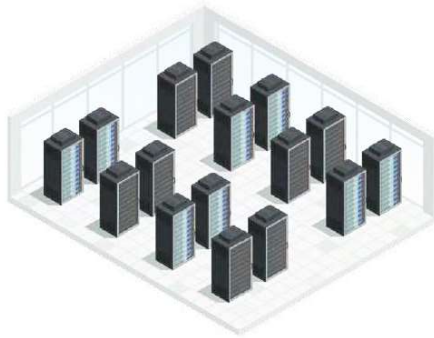


## Server Room Cooling Solution

A Server room is a facility composed of networked computers and storage that businesses and other organizations use to organize, process, store and disseminate data in the building.



### What is Server Room?



#### Characteristics :

- Usually under IT control, may have some dedicated power and cooling capabilities.
- Generally server room needs to be operated 24/7.
- Computer and electric equipment constantly generate heat, and are sensitive to heat, humidity, and dust.
- Local server rooms in office, hotel or hospital buildings have relatively smaller cooling capacity than those in the data center.
- Limited space for installation of cooling system



Power Supply Unit



Network



Server Rack Mount

### What Does a Server Room Need?



#### Server room operated 24Hour / 7 Day

- Constant cooling for 24/7/365
- Energy efficiency system with high performance
- Automatic failure back-up cooling system



#### Server room constantly generates heat

- Easy control & monitoring
- Remotely monitored
- Capacity back up system



#### Limited space for installation

- Compact size of indoor units
- Easy and simple installation
- Long pipe for flexible design and installation

※ Based on our policy for the products improvements, specification, design and features are subject to change without any prior notice.  
 ※ Specifications may vary by each model or IDU / ODU combination.

## Duty Rotation

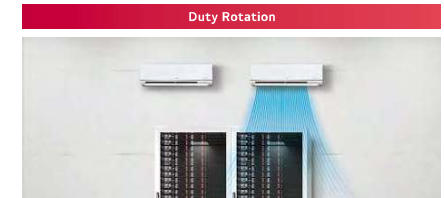
### Duty Rotation

Operates more than 2 sets of indoor units alternatively at every set time of operation interval, Rotation interval can be set from 1h to 999h freely.



#### Air Conditioners' Overworking

- Shortening an air conditioner's lifetime
- Reducing compressor's life expectancy
- The service cost may increase due to an air conditioner's overworking



#### Stable & Safe Operation

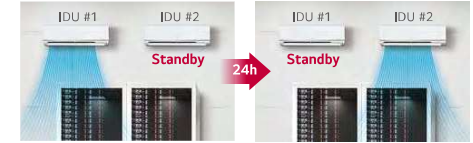
- Stable operation due to indoor units taking turns when operating
- Less breakdowns and operational server room
- The air conditioner's life expectancy is increased
- Rotation interval can be set from 1h to 999h freely

### Operation Scenario

#### When the number of the indoor units : 2

If the interval time is set 24h (default).

- ① While IDU #1 operates during interval time, IDU #2 is on standby.
- ② IDU #2 operates next 24 hours, and IDU #1 is on standby.



### Failure Back-up

If systems in operation have an error and stop, the standby unit starts operation automatically.



#### A server can be shut down

- In case of an overheated server room a server can be shut down
- The risk of an increased service cost
- The need for manual monitoring and operation for failure



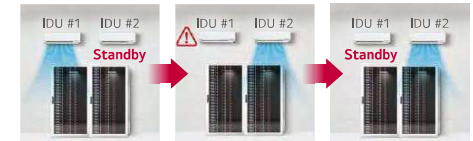
#### Stable & Safe Operation

- Stable operation because the operation error can be covered by failure back-up operation
- Continuous server operations and decreased risk
- The server is protected from overheating
- Less manual work

### Operation Scenario

#### When the number of the indoor units : 2

- ① When duty rotation is enabled, IDU #1 is in operation and IDU #2 is on standby.
- ② If an error occurs on IDU #1, a standby unit starts operation.
- ③ After the error is cleared, IDU #2 goes back to standby.

