LG Business Solutions

LG HVAC SOLUTION

MULTI V™ 5

INDOOR UNITS

CONTROL SOLUTION

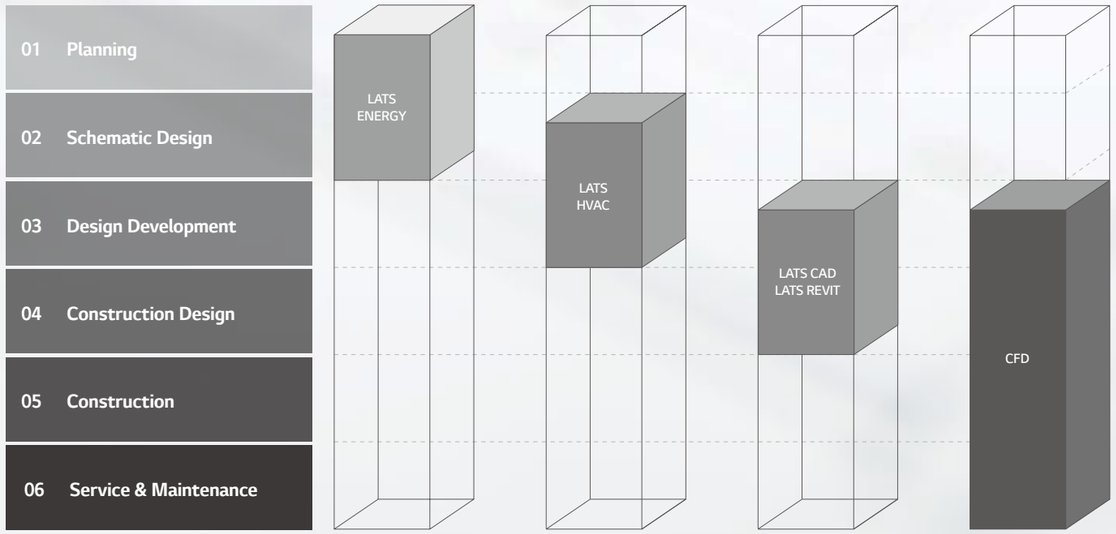
ACCESSORIES

ENGINEERING CAPABILITY :HVAC TOOL & SUPPORT

From planning to service & maintenance and then to de-construction, an architectural project goes along many stages from the beginning to the end of its lifecycle. Along those stages, various engineering tools are applied to solve the diverse issues happening in each stage, with the most optimal solution possible. Due to the usage of such tools, buildings are effectively designed, built, supervised, and maintained throughout the lifecycle.
Dedicated to provide exceptional HVAC engineering support, LG Electronics Air-Solution Business Unit offers several engineering tools and solutions focused on HVAC, during the overall lifecycle of a building, related to the three categories: I. Draft Energy Estimation, II. Model Selection & Design, and III. Installation Environment Simulation. Among them, the LATS* Program series has been developed to offer optimised tool for LG HVAC systems, providing our customers a fast, easy, and accurate way in everyday duties of Model-selection, Draft Energy Estimation & Designing, and many more.

* LATS : LG Air-conditioner Technical Solution

I	II	III
Energy Estimation	Model Selection & Design	Installation Environment Simulation



01 Draft Energy Estimation

LATS Energy
LATS Energy program is a draft energy estimation program, self-developed by LG. This program helps estimate the draft energy usage and analyses the life cycle cost of LG VRF models during the early stage of a project.

02 Model Selection

LATS HVAC
LATS HVAC is an integrated model selection program of LG HVAC products, enabling an accurate and quick selection on the best model suitable to each sites. In addition to model selection, faster estimation on refrigerant piping diameter and additional refrigerant is possible, along with auto printing of reports.

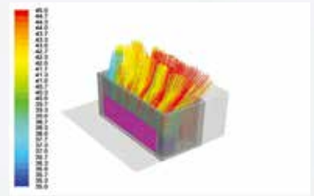
03 Design

LATS CAD
LATS CAD enables faster and a more accurate design of LG HVAC products. Moreover, it offers not only designing, but also quotation and installation review in order to minimise problems during installation processes.

LATS Revit
LATS REVIT is developed to make 3D designing of LG HVAC products easier than the previous program. It enables engineers to check 3D images from designing stage and prevents possible issues of the installation stage.

04 Installation Environment Simulation

CFD Analysis
CFD Analysis is applied in areas of estimating: indoor airflow and temperature distribution while operating VRF products, outdoor airflow distribution, and noise level. By running a simulation before construction, engineers estimate possible issues and find optimal solutions of malfunction that could occur after construction.



LG CONTROL SOLUTION

MULTI V 5 offers a diverse range of effective control solutions that satisfy specific needs of each building and its user scene. These controlling systems are equipped with user friendly interface, flexible interlocking environment, energy management and smart individual controller for optimised controlling conditions and smart building management.

HOTEL

Hotel Room Solution

15.8kW

10.6kW

7.1kW

Integration Solution

reddot award
User Interface Design

*2016 AC Manager 5

APARTMENT

Power Distribution Solution

OFFICE

3rd Party BMS

Central Control Solution

Service/Maintenance

· Energy Management

· External Device

RESIDENTIAL

Smart Individual Control Solution

SMALL BUILDING

Small Central Control Solution

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CONTROL SOLUTION

INDIVIDUAL CONTROL / CENTRALISED CONTROL
SYSTEM INTEGRATION DEVICE / OTHER INTEGRATION CONTROL SOLUTION

CONTROL SOLUTION

LG HVAC CONTROL LINE-UP

Individual Control

Wired Remote Controller

Premium

PREMTA000

Standard

Standard III (White)

PREMTB100

Standard II (White)

PREMTB001

Simple

PQRCVCL0QW

PQRCHCA0QW
(Simple for Hotel)

Wireless Remote Controller

NEW!

PWLSSB21H

Wi-Fi controller

NEW! LG Wi-Fi Modem

For Indoor Unit
PWFMDD200

Centralised Control

Indoor Unit ~ 32

Indoor Unit ~ 64

AC Ez Touch

PACEZA000

Indoor Unit ~ 128

NEW! AC Smart 5

PACS5A000

Indoor Unit ~ 256

NEW! ACP 5

PACP5A000

Indoor Unit ~ 8,192

AC Manager 5

PACM5A000

*AC Smart IV & AC Smart BACnet will be replaced by AC Smart 5
*ACP IV & ACP BACnet will be replaced by ACP 5
*KNX Gateway is provided by INTESIS

Centralised Control

System Integration Device

Facility Integrator

PDI
(Power Distribution Indicator)

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

ACS I/O Module
(Input / Output Module)

PEXPMB000

Gateway for Protocol

ACP Lonworks

PLNWKB000

NEW! Modbus RTU Gateway

PMBUSB00A

PI-485

PI-485

For SINGLE /
MULTI / THERMA V
PMNFP14A1

For Indoor Unit
(Air-Conditioner, ERV)
PHNFP14A0

Indoor Unit

Dry Contact

Simple Dry Contact
PDRYCB000

2 Points Dry Contact
(For Setback)
PDRYCB400

Dry Contact for
Thermostat
PDRYCB300

For Modbus
PDRYCB500

Control Accessory

Group Control Wire

PZCWRCG3

Remote
Temperature Sensor

PQRSTA0

Outdoor Unit

IO Module
(Input / Output Module)

Demand Controller
For MULTI V IV/5
PVDSMN000

Dry Contact for
Demand Control

Demand Controller for
MULTI V III
PQDSBCDVM0

Variable Water Flow
Control kit

For MULTI V WATER IV
PWFCKN000

AHU Kit

NEW! Communication Kit

Return/Room Air control
PAHCMR000

NEW! Communication Kit

Discharge Air control
PAHCMS000

Control kit

PRCKD21E (~ 4 ODUs)
PRCKD41E (~ 8 ODUs)

EEV Kit
(Electronic Expansion Valve)

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

TXV Kit
(Thermal Expansion Valve)

PATX13A0E (22.4 ~ 44.8 kW)
PATX20A0E (50.4 ~ 72.8 kW)
PATX25A0E (78.4 ~ 100.8 kW)
PATX35A0E (106.4 ~ 128.8 kW)
PATX50A0E (134.4 ~156.8 kW)

INDIVIDUAL CONTROL SOLUTION

LINE-UP

Standard III Wired Remote controller

Simple Wired Remote Controller

Premium Wired Remote Controller

Wireless Remote Controller

Standard II Wired Remote Controller

Wi-Fi Controller

Remote Controller Line Up

Model Name	PREMTA000	PREMTB100	PREMTB001	PQRCVCL0QW PQRCVCL0Q PQRCHCA0QW PQRCHCA0Q	PWLSSB21H	PWFMDD200
On / Off	•	•	•	•	•	•
Mode Change	•	•	•	•*	•	•
Temperature Setting	•	•	•	•	•	•
Fan Speed Control	•	•	•	•	•	•
Auto Swing	•	•	•	•*	•	•
Vane Control (Louver Direction)	•	•	•	•*	•	•
Additional Mode Setting	•	•	•	•	•	-
E.S.P (External Static Pressure)	•	•	•	•	-	-
Reservation	Weekly / Yearly	Weekly / Yearly	Weekly	-	Sleep, On / Off	Weekly On / Off
Child lock / Total Lock	•	•	•	•	-	-
Advanced Lock (on/off, mode, set point range)	•	•	Mode only	-	-	-
Electric Failure Compensation	•	•	•	•*	-	•
Time Display	•	•	•	-	-	-
Filter Sign	•	•	•	-	-	•
Energy Monitoring**	•	•	•	-	-	•
2 Set Points Control	•	•	-	-	-	-
External Ports	-	DO 1	-	-	-	-

• Indoor unit needs to have functions requested by the controller
* PQRCHCA0QW / PQRCHCA0Q doesn't offer this function
** LG centralised controller(available from AC Ez Touch or higher model) with PDI (PQNUD1S40 / PPWRDB000) installation is required for this function

STANDARD III WIRED REMOTE CONTROLLER

4.3 inch Color screen with a modern design

PREMTB100 (White)

Features [1)]

The Optimized Controller in MULTI V 5
- Humidity sensor embedded
- Comfort cooling setting
- Smart Load Control setting
- Outdoor unit low noise setting
- Defrost mode setting

New Modern Design & Easy interface
- Seamless design / Touch button
- 4.3 inch Color LCD / Intuitive GUI

External Device On/Off
- Customized Interlocking control with indoor status

2 Set Points control [2)]

Multi Language support
English, French, German, Spanish, Italian, Portuguese, Polish, Czech, Russian, Chinese

Model Name	PREMTB100
On / Off	•
Fan Speed Control	•
Temperature Setting	•
Mode Change	Cooling / Heating / Auto / Dehumidification / Fan
Additional Mode Setting*	Plasma Purification / Energy-Saving Cooling / Robot Cleaning / Heater / Humidification / Comfort Cooling
Auto Swing	•
Vane Control (Louver direction)	•
E.S.P (External Static Pressure)**	•
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*** / Check Operation Time / Target Setting (Energy, Operation Time) / Time Limit Operation / Alarm Popup / Initialization Usage Data
Operation Status LED	•
Indoor Temperature Display	•
Indoor Humidity Display	•
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

*It might not be indicated or operated at the partial product
** This function is available for certain indoor unit type
*** LG centralised controller(available from AC Ez Touch or higher model) with PDI (PQNUD1S40 / PPWRDB000) installation is required for this function
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

Fully Support MULTI V 5 functions

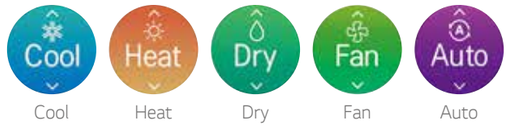
Inside Dual Sensing
Standard III remote controller can do sensing both Temperature and Relative Humidity.

Comfort Cooling
Without cooling operation stopping, this function allows MULTI V 5 IDU to maintain operation at mild cooling mode.

Modern Design & Intuitive Interface

Colorful Icon
Standard III remote controller is possible to express various colors.

Weekly / Monthly / Yearly Trend & Target Setting control
Standard III remote controller provides convenient trend & target graph for different period.



Easy Checking Schedule
Standard III remote controller provides clock type daily schedule.

External Device On/Off

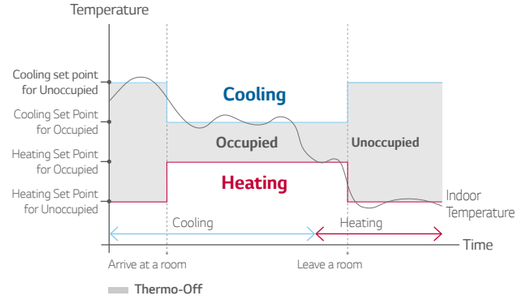
External Equipment Control
User can turn on or off the external equipment through contact point output.

Customised Interlocking Control
User can make control scenario.
example) When temperature is under 10 degree, turn on the external heater.

2 Set Points Control

2 Set Points Control
Ambient indoor temperature is guaranteed by setting two-point temperature for cooling and heating. Standard III remote controller automatically changes from heating to cooling (and vice versa) depending on temperature.

Home Leave
Changeable setting for occupied / unoccupied status



INDIVIDUAL CONTROL SOLUTION

PREMIUM WIRED REMOTE CONTROLLER

5 inch full touch screen with a premium design

PREMTA000

Features [4)]

Self-Management for Energy Saving
- Time limit operation / Power consumption monitoring
- Weekly / Monthly / Yearly trend tracking
- Target alert alarm
- Temperature range setting

Design with User's Convenience
- Full touch / Intuitive GUI (Graphic User Interface)
- Main display simple mode / Touch buzzer

Improved Scheduling
- Timer / Daily / Weekly / Yearly / Holiday

2 Set Points Control [5)]

Model Name	PREMTA000
On / Off	•
Fan Speed Control	•
Temperature Setting	•
Mode Change	Cooling / Heating / Auto / Dehumidification / Fan
Additional Mode Setting*	Plasma Purification / 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 / Yearly / Holiday
Time Display	•
Electric Failure Compensation	•
Child Lock	•
Filter Sign	• (Remain time + Alarm)
Energy Management	Check Energy Usage*** / 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	•****
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

*It might not be indicated or operated at the partial product
** This function is available for certain indoor unit type
*** LG centralised controller(available from AC Ez Touch or higher model) with PDI (PQNUD1S40 / PPWRDB000) installation is required for this function
**** For ceiling type duct
4) Indoor unit needs to have functions requested by the controller
5) 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

Energy Management

Self Energy Management
After it gathers information about usage time or electricity usage*, offer periodical history data to users as visual information. By using various setting mode (operation hour / electricity usage etc.), you can manage on your own.

