LG
Life's Good

Proposal for

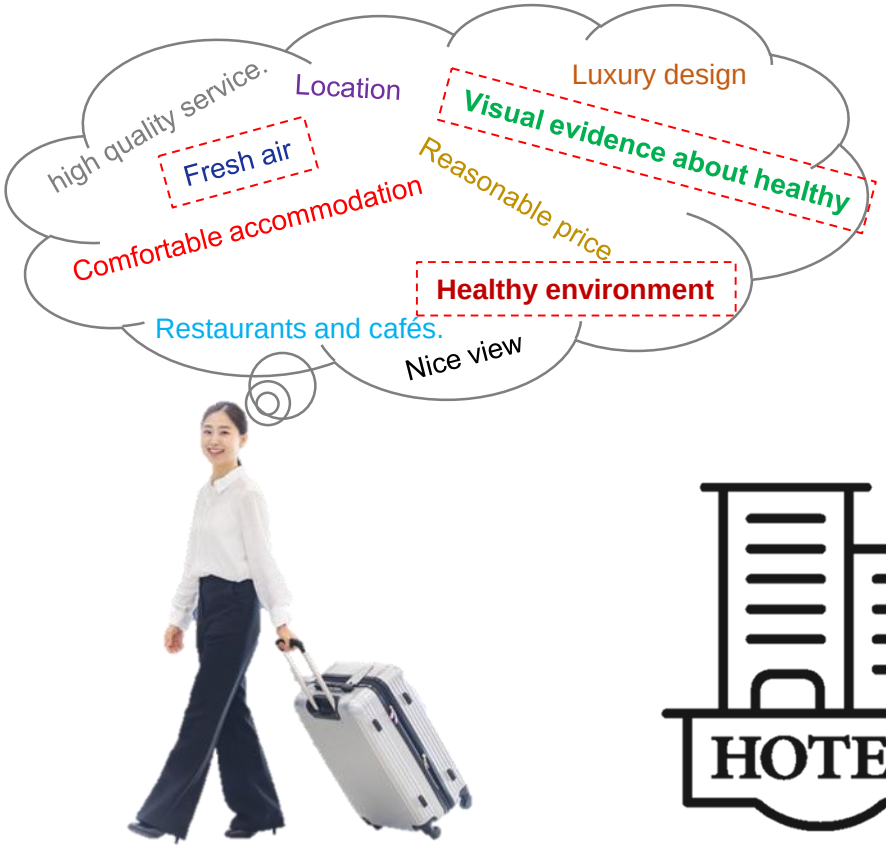
Smart Hotel

- ***Energy Saving***
- ***Control***
- ***Case Studies***

Trend of Hotel Needs

■ Extended design trends of Hotel

According to environmental issues, design trends are extended to satisfy new customer requirements.



Why LG?

A comfort environment is very important as an usual. LG can provide the most suitable air condition for your customers. What you want is what has more worth to you.

Healthy Environment

It is important to keep a clean indoor air and comfortable environment to maintain customer's health

Clean Indoor Air Quality

→ Air purification

- Captures fine & micro fine dust
- Deodorization

→ Indoor Air Quality Display

- Real-time air quality display for customer satisfaction

→ Ventilation System

Comfort Environment

→ Direct/Indirect Air Flow

High value for investment

Through high-efficiency VRF system and useful function, you can save operating cost.

Saving Operation Cost

→ High efficiency VRF

Energy management

→ Energy Report & Operation Trend

High Reliability

To improve reliability, LG offers several technology and system

Superior Durability

→ Exclusive Black Fin

- To perform even in corrosive environments

→ Compressor Oil Level Sensor

- The real-time oil level detection

Easy Management

It is easy to manage center by various and convenient control system.