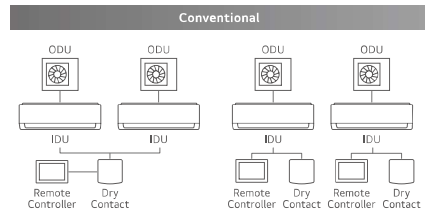


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# Duty Rotation

## Simplified Connection

For small server rooms, LG provides a simple system with only one remote controller. It doesn't need additional control accessories.



- **Higher product cost**  
A conventional system needs a dry contact and 3rd party control individual remote controller(s).
- **Higher installation cost**  
Need more labor and time for design, installation, cabling and test.
- **Design & Installation difficulties**  
It is difficult to make if you need to control more indoor units.

## LG Server Room Solution

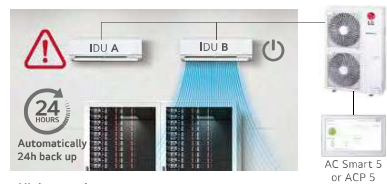


- **Lower product cost**  
Only one LG's remote controller needed for max.4 ODUs and IDUs.
- **Lower installation cost**  
Need less labor and time for design, installation, cabling and test.
- **Easy Design & Installation**  
It provides easy design and installation because of a simple system with LG controller even in case of more number of ODUs and IDUs (Max.4).

## Small Server Room Cooling Solution

Considering a server room solution using central controllers' interlocking + schedule function is too much expensive and complex for small sized server rooms.

### Using Central Controllers



- **Higher product cost**  
Conventional system needs AC Smart 5.
- **Higher installation cost**  
Need the installation of communication lines for central controllers.
- **Design & Installation difficulties**  
It is difficult to make and manage the interlocking logics.

### Small Server Room Cooling Solution



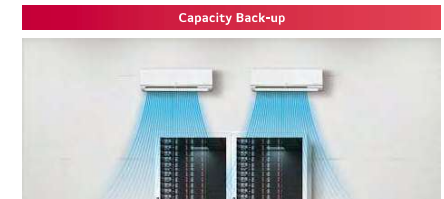
- **Lower product cost**  
Only LG remote controller needed for max.4 ODUs and IDUs.
- **Lower installation cost**  
Need less labor and time for design, installation, cabling and test.
- **Easy Design & Installation**  
It provides easy design and installation because it has simple system with LG controller even in case of several ODUs and IDUs (Max.4).

## Capacity Back-up

When the difference between the cooling set temperature and the current room temperature is higher than the set temperature difference of capacity back-up, the standby unit operates. When the temperature difference reaches the set temperature difference, it goes back to the normal duty rotation.



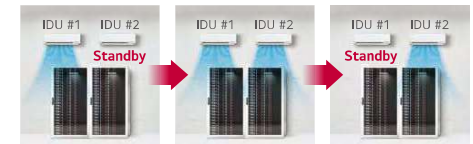
- Server can be Overheated**
- Sometimes the server room can be overheated because of the server overload
  - The servers can be shut down when they overheat continuously
  - Air conditioners overload
  - Need manual controls for additional cooling



- Stable & Safe Operation**
- Stable operation due to the over capacity by back-up operation
  - Prevent air conditioners from overload
  - Protect server from overheating
  - No need for manual controls due to the automatic protection from overheating

### Operation Scenario

- When the number of the indoor units : 2**
- The set temperature difference is A, and the difference between the cooling set temperature and the current room temperature is B,
- When duty rotation is enabled, IDU #1 is in operation and IDU #2 is on standby.
  - If B is higher than A, the standby unit starts operation.
  - When B goes down and remains below A for some time, The backup unit stops and goes back to standby mode.