Weekly / Monthly / Yearly Trend & Target Setting Control
Premium remote controller provides convenient trend & target graph for different period.

* Centralised control (PACS4B000 / PACP4B000 / PQNFB17C0 / PLNWKB000) and PDI (PQNUD1S40 / PPWRDB000) should be installed for this function

User Friendly Design

Intuitive UI & GUI Design
It is more easy to use and control various functions.

Standard Mode

Display Configuration
Users can use of five buttons as shortcuts for frequently used features.

Simple Mode

Enhanced Schedule Function

Yearly Schedule

Yearly / Weekly Schedule Function
If you set the schedule all at once, you will be able to effectively manage for various lengths of time. It provides 5 kinds of reservation functions. (Timer, Daily, Weekly, Yearly, Holiday)

Weekly Schedule Pattern

Easy Pattern Schedule
It is possible to embody various schedules as pattern setting.

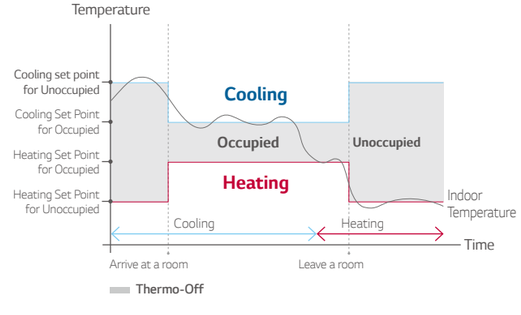
Weekly Schedule

* Available to save up to a maximum of 20 error histories, 20 holiday reservations and 5 daily event on week

2 Set Points Control

2 Set Points Control
Ambient indoor temperature is guaranteed by setting two-point temperature for cooling and heating. New Standard III remote automatically changes from heating to cooling (and vice versa) depending on temperature.

Home Leave
Changeable setting for occupied / unoccupied status



INDIVIDUAL CONTROL SOLUTION

STANDARD II WIRED REMOTE CONTROLLER

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

STANDARD II

PREMTB001 (White)

Features[1)]

Model Name	PREMTB001
On / Off	•
Fan Speed Control	•
Temperature Setting	•
Mode Change	Cooling / Heating / Auto / Dehumidification / Fan
Additional Mode Setting	Plasma Purification / 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	•*
Size (W x H x D, mm)	120 x 120 x 16
Blacklight	•
Power Consumption Monitoring	•**
Check Model Information	•

*** For ceiling type duct**
**** LG centralised controller(available from AC Ez Touch or higher model) with PDI (PQNUD1S40 / PPWRDB000) installation is required for this function**
1) Indoor unit needs to have functions requested by the controller

INDIVIDUAL CONTROL SOLUTION

SIMPLE WIRED REMOTE CONTROLLER

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

SIMPLE

PQRCVCL0QW (White)

SIMPLE FOR HOTEL

PQRCHCA0QW (White)

Simple

Simple for Hotel

Features[1)]

Model Name	PQRCVCL0QW	PQRCHCA0QW
On / Off	•	•
Fan Speed Control	•	•
Temperature Setting	•	•
Mode Change	Cooling / Heating / Auto / Dehumidification / Fan	Only Changeable by Central Controller
Auto Swing	•	-
Vane Control (Louver direction)	•	-
E.S.P (External Static Pressure)	•	•
Electric Failure Compensation	•	-
Child Lock	•	•
Indoor Temperature Display	•	•
Wireless Remote Controller Receiver	•*	•*
Size (W x H x D, mm)	68 x 120 x 16	68 x 120 x 16
Blacklight	•	•

*** For ceiling type duct**
1) Indoor unit needs to have functions requested by the controller

INDIVIDUAL CONTROL SOLUTION

WIRELESS REMOTE CONTROLLER

PWLSSB21H

Features

Model Name	PWLSSB21H
On / Off	•
Fan Speed Control	•
Temperature Setting	•
Mode Change	Cooling / Heating / Auto / Dehumidification / Fan
Additional Mode Setting	Plasma Purification / Energy-Saving Cooling / Robot Cleaning / Auto Dry
Auto Swing	•
Vane Control (Louver direction)	•
Reservation	Sleep / On / Off
Indoor Temperature Display	•
Sleep Mode Auto	Max. 7 hours
Size (W x H x D, mm)	51.4 x 153 x 26

INDIVIDUAL CONTROL SOLUTION

LG WI-FI MODEM

Control LG air conditioners via using the internet devices as Android or iOS bases smartphones.

PWFMDD200

Features

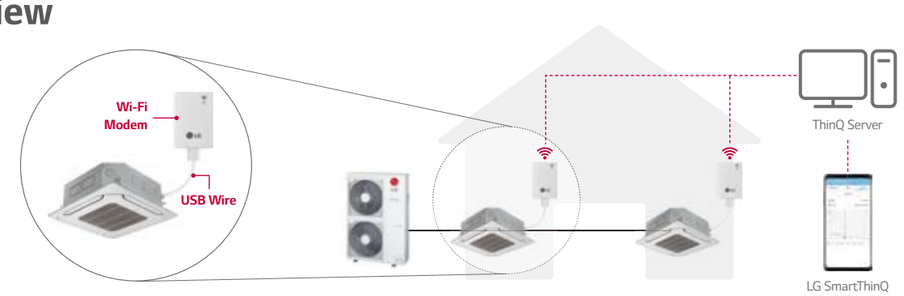
- **Access LG air conditioner anytime and from anywhere with iOS or Android compatible devices**
- **LG's exclusive Home Appliances control app(SmartThinQ) is available**
- **Simple operation for various functions**
  - On/Off
  - Fan Speed
  - Energy Monitoring [1)]
  - Operation Mode
  - Vane Control [2)]
  - Filter Management
  - Current/Set Temperature
  - Reservation (Sleep, Weekly On/Off)
  - Error check

Download on the App Store | GET IT ON Google Play

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

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

Overview



*** Search "LG SmartThinQ" on Google market or Appstore then download the app.**
*** Internet service with Wi-Fi connection has to be available**

CENTRALISED CONTROL SOLUTION

CENTRALISED CONTROL SOLUTION

LINE-UP

AC Ez Touch

NEW!
ACP 5

NEW!
AC Smart 5

AC Manager 5

Central Controller Line Up

Model Name	PACEZA000	PACS5A000	PACP5A000	PACM5A000
Maximum number of units	64	128	256	8,192
Individual / Group Control	•	•	•	•
Individual Controller Lock	•	•	•	•
Error Check	•	•	•	•
Slave Mode (Interlocking with higher level controller)	•	•	-	-
Schedule	Yearly	Yearly	Yearly	Yearly
Remote Access	By client S/W	Web	Web	Web
Emergency Stop & Alarm Display	•	•	•	•
Power Consumption Monitoring (with PDI)	•	•	•	•
Auto Changeover / Setback	•	•	•	•
Temperature Limit	•	•	•	•
Operation Time Limit	-	•	•	•
Visual Navigation	-	•	•	•
Operation Trend	-	•	•	•
Interlock Control	-	•	•	•
Virtual Group Control	-	•	•	•
ODU Capacity Control*	-	•	•	•
Energy Navigation (with PDI)	-	•	•	•
ACS IO Module Interlocking	-	•	•	•
NEW! BMS Integration (BACnet, Modbus protocol)	-	• (PACS5A000 only)	• (PACP5A000 only)	-
NEW! IPv6 Support	•	• (PACS5A000 only)	• (PACP5A000 only)	-

*** This function is available for certain product**

CENTRALISED CONTROL SOLUTION

AC SMART 5

All-in-One solution for BMS integration up to 128 units via BACnet and Modbus protocol as well as its own smart management function with touch screen interface

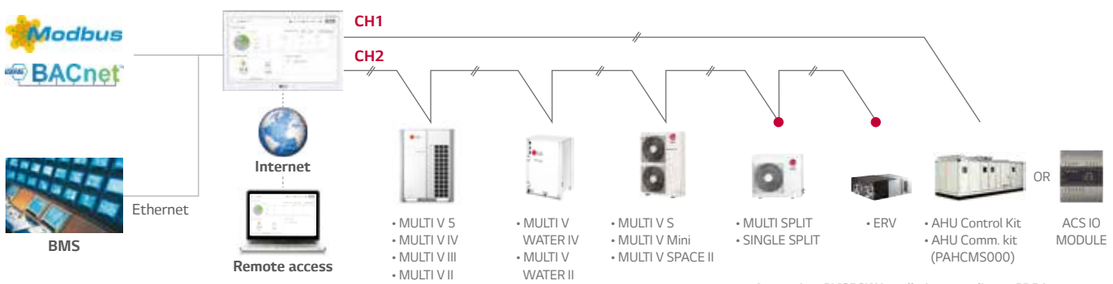
PACS5A000

Features

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)]
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	•
Interlock Control	•
Virtual Group Control	•
ODU Capacity Control	•
Energy Navigation (with PDI)	•
Daylight Saving Time	•
ACS IO Module Interlocking	Max. 9
External IO Port	DI 2 / DO 2
BMS Integration[3)]	BACnet IP / Modbus TCP
IPv6 Support	•

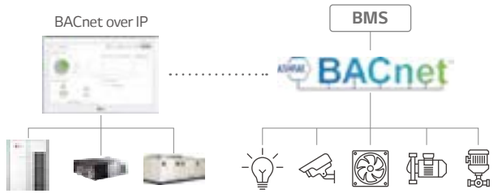
1) Chiller Option Kit(PCHLLN000) is required 2) It is only available in some products 3) For the detail point list, please refer to the installation manual

Installation Scene



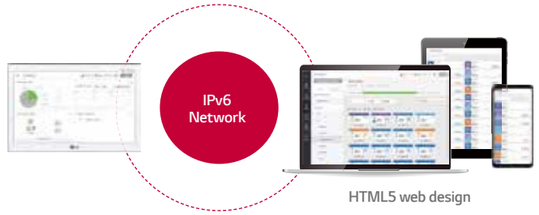
• Appropriate PI485GW installation according to PDB is necessary

Features



BMS Integration

Without additional device, AC Smart 5 provides BACnet/IP and Modbus TCP/IP interface for BMS(Building Management System) integration as well as its own management function.



Advanced Network Accessibility

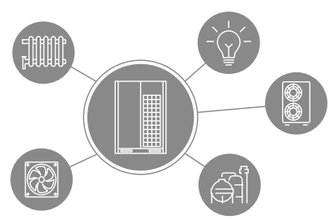
AC Smart 5 reflects the state of the art of network technology trend. IPv6(Internet Protocol version 6), which is the most recent version of the Internet Protocol, provides accessibility to the IPv6 compatible network environment. HTML5 makes the web access to AC Smart 5 easier and look good on all devices, especially for mobile.

Energy Management

Energy navigation function allows air conditioners operation to be managed under the monthly plan of energy usage. By analyzing present energy consumption and comparing with the plan, overuse of system operational costs can be prevented.

Visualised Control

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



Device Interlock

Building Facility can be interlocked with LG HVAC system on the automated control logic.

Operation Trend

Unit's operation status change in the past can be traced to help establishing reasonable operation plan of the site.

CENTRALISED CONTROL SOLUTION

AC EZ TOUCH

Smart management with 5 inch touch screen for small site

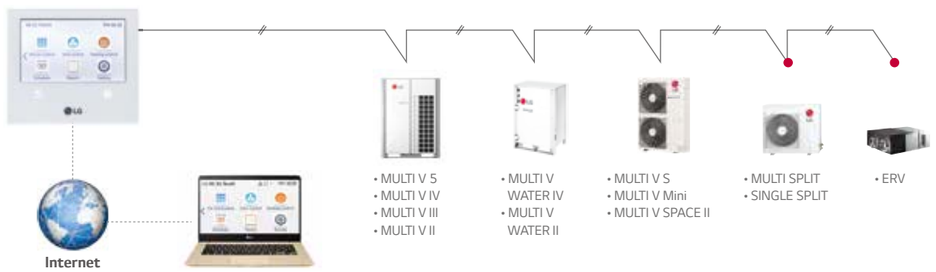
PACEZA000

Features

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
ODU Low Noise[1)]	•
Daylight Saving Time	•
External IO Port	DI 1
IPv6 Support	•

1) It is only available in some products

Installation Scene



• Appropriate PI 485 should be used according to PDB

Features

PC Access

Users can control each space efficiently through PC access.

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 mode changes from cooling to fan or heating to off mode by force.
(It is available only air conditioner and 'on' mode indoor unit)

Schedule

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

Alarm Indicator

It works when there are some errors or it's time to change the filter. Users can respond immediately according to alarm indicator therefore HVAC system is monitored consistently.

Group / Individual Control

According to the situation, it can be controlled by group or each indoor unit. It is useful to monitor or control for the best fit of request.

