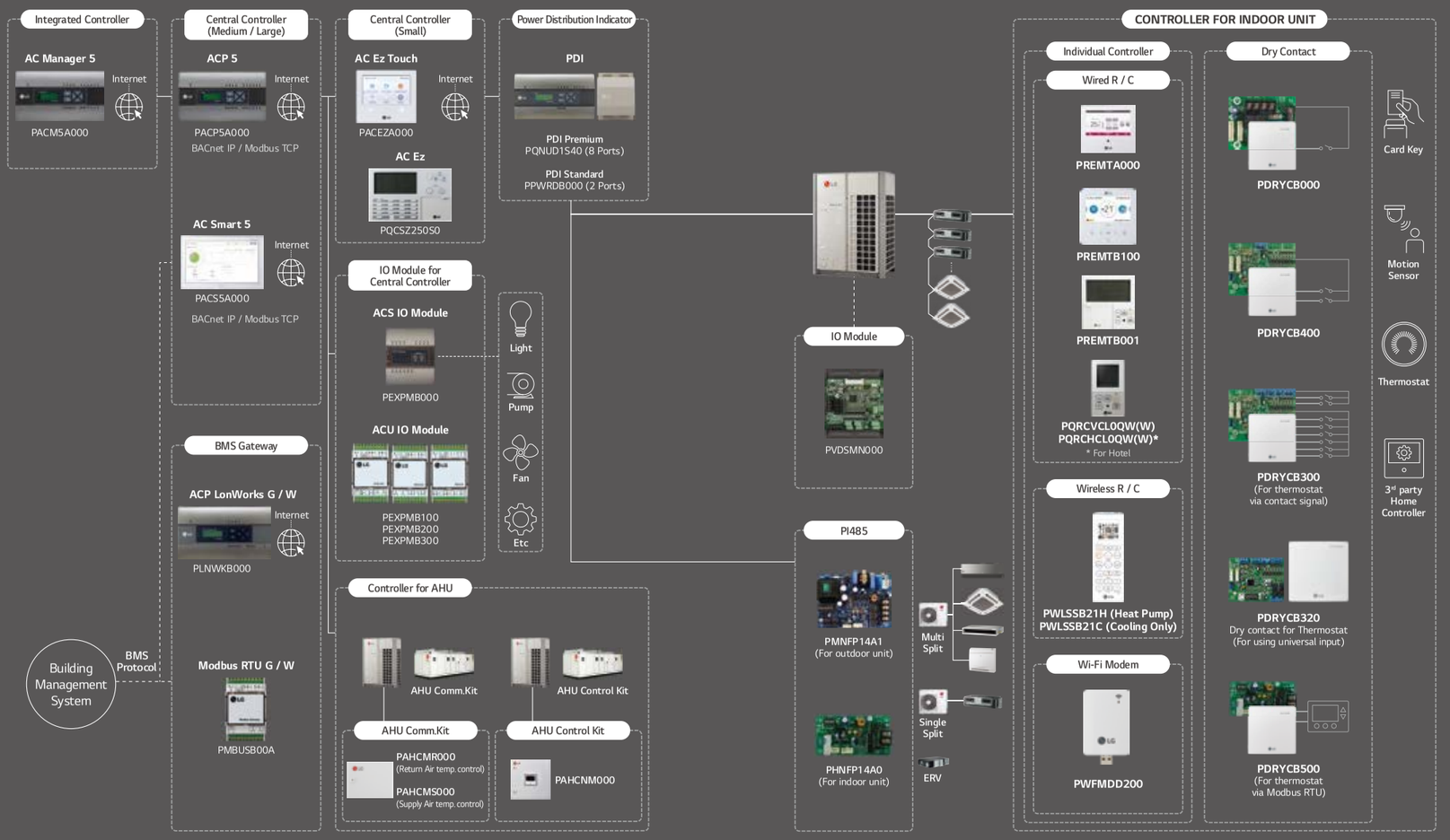
Stable system operation

Design Proposal

Home		Bed Room		Apartment
Control your home air conditioner anytime, anywhere	Build a Smart house	Use a familiar residential thermostat	Simple interlocking control by remote control	Stable system operation when indoor unit power is lost
				
PWFMDD200 Wi-Fi modem **Function** • On / Off • Fan speed • Operation mode • Vane control • Reservation (Sleep, Weekly On / Off) • Error check	**PDRYCB500** Modbus RTU (9,600bps) **Function** • Operation • Indoor temperature • Error alarm • Set operation mode • Set temperature • Set fan speed	**PDRYCB300** **PDRYCB320*** 8 contact point **Input** • Universal Input* • Operation On / Off • Thermo On / Off • Operation mode (Fan / Heat / Cool) • Fan speed (Low / Middle / High) **Output** • Operation On / Off status • Error alarm * Available from April 2020	**PREMTB100** Wired remote controller • 4.3 inch color LCD • Touch button	**PRIP0** Independent power module • EEV full close function

CONTROL SYSTEM ARCHITECTURE

LG BECON HVAC SOLUTION offers a diverse range of effective control solutions that satisfy specific needs of each building and its user scene. These control systems are equipped with user-friendly interface, flexible interlocking environment, energy management and smart individual controller for optimized controlling conditions and smart building management



MEMO

Individual Control


Standard III (White)


Standard III (Black)


Standard II (White)


Standard II (Black)


Simple


Simple for hotel


Premium


Wi-Fi Modem


Wireless Remote Controller

Centralized Control


AC Ez


AC Ez Touch


ACP 5


AC Smart 5


Modbus RTU gateway


ACP LonWorks


AC Manager 5


PI485


PI485

Integration Device


PDI
(Power Distribution Indicator)


ACS IO Module
(Input / Output Module)


Chiller Option Kit


ACU IO Module


Group
Control Wire

Remote
Temperature
Sensor


Simple Dry Contact


Dry Contact for Thermostat


2 Points Dry Contact
(For Setback)


For Modbus


Zone
Controller


Cool / Heat
Selector


IO Module
(Input / Output Module)


Variable Water Flow
Control Kit


Low Ambient Kit


Water Communication Module


Control Kit


Communication Kit
Return / Room Air control


Communication Kit
Discharge / Supply Air control


Controller Module
Main module


Controller Module
Communication module


EEV Kit
(Electronic Expansion Valve)

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MEMO