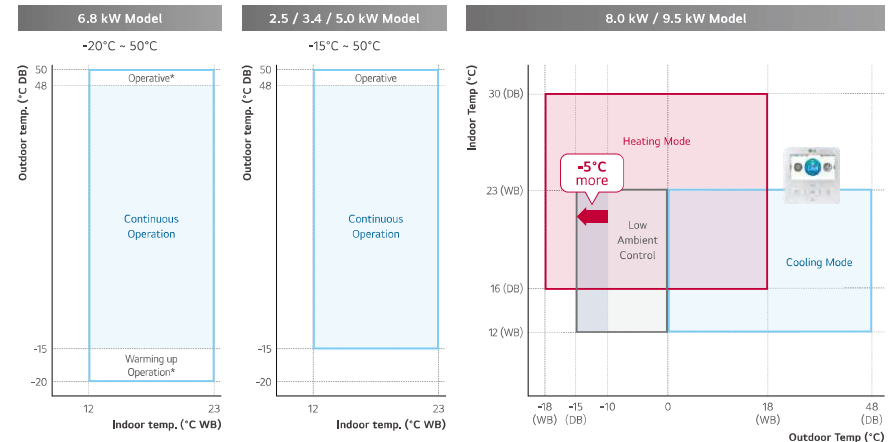
If cooling set temperature is 22°C and the set temperature difference is 4°C.

When current temperature goes above 26°C, the standby unit starts operation.

If current temperature drops and remains below 26°C for some time, the backup unit stops.

## Wide Operational Range

In case of the server room, continuous cooling is required all year round, and outdoor unit must be stable in the outdoor harsh cold temperature. LG Single split has wide operation range in cooling down continuously from -15°C and up to 48°C.



\* Warming up operation and operative means that the outdoor unit operates the range of continuous operating, however it may not operate continuously due to safety or protection logic.

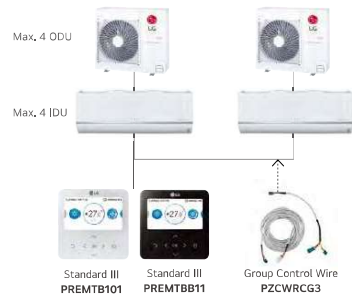
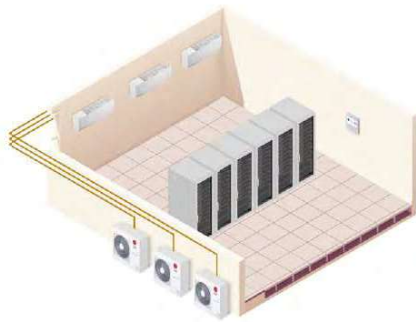
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# Duty Rotation

## Typical Scene

Various capacities of ODU and IDU for the small server room solution.



### LG Server Room Cooling Solution Summary

- Purpose : Cooling small sized server room (IDU #2-4 units)
- ODU : Single Split / Multi Split / Multi-V + All type of IDUs
- Various option of choice for ODU and IDU
- Extremely safe and optimal solution for server rooms to cover ODU errors and insufficient capacities.
- Safety functions without any accessories : Duty Rotation, Capacity Back-up, Failure Back up
- Only one (1) remote controller for all (2-4) indoor units.