CENTRALISED CONTROL SOLUTION

ACP 5

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

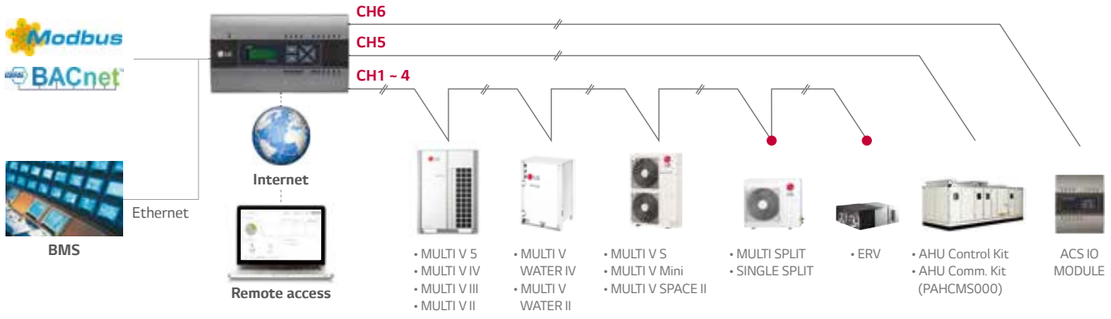
PACP5A000

Features

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)]
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	•
Interlock Control	•
Virtual Group Control	•
ODU Capacity Control	•
Energy Navigation (with PDI)	•
Daylight Saving Time	•
ACS IO Module Interlocking	Max. 16
External IO Port	DI 10 / DO 4
BMS Integration[3)]	BACnet IP / Modbus TCP
IPv6 Support	•

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

Installation Scene



• Appropriate PI485GW installation according to PDB is necessary

CENTRALISED CONTROL SOLUTION

AC MANAGER 5

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

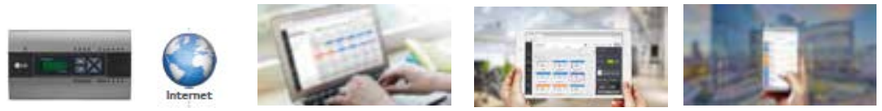
PACM5A000

reddot award
User Interface Design

Features

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)]
Maximum number of units	8,192 (supports 32 ACP IV/5 or AC Smart IV/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	•
Interlock Control	•
Virtual Group Control	•
ODU Capacity Control	•
Energy Navigation (with PDI)	•
ACS IO Module Interlocking	•

*AC Manager 5 requires ACP IV/5 or AC Smart IV/5
1) Chiller Option Kit (PCHLLN000) is required



Schedule Function
Energy Management
Operation Trending Report
Automatic E-mail Sending

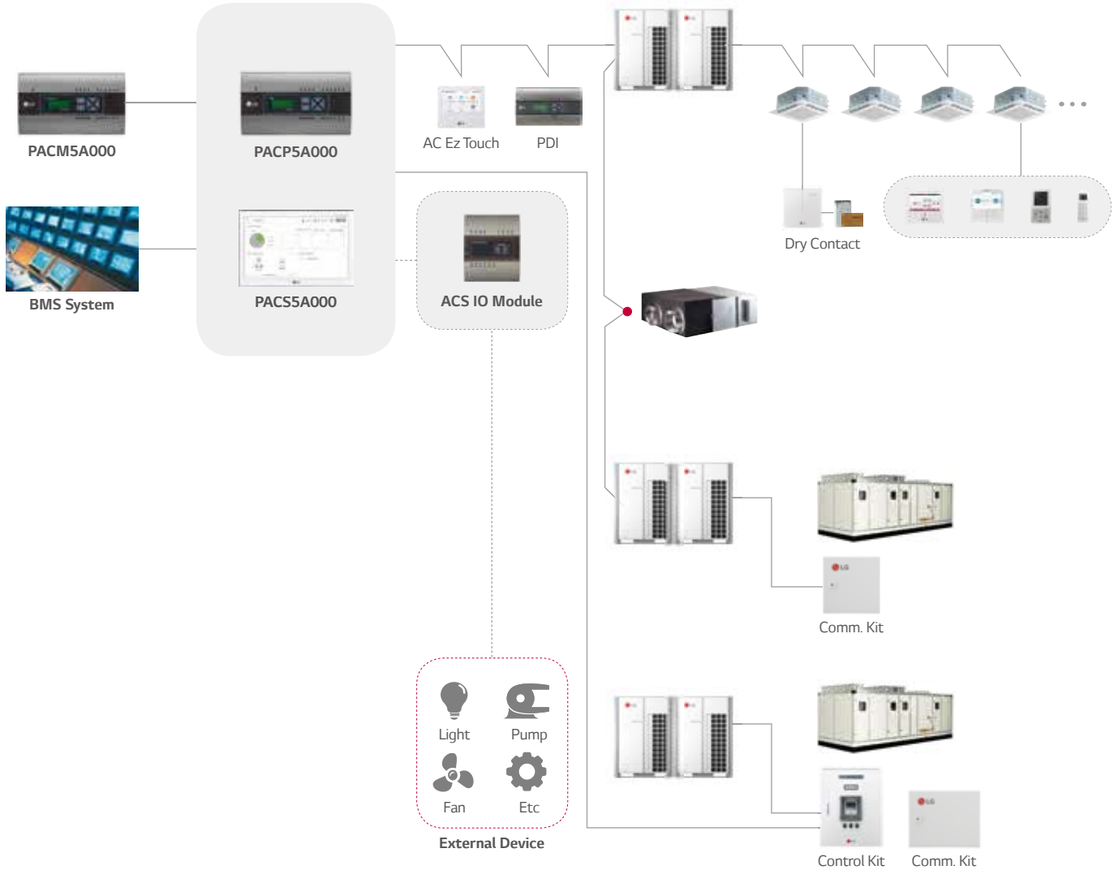
CENTRALISED CONTROL SOLUTION

AC MANAGER 5

SYSTEM INTEGRATION DEVICE

LINE-UP

Solution Overview



Facility Integrator	Gateway for Protocol	PI-485
PDI (Power Distribution Indicator) Premium (8 port) PQNUD1S40 Standard (2 port) PPWRDB000	**ACP Lonworks** PLNWKB000	 For Outdoor Unit (SINGLE / MULTI / THERMA V) PMNFP14A1
ACS I/O Module PEXPMB000	**Modbus RTU Gateway** PMBUSB00A	 For Indoor Unit (Air-Conditioner, ERV) PHNFP14A0

• Appropriate PI 485 should be used according to PDB

SYSTEM INTEGRATION DEVICE

PDI (POWER DISTRIBUTION INDICATOR)

PDI shows distributed power consumption of up to 128 indoor units

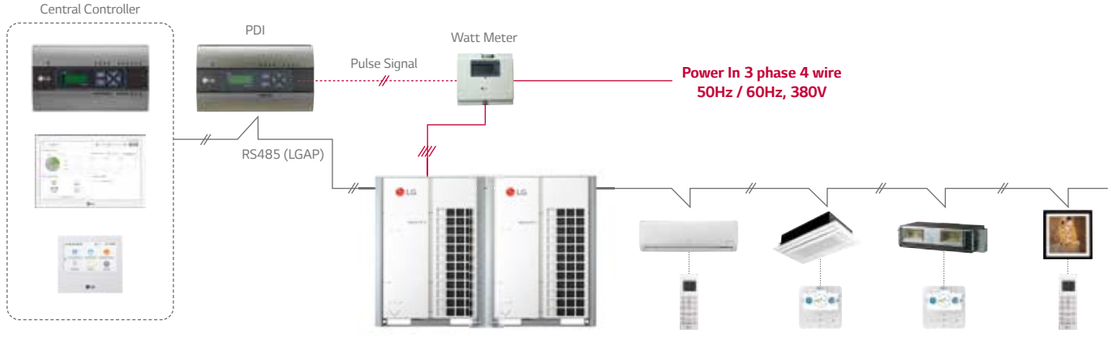
Premium
PQNUD1S40 (8 port)

Standard
PPWRDB000 (2 port)

Features

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	8	2
Maximum Number of Units	128	
Data Backup When Power Outage	•	
Power Input	PDI : AC 24V, Transformer : AC 220-240V	
Power Module Size (W x H x D, mm)	120 x 155 x 65	

Installation Scene



Power Cable for 3 Phase 4 Wire
Communication Cable (2 Wire Shielded Cable)
Pulse Signal Wire

* Power cable and type could be different from this scene depending on the Outdoor unit's specification
* Measured power consumption could be different between PDI and Watt meter
* Applicable Central Controller : ACP series (IV/5/BACnet/Lonworks), AC Smart series(IV/5/BACnet), AC Ez Touch
  Combination : we recommend you to connect separated watt meter for Outdoor units to have correct power distribution value

SYSTEM INTEGRATION DEVICE

ACS I/O MODULE

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

PEXPMB000

Features

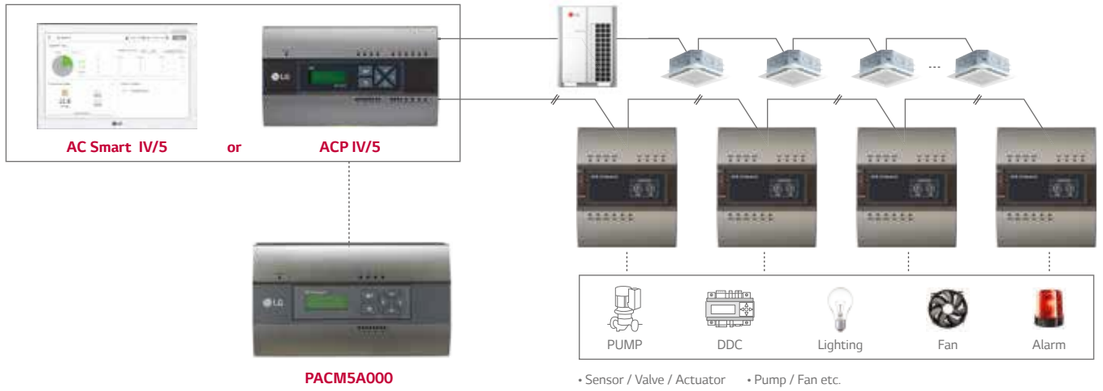
Model Name		PEXPMB000
Linkable Products		PACS4B000 PACS5A000 PACP4B000 PACP5A000
Communication	RS-485	1
I/O	Digital Input	3
	Digital Output	3
	Universal Input [1]	4
	Analog Output	4

	PACS4B000	PACP4B000	PACM5A000
Number of Indoor Units	64 ~ 128	128 ~ 256	8,192
Max. I/O Points	130	238	1,260
Maximum Number of Node	9	16	-

Model Name		Min.	Max.
Analog Input	NTC 10k	0.68k Ω	177k Ω
	PT 1000	803 Ω	1,573 Ω
	Ni 1000	871.7 Ω	1,675.2 Ω
	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

* Maximum number of Indoor units may be reduced by increasing the number of I/O points.
1) The type of UI (Universal Input) is selectable among Digital Input and Analog Input

Installation Scene



* D I : Digital Input, DO : Digital Output, UI : Universal Input, AO : Analog Output / Please contact our regional office to have connectable relay specification for analog output
* The type of UI (Universal Input) is selectable among Digital Input and Analog Input

SYSTEM INTEGRATION DEVICE

ACP LONWORKS GATEWAY

PLNWKB000

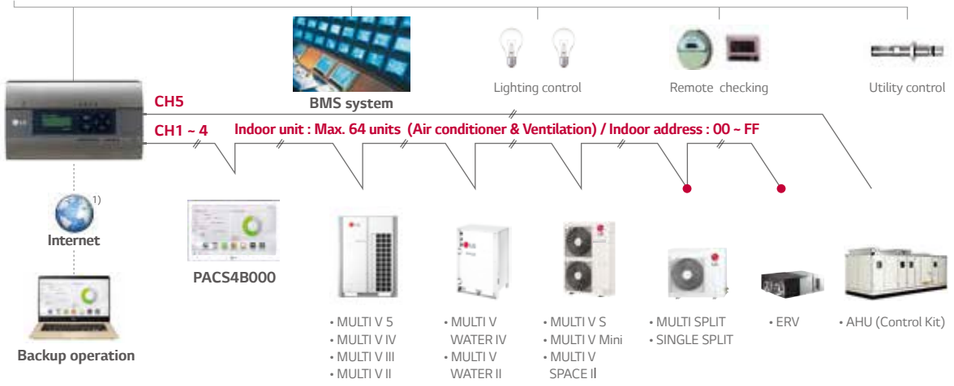
Features

- **Process Ability**
  - EHP Type : 64 units (Indoor / ERV / Hydro Kit / THERMA V)
  - AHU Control kit : Maximum 16 units
- **Connect to use Lonworks® protocol and LG air conditioner protocol.**
- **Self installation verification function using internet (Web Server Included)**
  - Setting gateway
  - 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.**

Controlling	Monitoring Items
On / Off Command	On / Off Status
Operation Mode Setting	Operation Mode Status
Fan Speed Setting	Fan Speed Status
Lock Setting	Lock Status
Air Flow Setting	Air Flow Setting
Set Temperature Setting	Set Temperature Status
-	Current Space Temperature Status
-	Error Status
-	Accumulator Power Distribution Status
Upper Limit Temperature Setting	Accumulator Power Distribution Status
Low Limit Temperature Setting	Low Limit Temperature Setting
Mode Lock Setting	Mode Lock Status
Peak Operation Ratio Setting	Peak Operation Ratio Setting
All On / Off Setting	-
-	Total Accumulate Power Status

Installation Scene

LONWORKS®



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

• Appropriate PI 485 should be used according to PDB

SYSTEM INTEGRATION DEVICE

MODBUS RTU GATEWAY

Providing Modbus RTU connection between LG Air conditioners and BMS

PMBUSB00A

Features

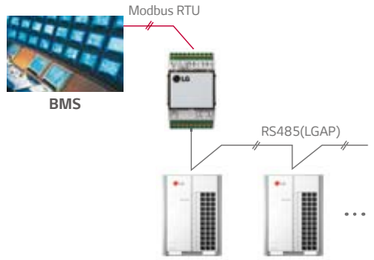
- **Function**
  - MODBUS RTU communication with MODBUS master controller
  - Applicable for MULTI V
  - Max. 16 IDUs with single module / Max. 64 IDUs with 4 modules
  - MODBUS RTU slave (RS485) / 9,600 bps
  - Size (W*H*D) : 53.6 x 89.7 x 60.7
  - Power : DC 12V
- **Modbus Memory Map***

Register	Read	Write	Description	Notes
00001	•	•	Operation	0 : Off / 1 : On
00002	•	•	Total Lock	0 : Unlock / 1 : Lock
00005	•	•	Auto Swing	0 : Manual / 1 : Auto
00006	•	•	Operation Mode Lock	0 : Unlock / 1 : Lock
00007	•	•	Fan Speed Lock	0 : Unlock / 1 : Lock
00008	•	•	Set Temperature Lock	0 : Unlock / 1 : Lock
10001	•	-	Error Alarm	0 : Normal / 1 : Error
10002	•	-	Thermo On / Off	0 : Thermo Off / 1 : Thermo On
30001	•	-	Error Code	0 ~ 255
30002	•	-	Pipe In Temperature	Degrees C x 10
30003	•	-	Pipe Out Temperature	Degrees C x 10
30004	•	-	Room Temperature	Degrees C x 10
40001	•	•	Operation Mode	0 : Cooling / 1 : Dry / 2 : Fan / 3 : Auto / 4 : Heating
40002	•	•	Set Temperature	Degrees C x 10
40003	•	•	Fan Speed	1 : Low / 2 : Medium / 3 : High / 4 : Auto

Installation Scene

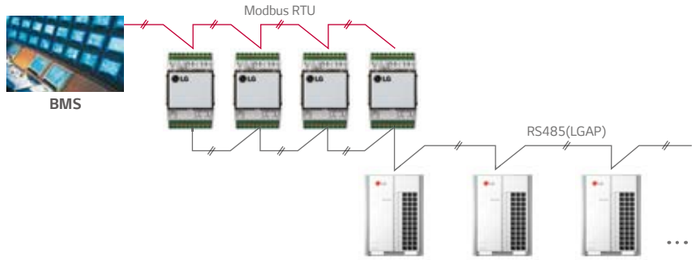
- **Single module**

  Max. 16 indoor units with a single module



- **Multiple module**

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



Max. 16 outdoor units in one RS485(LGAP) line

SYSTEM INTEGRATION DEVICE

PI 485

PI 485 converts LG air conditioner's protocol to the RS485 protocol for the central controller

PMNFP14A1 / PHNFP14A0

Features

- **Model Name : PMNFP14A1**
- **Power : Single Phase AC 220-240V 50/60Hz**
- **1 for Each Outdoor Unit**
  - MULTI V MINI (ARUN40GS2A / ARUV40GS2A Only needs PI485)
  - SINGLE SPILIT - MULTI SPLIT - THERMA V

- **Model Name : PHNFP14A0**
- **Power : Connected with the Indoor Units**
- **1 for Each Indoor Unit**
  - Indoor Unit (Air-Conditioner, ERV)

*** MULTI V PLUS II & MULTI V III & MULTI V IV series do not require any other PI 485 since these series have PI 485 in its outdoor unit PCB.**

OTHER INTEGRATION CONTROL SOLUTION

LINE-UP

Indoor Unit		Outdoor Unit	AHU Kit
Dry Contact	**Control Accessory**		
Simple Dry Contact PDRYCB000	Group Control Wire PZCWRCG3	IO Module (Input / Output Module) PVDSMN000	Communication Kit PAHCMR000
2 Points Dry Contact PDRYCB400	Remote Temperature Sensor PQRSTA0	Dry Contact for Demand Control PQDSBCDVM0	 PAHCMS000
Dry Contact for Thermostat PDRYCB300		Variable Water Flow Control Kit PWFCKN000	Control Kit PRCKD21E PRCKD41E
For Modbus PDRYCB500			EEV Kit (Electronic Expansion Valve) PRLK048A0 / PRLK096A0
			TXV Kit (Thermal Expansion Valve) PATX13A0E / PATX20A0E PATX25A0E / PATX35A0E PATX50A0E

DRY CONTACT

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

PDRYCB000

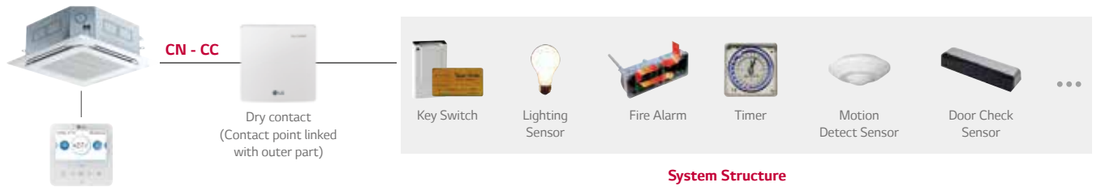
Features

Model Name	PDRYCB000
Contact Point	1 Contact Point
Contact Voltage Rating	AC 220-240V
On / Off Control	•
Error Alarm Output	•
Operation On / Off Output	•
Rotary Switch 1 (Set Temperature selection)	-
Rotary Switch 2 (Operation Logic selection)	-
Size (W x H, mm)	120 x 120

* Refer to each models PDB for applicable models.
* Maximum operation AC : 3A
* 4th generation indoor unit has 1 contact point function for On / Off control. But in case of using more function of Dry Contact besides On / Off control, Dry Contact is needed.

Signal Point

Installation Scene



System Structure

DRY CONTACT

PDRYCB400

Features

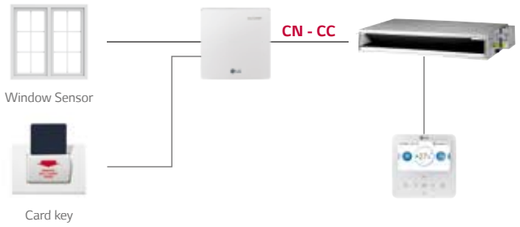
Model Name	PDRYCB400
Contact Point	2 Contact Point
Contact Voltage Rating	DC 5 ~ 12V / Non Voltage
On / Off Control	•
Error Alarm Output	•
Operation On / Off Output	•
Rotary Switch 1 (Set Temperature selection)	•
Rotary Switch 2 (Operation Logic selection)	•
Size (W x H, mm)	120 x 120

* Refer to each models PDB for applicable models. * Maximum operation AC : 3A
* 4th generation indoor unit has 1 contact point function for On / Off control. But in case of using more function of Dry Contact besides On / Off control, Dry Contact is needed.

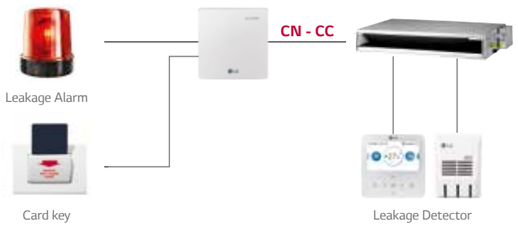
Signal Point

Installation Scene

2 inputs interworking



Refrigerant leakage detection alarm



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

PDRYCB300

Features

Model Name	PDRYCB300
Contact Voltage Rating	DC 5 ~ 12V / Non Voltage
On / Off Control	•
Mode Control	•
Fan Speed Setting	•
Thermo Off	•
Error Alarm Output	•
Operation On / Off Output	•
Rotary Switch 1 (Set Temperature Selection)	•
Rotary Switch 2 (Operation Logic Selection)	•
Size (W x H, mm)	120 x 120

Signal Point

Installation Scene

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

DRY CONTACT

PDRYCB500

Features

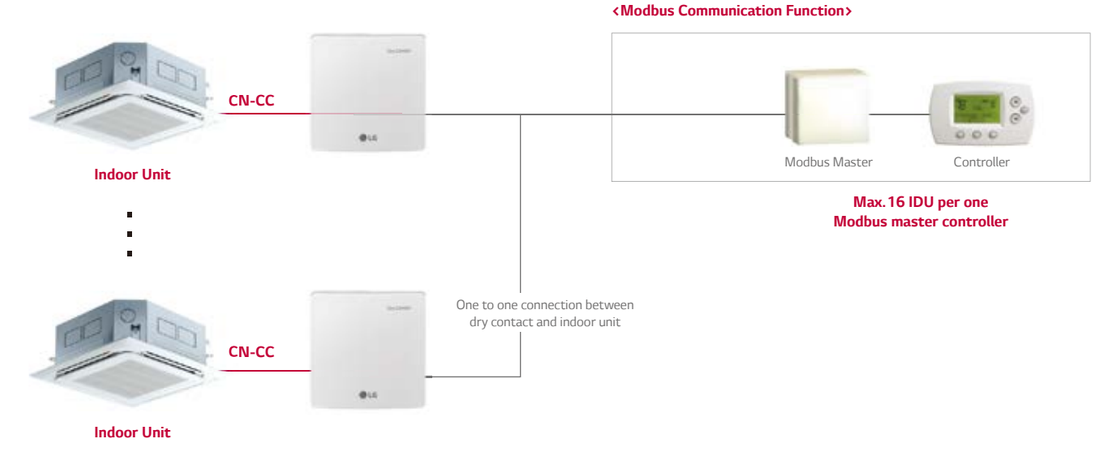
Function

- MODBUS communicate with MODBUS master controller
- Max. 16 IDUs can be connected with one MODBUS master controller
- MODBUS RTU slave / 2 wire RS485 / 9,600bps
- Size (W x H x D) : 120mm x 120mm x 36.5mm

Memory map

Register	Name	Range	Notes
00001	Operation	0 ··· 1	0 : Stop, 1 : Run
30003	Indoor temperature	100 ··· 400	Degrees C x 10
30100	Error alarm	0 ··· 1	0 : No Error, 1 : Error
40001	Set run mode	0 ··· 4	0 : Cooling, 1 : Dry, 2 : Fan, 3 : AI, 4 : Heating
40002	Set temperature	180 ··· 300	Degrees C x 10
40015	Set fan speed	1 ··· 3	1 : Low, 2 : Middle, 3 : High

Installation Scene



* Please contact out regional office to check the compatibility with 3rd party room controller

GROUP CONTROL WIRE

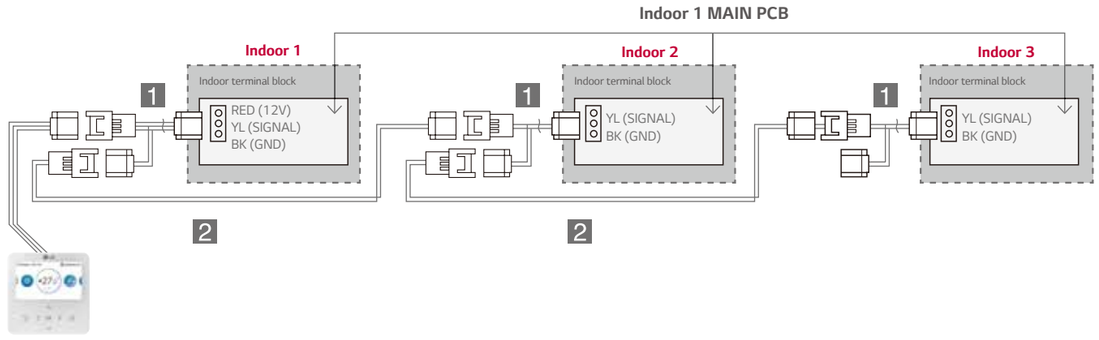
Cables used to connect a wired remote controller up to 16 indoor units

PZCWRCG3

Features

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

Installation Scene



Note : 1 Y type Cable assembly for connecting indoor unit and low cable.
2 Long Cable assembly for connecting indoor to indoor.
- Please connect cable assembly Y type Cable with already connected indoor unit.

OTHER INTEGRATION CONTROL SOLUTION

REMOTE TEMPERATURE SENSOR

Sensor for detecting the room temperature

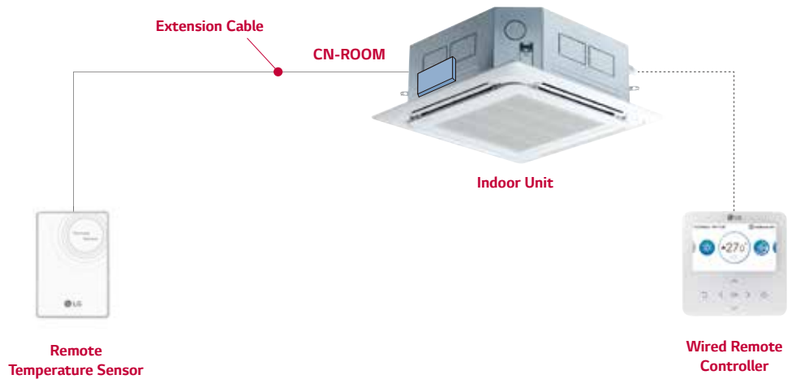
PQRSTA0

Features

- 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.



OTHER INTEGRATION CONTROL SOLUTION

IO MODULE

Interface module between system air conditioner's outdoor unit and external device

PVDSMN000

Features

Function

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

Description

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

Note : IO Module is not compatible for MULTI V III

Models Applied

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

Part Description

1) Digital Input Part (DI : Dry Contact Input)

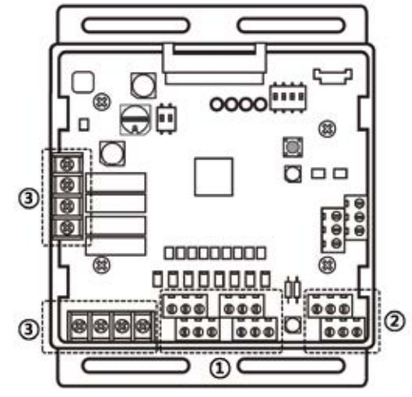
- Demand control by contact input (3 Step)
- Low Noise Operation input
- Priority Setting input :
  Setting the priority of demand control command
  (Capacity control for external signal from DDC vs Peak control by LG Central controller)
  - Open : External signal has priority to central controller (Default)
  - 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 : 250VAC, Max 1A)

- Error status relay output
- Operation status relay output
- Valve control

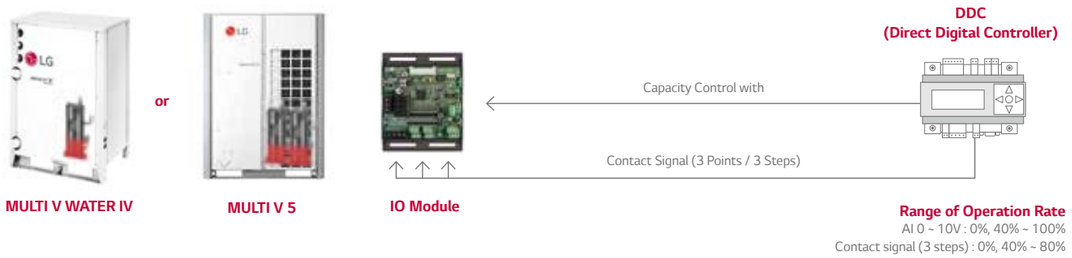


IO MODULE

Installation Scene

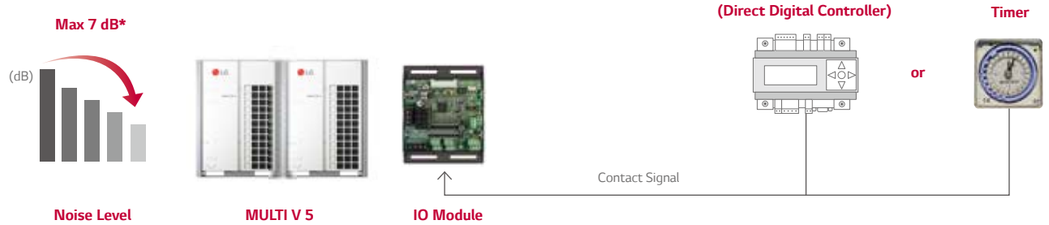
Demand Control

Provides variable setting for demand control according to input method to reduce power consumption.
This function supports 2 types of input signal : AI (0 ~ 10V, 10 Step) and contact signal (3 Step).