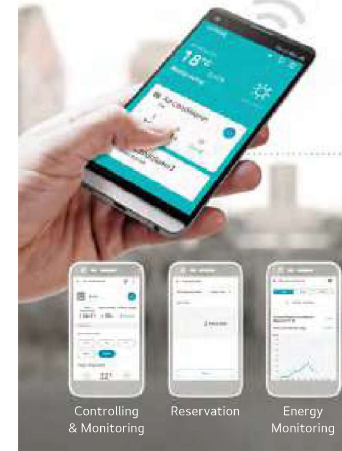
### Applicable Model

PRODUCT	MODEL NAME	PRODUCT	MODEL NAME
Wall Mounted	MJ05PC,NSJ	Middle Static Ducted	UM12FH,N10
	MJ07PC,NSJ		UM18FH,N10
	MJ09PC,NSJ		UM24FH,N20
	MJ12PC,NSJ		UM30FH,N20
	MJ15PC,NSJ		UM36FH,N30
	MJ18PC,NSK		UM42FH,N30
	MJ24PC,NSK		UM48FH,N30
	US30FN,R0		CM18F,N11
	US36FN,R0		CM24F,N11
	UT18FH,NA0		UM30FN,N11
UT24FH,NA0	UM36FN,N21		
UT30FH,NA0	UM42FN,N21		
UT36FH,NA0	UM48FN,N31		
UT42FH,NA0	UM60FN,N31		
UT48FH,NA0	UV18F,N10		
UT60FH,NA0	UV24FN,N10		
UL12FH,N50	UV30FN,N10		
CT24FN,B0	UV36FN,N20		
UT30FN,N80	UV42FN,N20		
UT36FN,NA0	UV48FN,N20		
UT42FN,NA0	UV60FN,N20		
UT48FN,NA0	UV18FH,N10		
UT60FN,NA0	UV24FH,N20		
CL09FN,N50	UV30FH,N20		
CL12FN,N50	UV36FH,N20		
CL18FN,N60	UV42FH,N20		
CL24FN,N30			
UL12FH,N50			
UL18FH,N30			
Low Static Ducted		Ceiling Suspended	UV18F,N10
			UV24FN,N10
			UV30FN,N10
			UV36FN,N20
			UV42FN,N20
			UV48FN,N20
			UV60FN,N20
			UV18FH,N10
			UV24FH,N20
			UV30FH,N20

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# ThinQ™

Users can control air conditioners using Android or iOS-enabled smartphones and voice commands via Google assistant and Amazon's Alexa.



※ Search "ThinQ" on Google or Apple store then download the app.  
 ※ Wi-Fi modem (PWFMD200) is required by option.  
 ※ For our policy of continuous ThinQ App improvement, specification, design and features are subject to change without prior notice.

## Access Your Air Conditioner Anytime and from Anywhere



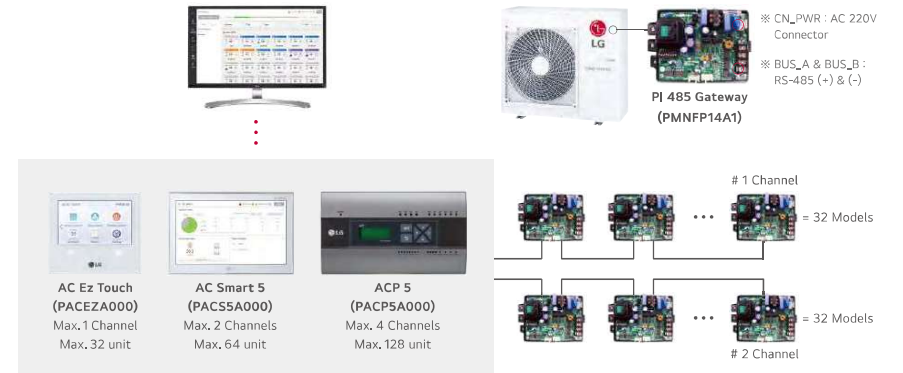
### Simple operation for various functions

- Air Purify\*
- Current Temperature\*
- Set Fan Speed\*
- On / Off\*
- Set Temperature\*
- Vane Control
- Mode Selection\*

\* This functions are used by google assistant  
 ※ In some countries, the use of the google assistant system may be restricted.  
 - Launched in countries: Germany, UK, Ireland, Austria, Switzerland, France, Spain, Italy, Russia, Norway, Netherlands, Portugal, Turkey, Sweden, Denmark

## Easy Control (Central Controller)

PI-485 is a gateway device that provides communication between LG Outdoor Units and LG central controllers such as ACP, AC Smart.



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