Low Noise Operation

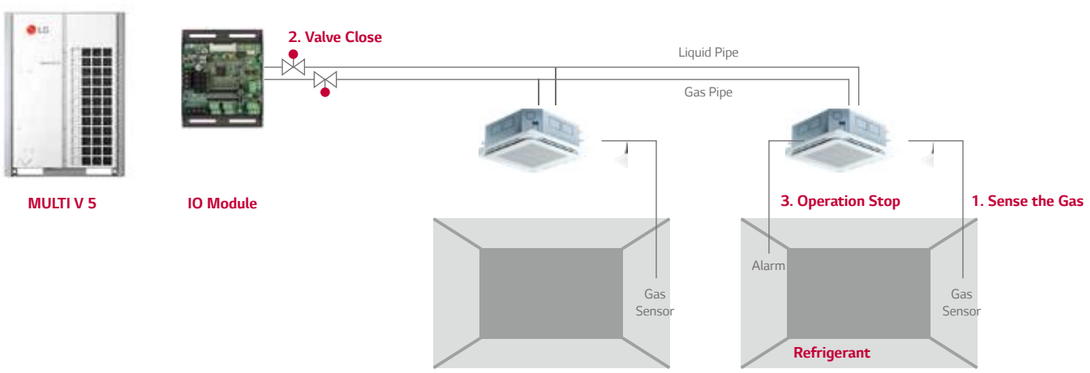
To reduce noise level , control outdoor unit's fan speed by dry contact input.



* 8 HP 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 close refrigerant valve with Pump-down



VARIABLE WATER FLOW CONTROL KIT

Accessory developed for controlling the water flow

PWFCKN000 (MULTI V WATER IV)

Features

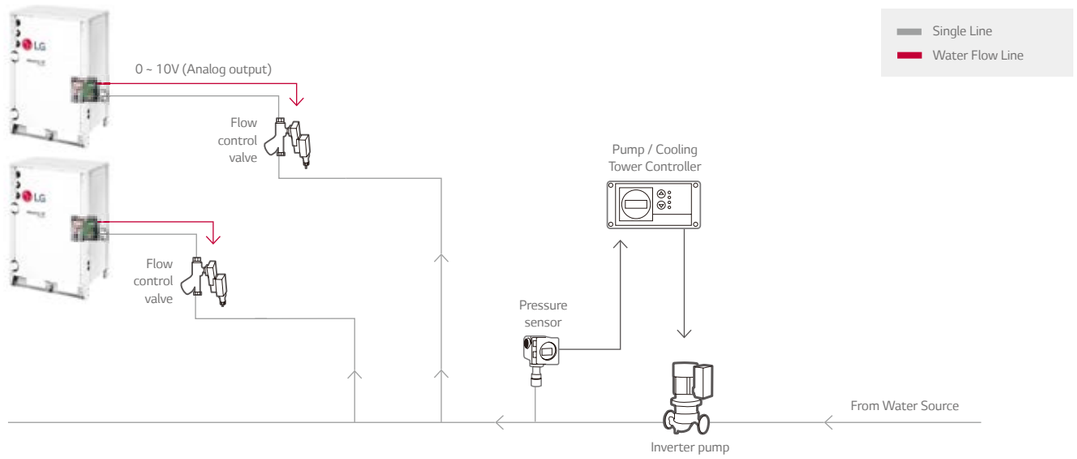
Function

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

Advantage

- 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

Wiring Diagram



- 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.

AHU KITS

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

NEW! **PAHCMR000** NEW! **PAHCMS000**

CONTROL KIT

PRCKD21E / PRCKD41E

EEV KIT

PRLK048A0
PRLK096A0

TXV Kit (Thermal Expansion Valve)

PATX13A0E / PATX20A0E
PATX25A0E / PATX35A0E
PATX50A0E

Specifications

Communication & Control Kit

Type	Model	Combination: Outdoor Unit	Combination: EEV Kit	Combination: TXV Kit	Combination: Centralised Controller	Description	Dimensions (mm): W	H	D
Communication kit	PAHCMR000	Multi V	•	•	•	Return / room air temperature control by DDC or LG individual / centralised controller	300	300	155
		Single Split	-	-	•				
	PAHCMS000	Multi V	•	•	•	Discharge air temperature control by DDC or LG individual / centralised controller	380	300	155
		Single Split	-	-	•				
Control kit	PRCKD21E	Multi V	-	•	•	Max capacity 1~4 master outdoor unit	600	750	285
	PRCKD41E	Multi V	-	•	•	Max capacity 5~8 master outdoor unit	600	750	285

Expansion Valves

Type	Model	Capacity Range	Pipe Diameter (mm): Liquid (ODU)	Liquid (AHU)	Gas (ODU)	Gas (AHU)	Dimensions (mm): W	H	D
EEV Kit (Electronic Expansion Valve)	PRLK048A0	2.6 ~ 28.0 kW	12.7	12.7	-	-	217	404	83
	PRLK096A0	33.6 ~ 56.0 kW	12.7	12.7	-	-	217	404	83
TXV Kit (Thermal Expansion Valve)	PATX13A0E	22.4 ~ 44.8 kW	15.88	15.88	22.22	22.22	491	238	174
	PATX20A0E	50.4 ~ 72.8 kW	15.88	22.22	28.58	28.58	491	238	174
	PATX25A0E	78.4 ~ 100.8 kW	22.22	28.58	34.92	34.92	491	238	174
	PATX35A0E	106.4 ~ 128.8 kW	28.58	34.92	41.3	41.3	491	238	174
	PATX50A0E	134.4 ~ 156.8 kW	28.58	34.92	41.3	41.3	561	291	192

Communication Kit

HIGH ENERGY EFFICIENCY

LG's DX AHU solutions are capable of performing all indoor air conditioning tasks with success under all operating conditions thanks to their superior performance with high efficiency heat source system.

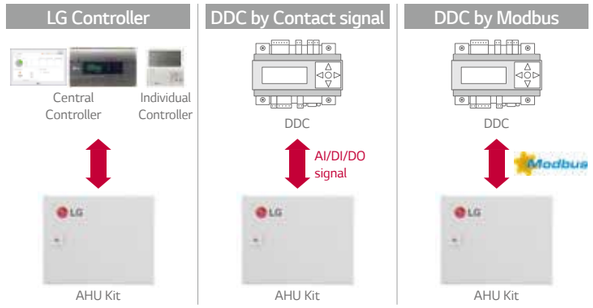
Solution benefits offer the following advantages:
- High energy efficiency inverter system
- Large range of expansion valves
  : 3.6 ~ 56 kW EEV Kit, 22.4 ~ 156.8 kW TXV Kit
- Connected to various heat sources
  : MULTI V, MULTI V WATER, MULTI V S, SINGLE SPLIT

DIVERSE OPTIONS FOR CONTROL

AHU communication kit can be connected to various control system such as LG individual/central controller and DDC*.
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.

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

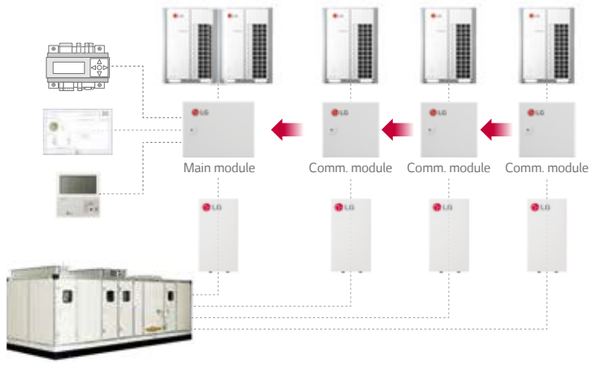
*DDC : Direct Digital Controller



EXPANDABLE SYSTEM DESIGN

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

- Multiple module combination for large capacity AHU



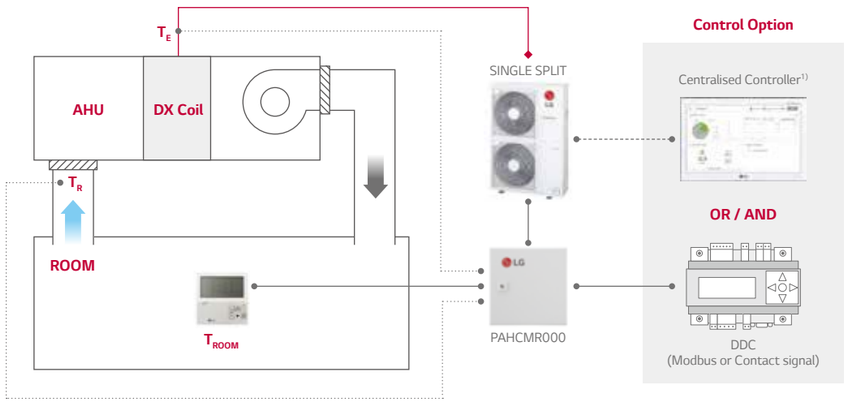
AHU KITS

Communication Kit Application

Small Capacity with Single Split + Return / Room Air Temperature Control

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

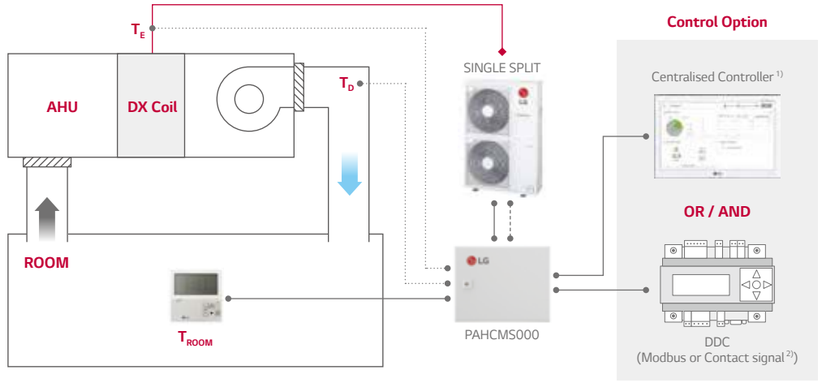
T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



Small Capacity with 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_D = Discharge Air Temperature
T_{ROOM} = Room Air Temperature



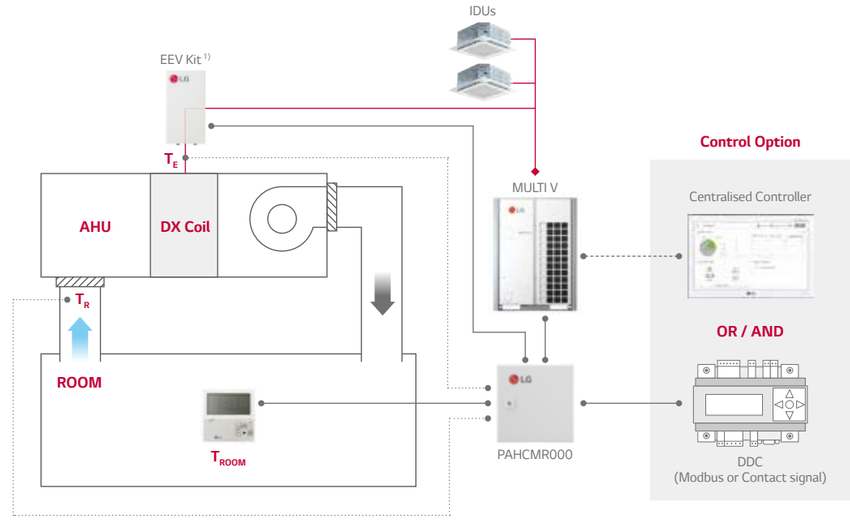
Note
1) PI485(PMNFP14A1) is required for centralised controller
2) In case of applying DDC with contact signal, discharge air temperature should be measured and controlled by DDC
3) For more detail, please refer to the PDB

Communication Kit Application

Small-Medium Capacity with MULTI V + EEV Kit + IDU + Return / Room Air Temperature Control

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

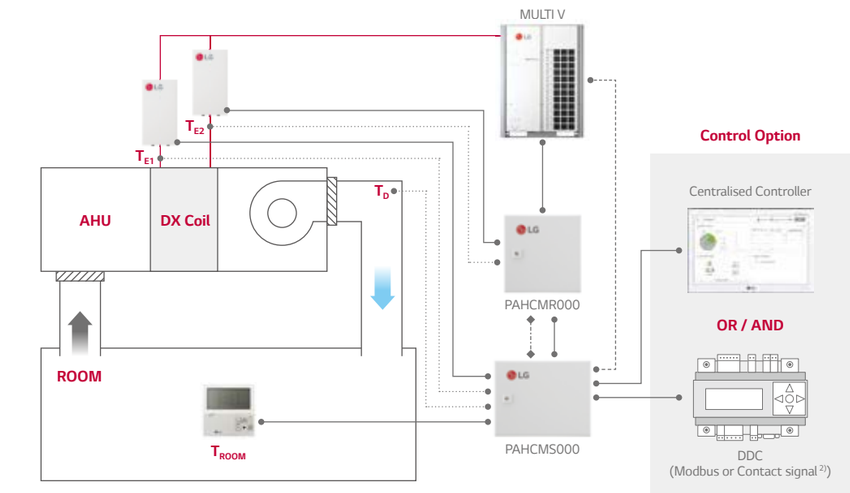
T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



Small-Medium Capacity with MULTI V + EEV Kit + Discharge Air Temperature Control

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

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



Note
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
3) For more detail, please refer to the PDB

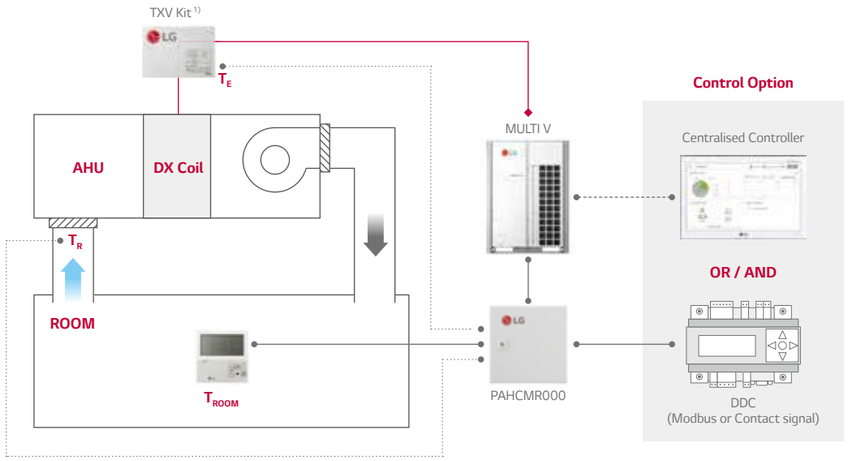
AHU KITS

Communication Kit Application

Large Capacity with MULTI V + TXV Kit + Return / Room Air Temperature Control

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

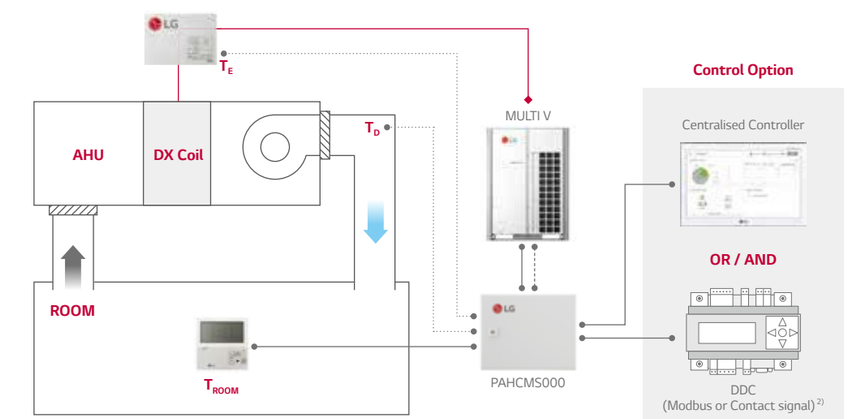
T_E = Evaporator Temperature (Liquid Pipe / Gas Pipe)
T_R = Return Air Temperature
T_{ROOM} = Room Air Temperature



Large Capacity with MULTI V + TXV Kit + Discharge Air Temperature Control

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

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



Note
1) TXV Kit should be connected with outdoor unit 1:1
2) In case of applying DDC with contact signal, discharge air temperature should be measured and controlled by DDC
3) For more detail, please refer to the PDB

Communication Kit Function

Communication with DDC via Contact Signal

Function List		PAHCMR000	PAHCMS000	Type	Electric Spec.
Control	Comm. Kit Operation	On / Off		Digital Input	Non voltage
	Operation Mode 1)	Cooling / Heating		Digital Input	Non voltage
	Return (room) Air Temperature 2)	16~30°C	-	Analog Input	DC 0~10 V / 20 mA
	Discharge Air Temperature 3)	-			
	Fan Speed 4)	-	Low / Middle / High	Digital Input	Non voltage
	Forced Thermal On / Off	On / Off	-	Digital Input	Non voltage
	Capacity Control	-	•	Analog Input	DC 0~10 V / 20 mA
Monitor	Comm. Kit Operation 2)	On / Off		Digital Output	Max : DC 12 V / 1A, AC 250 V / 3A
	Operation Mode	-			It needs to be checked through control signal
	Return (room) Air Temperature	-			
	Discharge Air Temperature	-			
	Fan Speed 2)	Low / Middle / High		Digital Output	Max : DC 12 V / 1A, AC 250 V / 3A
	Defrost Operation 2)	Defrost / Normal		Digital Output	Max : DC 12 V / 1A, AC 250 V / 3A
	Error Alarm 2)	Error / Normal		Digital Output	Relay C contact (Max : DC 30 V / 5A, AC 250 V / 5A)
	Compressor On / Off	-	On / Off	Digital Output	Max : DC 12 V / 1A, AC 250 V / 3A

1) Available operation mode can be varied depending on the setting of Communication Kit
2) This function may not be possible depending on the setting of Communication Kit. For more details, please refer to the product data book
3) Discharge air temperature should be controlled directly through DDC
4) To control the fan speed using contact signal, DO ports for the status of fan speed needs to be connected with the fan unit

Communication with DDC via Modbus protocol

Function List		PAHCMR000	PAHCMS000	Note
Control	Comm. Kit Operation	On / Off		
	Operation Mode 1)	Cooling / Heating		
	Return (room) Air Temperature	16~30°C	-	
	Discharge Air Temperature	-	16~30°C	
	Fan Speed 2)	Low / Middle / High	-	
	Forced Thermal On / Off	-		
	Capacity Control	-	•	
Monitor	Comm. Kit Operation	On / Off		
	Operation Mode 1)	Cooling / Heating		
	Return (room) Air Temperature	-50~100°C	-	Corresponding air temperature sensor connected to AHU comm. kit is required
	Discharge Air Temperature	-	-50~100°C	
	Fan Speed	Low / Middle / High	-	
	Defrost Operation	On / Off		
	Error Alarm	Error Alarm & Code		
	Compressor On / Off	On / Off		

1) Available operation mode can be varied depending on the setting of Communication Kit
2) To control the fan speed using Modbus, DO ports for the status of fan speed needs to be connected with the fan unit
* For the Modbus memory map, pleases refer to the product data book

AHU KITS

Communication Kit Function

With LG Control system (Individual & Centralised Controller)

1) Available operation mode can be varied depending on the setting of Communication Kit. For more details, please refer to the product data book
2) This range may differ depending on the type of controller
3) To control the fan speed using contact signal, DO ports for the status of fan speed needs to be connected with the fan unit
* Control function is unavailable in case of using together with DDC via contact signal

Compatibility with LG HVAC Controllers

Controller	Individual Controller							BMS Gateway	PDI
	Premium	Standard III	Standard II	AC Ez Touch	AC Smart	ACP	AC Manager [1]	ACP Lonworks	Premium Standard
Model no.	PREMTA000	PREMTB100	PREMTB001	PACEZA000	PACS5A000	PACP5A000	PACM5A000	PLNWKB000	PQNUD1S40 PPWRDB000
PAHCMR000	•	•	•	•	•	•	•	•	•
PAHCMS000	X	X	•[2]	X	•	•	•	X	X

1) AC Manager is an integrator, so the installation with AC Smart or ACP is required
2) Set temperature range of this model shall be extended in the future
* Dry contact for indoor unit(PDRYCB000/400/300/500) is not applied
* For more details, please refer to the product data book

Communication Kit Function

Outdoor Unit Compatibility

Multi V

Model		MULTI V				MULTI V WATER		
		5	IV	III	S	IV	II	S
AHU Controller	PAHCMR000	•	•	•	•	•	•	•
	PAHCMS000	•	•	•	•	•	•	X

Single Split

Standard Inverter (1-phase)								
Capacity	Cooling	kW	4.7	7.7	8.0	10.0	12.5	13.9	14.6
	Heating	kW	5.5	8.0	9.0	11.0	14.0	15.4	16.9
AHU Kit	PAHCMR000		•	•	•	•	•	•	•
	PAHCMS000		•	•	•	-	-	-	-

Standard Inverter (3-phase)								
Capacity	Cooling	kW	10.0	12.5	13.9	14.6	19.0	23.0
	Heating	kW	11.0	14.0	15.4	16.9	22.4	27.0
AHU Kit	PAHCMR000		•	•	•	•	•	•
	PAHCMS000		-	-	-	-	•	•

* Table of the outdoor unit compatibility is based on European regional model.
When connecting outdoor units in other areas, please check whether they are compatible or not.

Expansion valves for MULTI V system

EEV Kit	PRLK048A0											PRLK096A0				
Cooling (kW)	3.6	4.5	5.6	7.1	8.2	10.6	12.3	14.1	15.8	22.4	28	33.6	39.2	44.8	50.4	56
Heating (kW)	4	5	6.3	8	9.2	11.9	13.8	15.9	18	25.2	31.5	37.8	44.1	50.4	56.7	63

TXV Kit					
					PATX50A0E
				PATX35A0E	
			PATX25A0E		
		PATX20A0E			
	PATX13A0E				
Cooling (kW)	22.4 ~ 44.8	50.4 ~ 72.8	78.4 ~ 100.8	106.4 ~ 128.8	134.4 ~ 156.8
Heating (kW)	25.2 ~ 50.4	56.7 ~ 81.9	88.2 ~ 112.1	118.4 ~ 143.6	148.5 ~ 175.1

* Capacities are based on the following conditions :
- Cooling : Indoor 27°C(80.6°F) DB / 19°C(66.2°F) WB Outdoor 35°C(95°F) DB / 24°C(75.2°F) WB
Condensing temperature (tc) 46°C, Subcool (SC) 3 K, Evaporating temperature (te) 6°C, Superheat (SH) 5 K
- Heating : Indoor 20°C(68°F) DB / 15°C(59°F) WB Outdoor 7°C(44.6°F) DB / 6°C(42.8°F) WB
Hot gas inlet temperature 70°C, Condensing temperature (tc) 46°C, Subcool (SC) 3 K
- Piping Length : Interconnected Pipe Length = 7.5m
- Difference Limit of Elevation (Outdoor ~ Indoor Unit) is zero

AHU KITS

Control Kit

List	Required Item
Heating / Cooling	SA / RA temperature sensor (or SA / RA temperature & humidity sensor)
Automatic Ventilation	SA / RA temperature, CO_2 sensor, Damper actuator (OA, EA, MA)
Energy Saving (Cooling Mode Only)	SA temperature, OA / RA temp&humidity sensor, Damper actuator (OA, EA, MA)
Humidification	SA temperature, RA temperature & humidity sensor, Humidifier
Inverter Fan Control	SA / RA temperature, Static pressure sensor, Inverter driver for fan control
Filter Alarm	Difference pressure sensor
Smoke Detecting	Smoke detection sensor

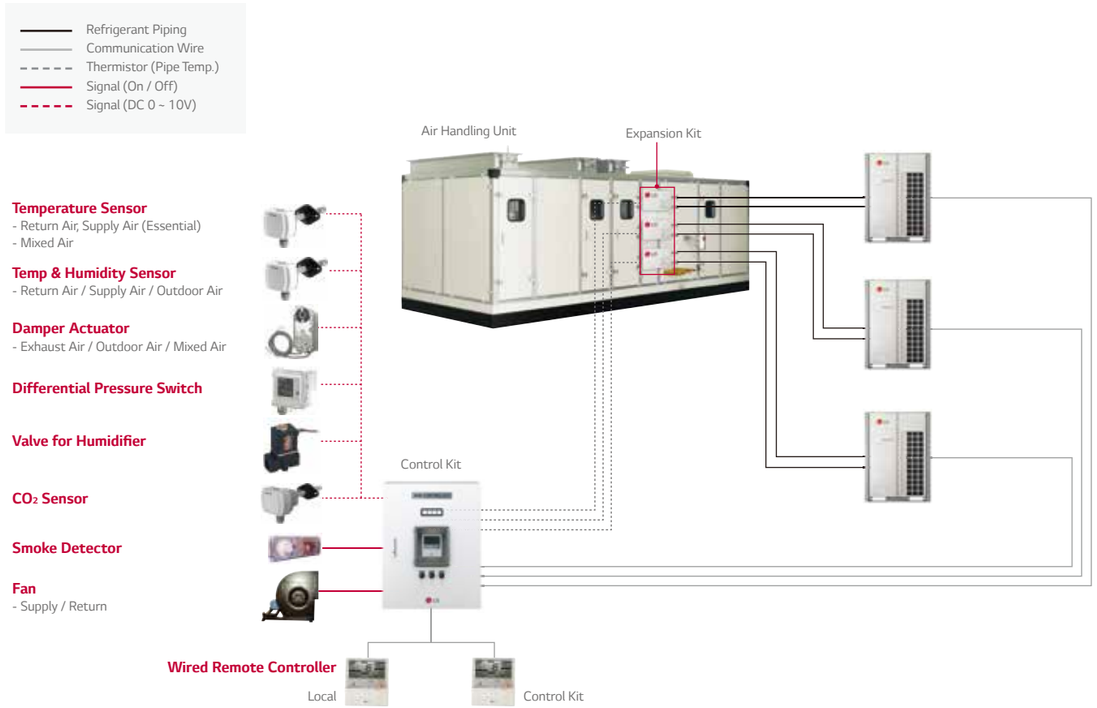
RA : Return Air, EA : Exhaust Air, OA : Outdoor Air, SA : Supply Air, MA : Mix air (RA + OA)

Field Supplied Item

List	Required Specification	Apply Location
Temperature Sensor	- Power : AC 24V, Output signal : DC 0 ~ 10V - Temperature boundary : -50 ~ 50°C	- Apply to MA, SA, RA
Temperature & Humidity Sensor	- Power : AC 24V, Output signal : DC 0 ~ 10V - Temperature boundary : -40 ~ 70°C - Humidity boundary : 0 ~ 95% RH	- Apply to SA, RA, OA - Can not be applied to MA
Damper Actuator	- Power : AC 24V, In/Output signal : DC 0 ~ 10V - Torque : 15 Nm, Operation time : 150sec. - Rotation angle : 90°	- Apply to OA, EA, MA damper
Difference Pressure Sensor (for Filter)	- Power : AC 24V, Output signal : DC 0 ~ 10V * Boundary : 0 ~ 1000Pa - Switch type : Relay Open / Close	- Apply to filter
Static Pressure Sensor	- Power : AC 24V, Output signal : DC 0 ~ 10V - Boundary : 0 ~ 1000pa	- Apply to SA (for inverter control)
CO_2 Sensor	- Power : AC 24V, Output signal : DC 0 ~ 10V - Boundary : 0 ~ 2000ppm	- Apply to RA duct
Smoke Detection Sensor	- Power : AC 24V, From : Contact point type	- Apply to RA duct

Note : Boundary of specification can be changed through LGAV software. However, please make a specification referring to the above table

Various Control with Control kit – Multiple MULTI Vs + TXV Kits



ACCESSORIES

MECHANICAL ACCESSORIES

CASSETTE PANEL

Stylish designed panels make more unique space by various applications

4 Way Cassette
PT-UQC / PT-UMC1

2 Way Cassette
PT-USC

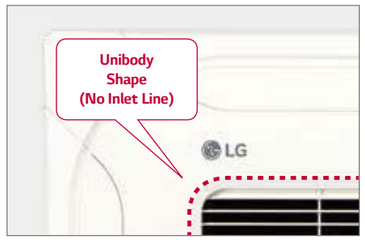
1 Way Cassette (Grill Type)
PT-UUC

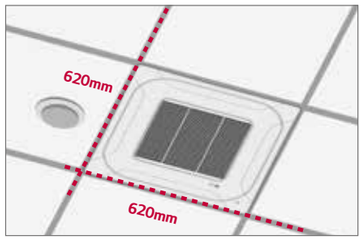
Features

- Independent vane operation uses separate motors, making it Possible to control all four vanes independently.
- The detachable corner design makes it easy to adjust the hanger during installation and to check for leakages in the drain connection pipe.

Compact and Stylish Design

- New 4 way cassette panel adapted unibody shape and matching with into the ceiling
- Panel size is fit into the ceiling tile





Specifications

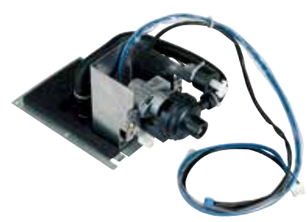
Model name		Suction Type	Color (RAL)	Gloss	Weight (kg)	Dimension (mm)			Applied model		
						W	H	D	SINGLE SPLIT	MULTI SPLIT	MULTI V
4 Way	PT-UQC	Horizontal Grill	Morning Fog (RAL 120-4)	X	3.0	700	22	700	2.5 ~ 5.0kw	1.5 ~ 5.0kw	1.5 ~ 5.0kw
	PT-UMC1	Horizontal Grill	Morning Fog (RAL 120-4)	X	5.6	950	25	950	7.1 ~ 15.0kw	7.1kw	7.1 ~ 14.0kw
2 Way	PT-USC	Grill	Morning Fog (RAL 120-4)	X	4.7	1,100	33	690	-	-	5.0 ~ 7.1kw
1 Way	PT-UUC	Grill	Noble White (RAL 110-1)	O	4.6	1,100	34	500	-	-	2.1 ~ 3.5kw

MECHANICAL ACCESSORIES

DRAIN PUMP KIT

Drains away condensed water

ABDPG
PBDP9



Features

- In some places where natural drainage is not possible, a drain pump is very useful to pump out condensed water from indoor units.
- Drain pump assembly (AC 220 ~ 240V, 50 / 60Hz)

Models Applied

- Ceiling Concealed Duct (Refer to PDB for applicable models)

Accessory Model Name

Ceiling Concealed Duct (Refer to PDB for applicable models)

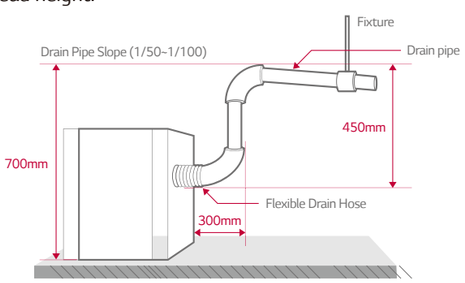
Product	Model		Drain Pump
SINGLE / MULTI SPLIT	H-INVERTER		Included
	Standard Inverter	CB**L	Included
		CM** / UM**	ABDPG
		UB70 / UB85	PBDP9
	Compact Inverter		ABDPG
MULTI V			Included

Application

High head drain pump automatically drains water up to 700mm of drain-head height.
It provides perfect solution for water drainage.

High Head Drain Pump

*** Included in H-Inverter**
*** Supplied as accessory for Standard Inverter (ABDPG/ PBDP9)**



REFRIGERANT LEAKAGE DETECTOR

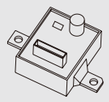
R410A refrigerant leakage detector makes our space safer

PRLDNVS0

Features

- This detector senses refrigerant leakage and when the refrigerant concentration exceeds 6,000ppm not only it will stop indoor unit operation, but also it will give an alarm using buzzer and sensor LED. (The green and red LED lights blink simultaneously.)
- Alarm is "ON" over 6,000ppm has been maintained 5 seconds, and on the contrary to this, Alarm is "OFF" under 6,000ppm has been maintained 5 seconds.
- When the alarm of the refrigerant leak detector is switched on the user must ventilate until the alarm is disabled.
- The detector has to be installed inside the room and it can be installed 300 ~ 500mm from floor.

Specifications

Parts		Specifications	
Sensor		Rated Voltage (V)	DC 5.0 ± 5%
		Dimensions (W x H x D, mm)	31 x 44 x 20
		Weight (g)	22
		Detectable Refrigerant	R410A
		Detected Concentration (ppm)	0 / 6,000 Alarm Off / On
		Operating Temperature Range (°C)	-10 ~ 50
		Preserved Temperature Range (°C)	- 40 ~ 60
		Average Power Consumption (mA)	35
Connecting Cable		Cable Length (m)	10
Sensor Protective Cover		Dimensions of Front Plate (W x H x D, mm)	80 x 110 x 44.6
		Dimension of Backplate (W x H x D, mm)	80 x 110 x 6.5

Application

EEV KIT

MULTI V EEV KIT is specially designed to reduce noise and make comfort environment

PRGK024A0

Features

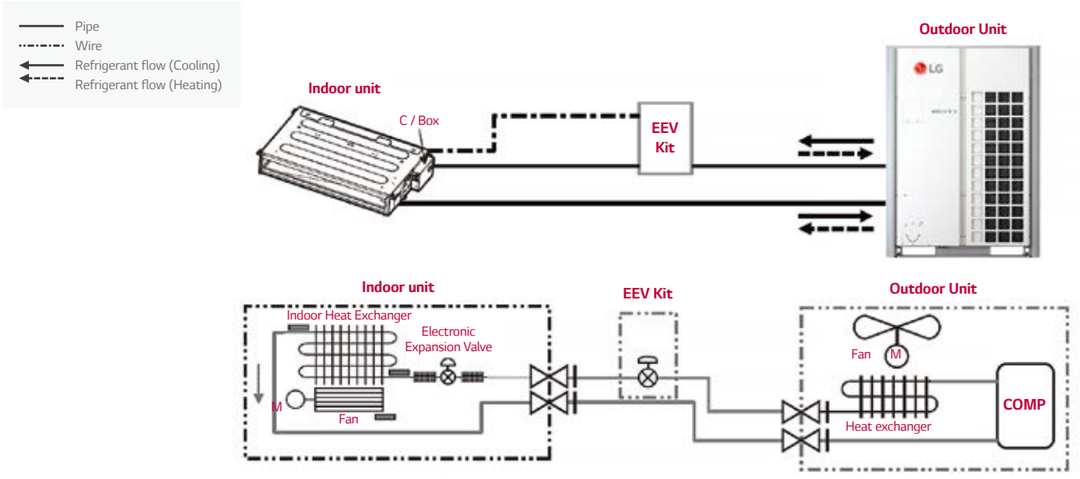
- Decreasing noise level of Multi V Indoor units Easy installation

Models Applied

- Ceiling Cassette (up to 4.5kW)
- Ceiling concealed duct (up to 5.6kW)
- Wall mounted (up to 7.1kW)
- Console (up to 4.5kW)
- Floor Standing Unit (with case / without case) (up to 4.5kW)
- Convertible (up to 3.6kW, Ceiling Suspended Type is not able to connect this Kit)

*** Fresh Air intake Unit is not able to connect this Kit**

Application



Note : If you don't use EEV of same specification, Cooling (Heating) capacity may decrease.

INDEPENDENT POWER MODULE

EEV full close function in case of power cut

PRIP0

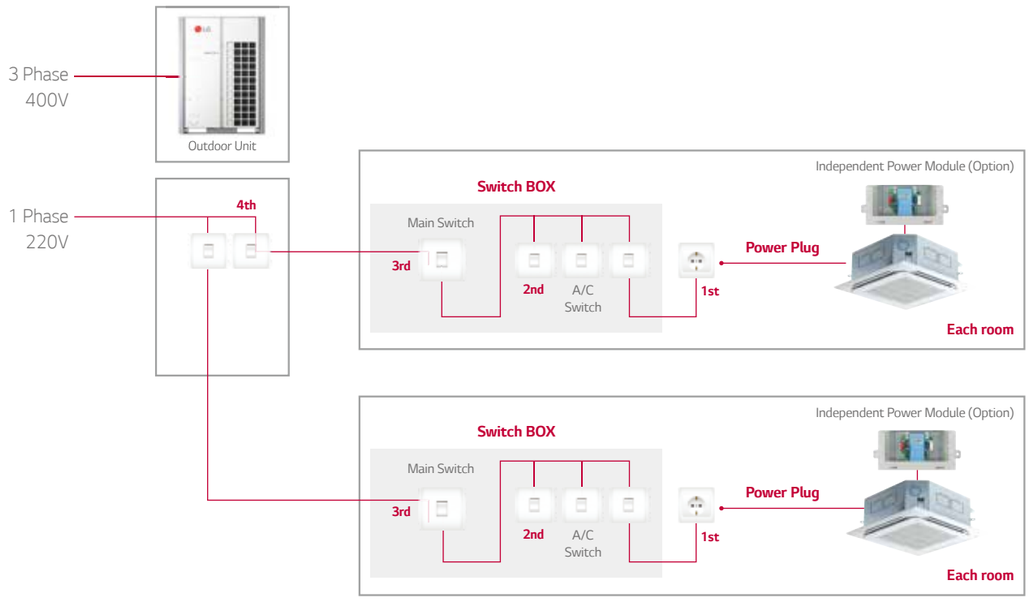
Features

Independent Power Module is specially designed to close the Indoor EEV at power cut-Off.

- Supply Voltage : DC 12V ± 50%

Models Applied

• MULTI V Indoors



LINE-UP

MULTI V

Heat Recovery Unit

PRHR022
PRHR032
PRHR042

New Heat Recovery Unit

PRHR023
PRHR033
PRHR043
PRHR063
PRHR083

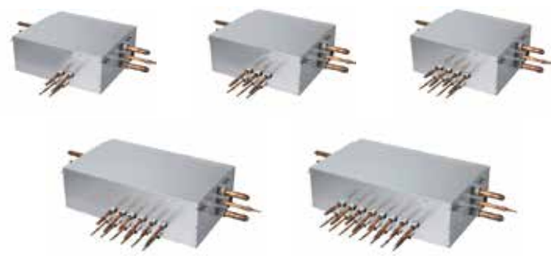
Y Branch and Header Branch

Mechanical Accessories Line up and Application

Model name	SINGLE SPLIT	MULTI	MULTI V	Remark
Y Branch and Header Branch (Synchro)	•	-	-	-
Branch Distributor (MULTI)	-	•	-	MULTI F DX systems
Y Branch and Branch Kit (MULTI)	-	•	-	MULTI F DX systems
New Heat Recovery Unit (Multi V)	-	-	•	MULTI V 5
Hear Recovery Unit (Multi V)	-	-	•	MULTI V 5 / MULTI V IV HR / MULTI V III HR MULTI V S HR / MULTI V SYNC II / MULTI V SYNC MULTI V WATER IV HR / MULTI V WATER II HR
Y Branch and Header Branch (MULTI V)	-	-	•	Various type of MULTI V Series

NEW HEAT RECOVERY UNIT

PRHR023 (2 Branch Unit)
PRHR033 (3 Branch Unit)
PRHR043 (4 Branch Unit)
PRHR063 (6 Branch Unit)
PRHR083 (8 Branch Unit)



Features

- Max. 64 indoor units can be connected (Max. 8 indoor units per branch)
- It is easy to install due to the automatic search algorithm for piping detection
- Subcooling cycle in HR unit makes the system efficiency maximum

Models Applied

- MULTI V 5 Heat Recovery

Specifications

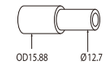
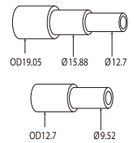
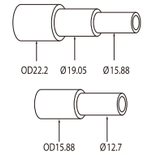
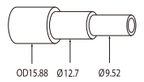
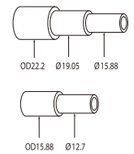
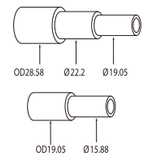
Model name				PRHR023	PRHR033	PRHR043	PRHR063	PRHR083
Number of Branch			EA	2	3	4	6	8
Maximum Connectable Capacity of Indoor Units (Per branch / unit)			kW	17.5/35	17.5/52.5	17.5/69.5	17.5/69.5	17.5/69.5
Maximum Number of Connectable Indoor units per Branch			EA	8	8	8	8	8
Nominal Input	Cooling		kW	0.040	0.040	0.040	0.076	0.076
	Heating		kW	0.038	0.038	0.038	0.072	0.072
Net. Weight			kg	18.5	20.3	22.0	28.3	31.8
Dimensions (W x H x D)			mm	786 x 218 x 657	786 x 218 x 657	786 x 218 x 657	1,113 x 218 x 657	1,113 x 218 x 657
Piping connections	Indoor Unit	Liquid	mm (inch)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)
		Gas	mm (inch)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)
	Outdoor Unit	Liquid	mm (inch)	9.52 (3/8)	12.7 (1/2)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)
		Low pressure	mm (inch)	22.2 (7/8)	28.58 (11/8)	28.58 (11/8)	28.58 (11/8)	28.58 (11/8)
		High Pressure	mm (inch)	19.05 (3/4)	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)
Power supply			Ø / V / Hz	1 / 220-240 / 50 1 / 220 / 60	1 / 220-240 / 50 1 / 220 / 60	1 / 220-240 / 50 1 / 220 / 60	1 / 220-240 / 50 1 / 220 / 60	1 / 220-240 / 50 1 / 220 / 60

Parts Included

- HR unit (1EA)
- Washers M10 (8EA)
- Hanging bolts M10 or M8 (4EA)
- Reducers
- Nut M8 or M10 (8EA)

Reducers for Indoor Unit and HR Unit

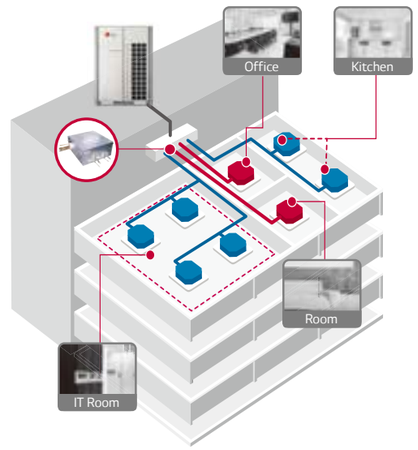
(Unit : mm)

Model Name		Liquid	High pressure	Low pressure
Indoor Unit Reducer				
HR Unit Reducer	PRHR023			
	PRHR033 PRHR043 PRHR063 PRHR083			

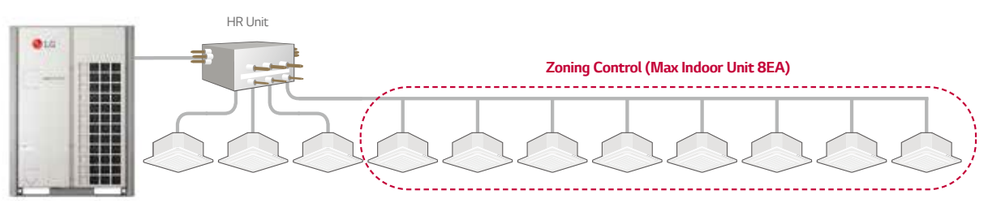
Convenient Free Zoning

MULTI V Heat Recovery provides flexible control over individual zones for the user's convenience

- **Individual Control**
  - Perfect individual control over spaces ventilation needed
- **Zone Control**
  - Max. of 8 indoor units can be connected for one branch
  - Max. of 64 indoor units can be connected for one HR unit
  - Same opeational model can be operated by indoor units with zone control function installed
- **Combination of Individual and Zoning Installations**
  - Flexible piping design
- **Save Product and Installation Cost**



[Zoning Control]

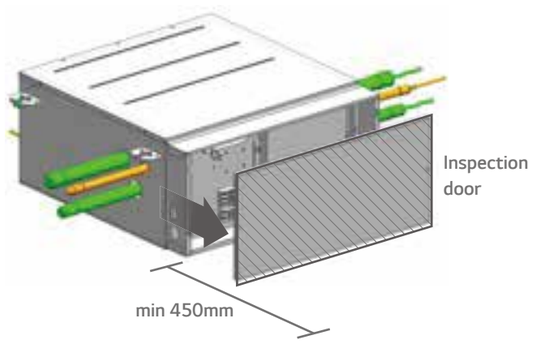


NEW HEAT RECOVERY UNIT

Improving Service Workability

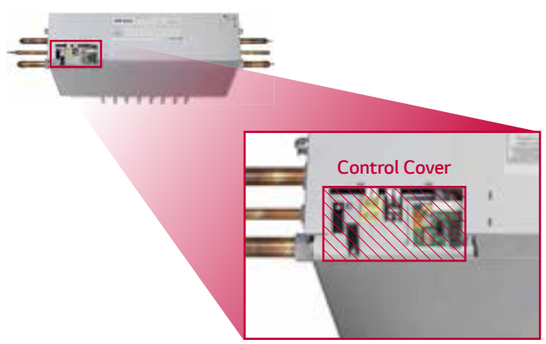
Can inspect valves and PCBs under the product.(looking up at the product)

Conventional



At least 450 mm of space is required to open the control cover and to inspect or repair the product.

New

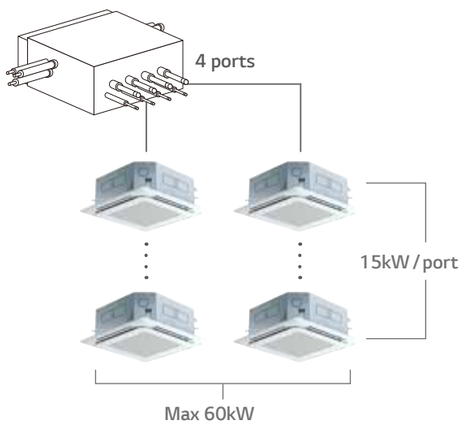


The control cover can be opened(disassembled) in the downward direction. ⟶ Error code check and simple check & repair are possible.

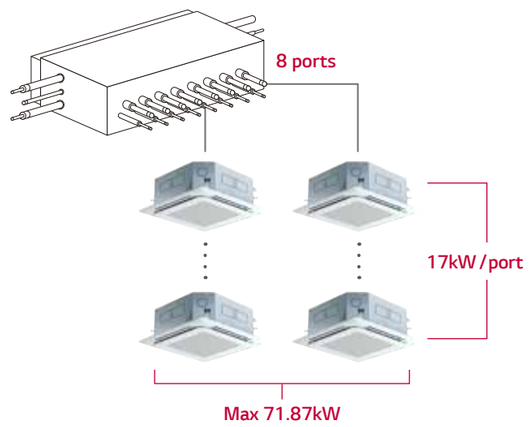
Expansion of connection capacity

- Expansion of connection capacity per port : (old) 15kW ⟶ (new) 17kW
- Expansion of total connectable capacity : (old) 60kW ⟶ (new) 71.87kW

Previous Model

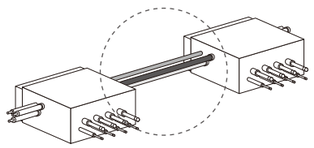
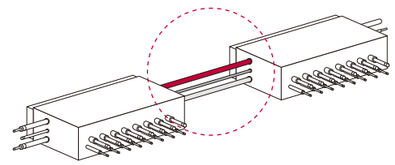
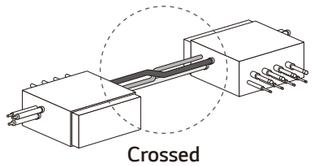
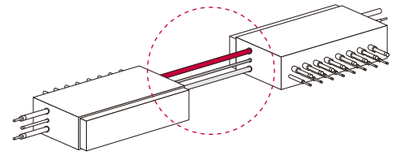


New



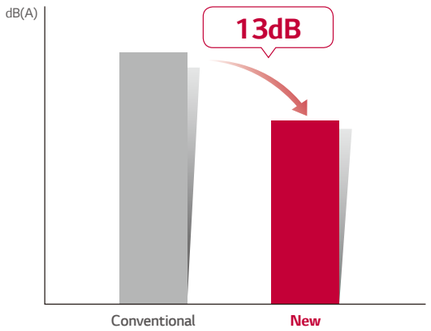
Easy Series Connection

Series connection can be installed without pipes crossing.

	Conventional	New
Series connection in the same direction		
Series connection in the reverse direction	 Crossed piping	

Reduce Noise

Cooling ⟷ Heating changeover noise improvement



Y BRANCH AND HEADERBRANCH

MULTI V™

For refrigerant distribution of indoor units

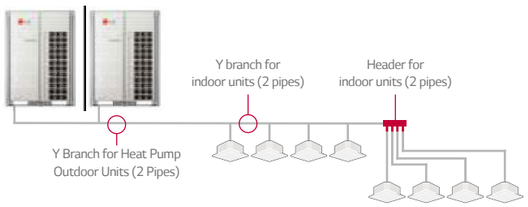
Y Branch
Header Branch

Features

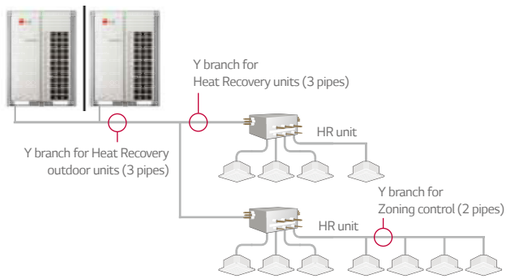
- Various Y Branch pipe of different capacities make MULTI V installation much easier.
- Y Branch and header branch for both gas and liquid are provided.
- Insulation material is also provided for covering the branches.

Piping Diagram

Heat Pump System



Heat Recovery system



Models Applied

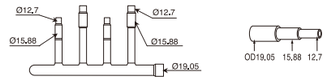
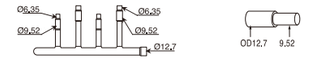
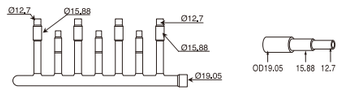
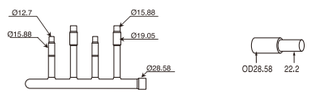
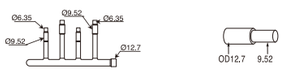
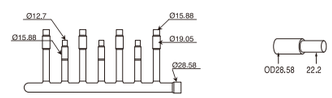
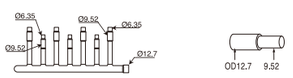
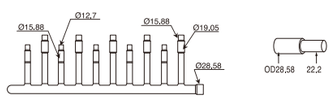
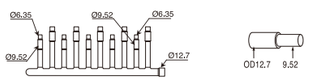
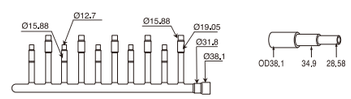
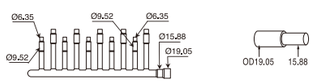
- MULTI V 5
- MULTI V IV
- MULTI V III, MULTI V PLUS II, MULTI V PLUS
- MULTI V S
- MULTI V WATER IV
- MULTI V WATER II
- MULTI V WATER S
- MULTI V SPACE II
- MULTI V MINI

Details of Model Name

Header Branch

R410A

(Unit : mm)

Model Name	Gas Pipe	Liquid Pipe
4 Branch / ARBL054		
7 Branch / ARBL057		
4 Branch / ARBL104		
7 Branch / ARBL107		
10 Branch / ARBL1010		
10 Branch / ARBL2010		

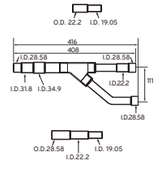
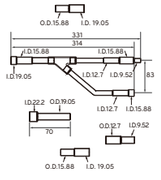
PIPING ACCESSORIES

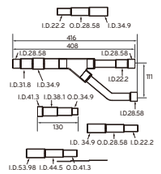
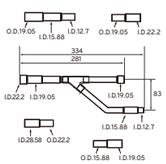
Y Branch pipe for connection of outdoor units

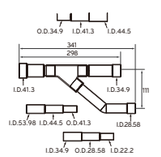
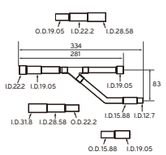
Heat Pump

R410A MULTI V 5, MULTI V IV, MULTI V III, MULTI V WATER IV, MULTI V WATER II

(Unit : mm)

Model Name	2 Outdoor Units	
	High Pressure Gas Pipe	Liquid Pipe
ARCNN21		

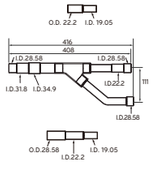
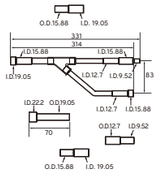
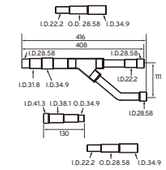
Model Name	3 Outdoor Units	
	High Pressure Gas Pipe	Liquid Pipe
ARCNN31		

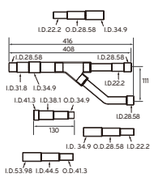
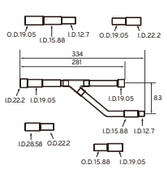
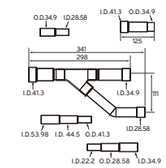
Model Name	4 Outdoor Units	
	High Pressure Gas Pipe	Liquid Pipe
ARCNN41		

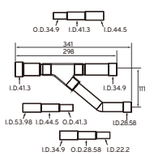
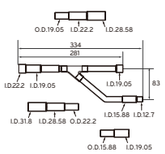
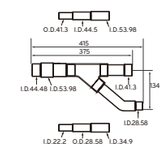
Heat Recovery

R410A MULTI V 5, MULTI V IV Heat Recovery, MULTI V III Heat Recovery, MULTI V WATER IV Heat Recovery, MULTI V WATER II Heat Recovery

(Unit : mm)

Model Name	2 Outdoor Units		
	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB21			

Model Name	3 Outdoor Units		
	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB31			

Model Name	4 Outdoor Units		
	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB41			

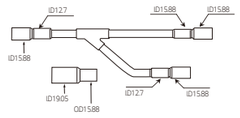
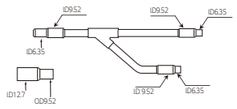
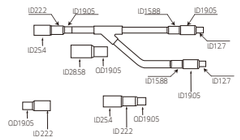
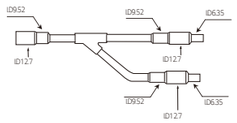
PIPING ACCESSORIES

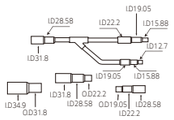
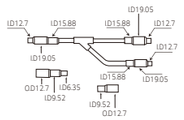
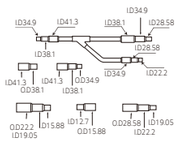
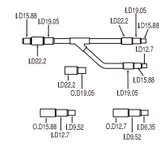
Y Branch pipe for connection of outdoor units

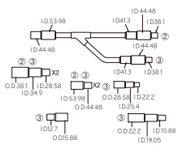
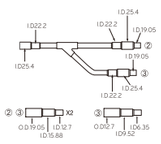
Heat Pump, Heat Recovery zone control

R410A MULTI V 5, MULTI V IV, MULTI V III, MULTI V PLUS II, MULTI V PLUS, MULTI V S, MULTI V MINI, MULTI V SPACE II, MULTI V WATER IV, MULTI V WATER S, MULTI V WATER II

(Unit : mm)

Model Name	Gas Pipe	Liquid Pipe
ARBLN01621		
ARBLN03321		

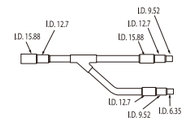
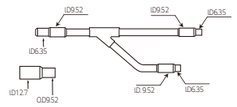
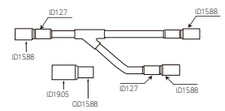
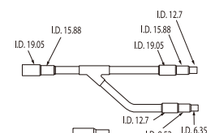
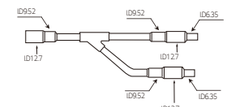
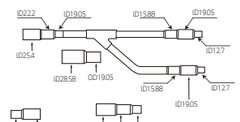
Model Name	Gas Pipe	Liquid Pipe
ARBLN07121		
ARBLN14521		

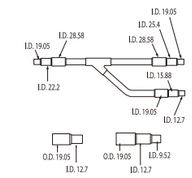
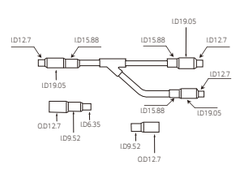
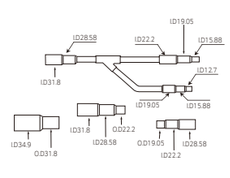
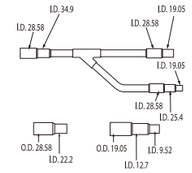
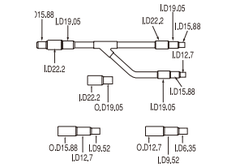
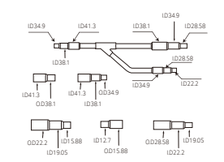
Model Name	Gas Pipe	Liquid Pipe
ARBLN23220		

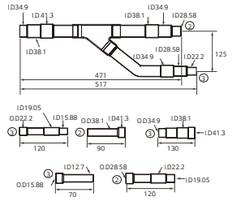
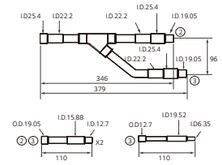
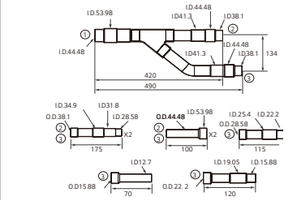
Heat Recovery

R410A MULTI V 5, MULTI V IV Heat Recovery, MULTI V III Heat Recovery, MULTI V WATER IV Heat Recovery, MULTI V WATER II Heat Recovery

(Unit : mm)

Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARBLB01621			
ARBLB03321			

Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARBLB07121			
ARBLB14521			

Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARBLB23220			

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