Versatile Central Control

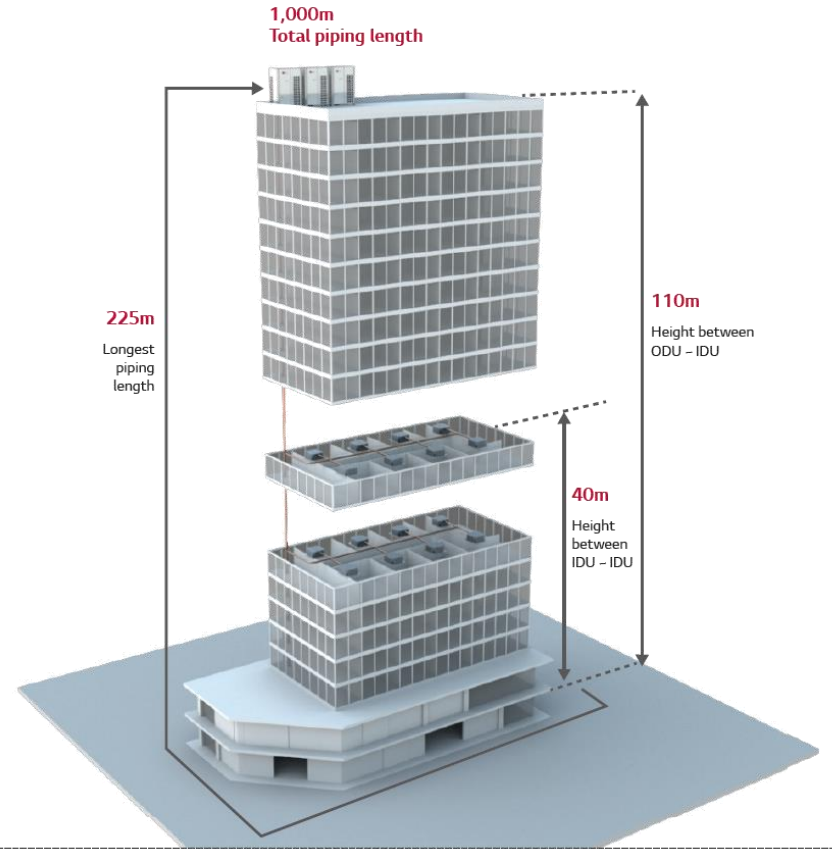
→ Flexible Control Design

→ Easy Management of Every Building

- Every building can be controlled and monitored anytime anywhere

MULTI V - VRF System for Hotel

Piping length



MULTI V 5

- Dual Sensing Control
- Large capacity ODU
- Continuous Heating
- Black Fin heat exchanger
- Heat pump / heat recovery
- Flexible installation
  (Heat recovery unit & large capacity)
- Large space, Individual control building

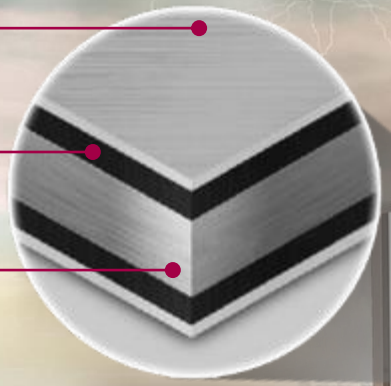
Shopping mall Education Airport

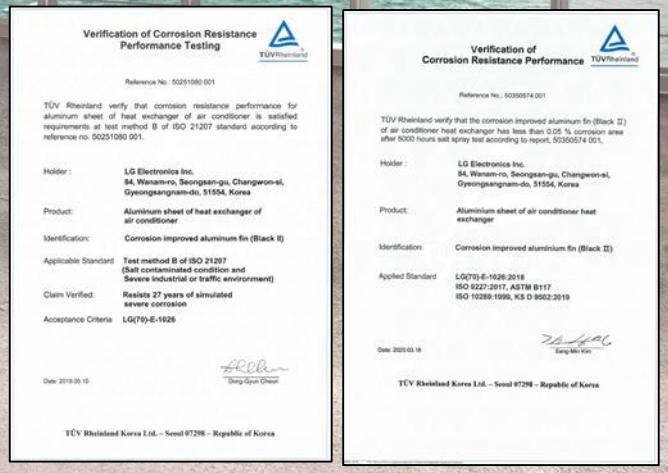
Superior Durability

Exclusive Black Fin

LG's exclusive "Black Fin" heat exchanger is designed for Improved Corrosion Resistance.

- **Hydrophilic Coating (Water flow)**
  The Hydrophilic coating minimizes moisture buildup on the fin.
- **Complex Resin (Corrosion resistant)**
  The black coating provides strong protection from corrosion
- **Aluminum Fin**





Verification of Corrosion Resistance Performance Testing

TÜVRheinland

Reference No.: 50251080 001

TÜV Rheinland verify that corrosion resistance performance for aluminum sheet of heat exchanger of air conditioner is satisfied requirements at test method B of ISO 21207 standard according to reference no. 50251080 001.

Holder :	LG Electronics Inc. 84, Wanam-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 51554, Korea
Product:	Aluminum sheet of heat exchanger of air conditioner
Identification:	Corrosion improved aluminum fin (Black II)
Applicable Standard	Test method B of ISO 21207 (Salt contaminated condition and Severe industrial or traffic environment)
Claim Verified:	Resists 27 years of simulated severe corrosion
Acceptance Criteria	LG(70)-E-1026

Date: 2019.06.10

Dong-Gyun Cheon

TÜV Rheinland Korea Ltd. – Seoul 07298 – Republic of Korea

Verification of Corrosion Resistance Performance

TÜVRheinland

Reference No.: 50350574 001

TÜV Rheinland verify that the corrosion improved aluminum fin (Black II) of air conditioner heat exchanger has less than 0.05 % corrosion area after 5000 hours salt spray test according to report, 50350574 001.

Holder :	LG Electronics Inc. 84, Wanam-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 51554, Korea
Product:	Aluminium sheet of air conditioner heat exchanger
Identification:	Corrosion improved aluminium fin (Black II)
Applied Standard	LG(70)-E-1026:2018 ISO 9227:2017, ASTM B117 ISO 10289:1999, KS D 9502:2019

Date: 2020.03.18

Sang-Min Kim

TÜV Rheinland Korea Ltd. – Seoul 07298 – Republic of Korea

Corrosion Resistance Proven by Certified Tests

LG Corrosion Resistance solution passed ISO accelerated corrosion test and the result has been certified by prestigious global certification organization, TUV.

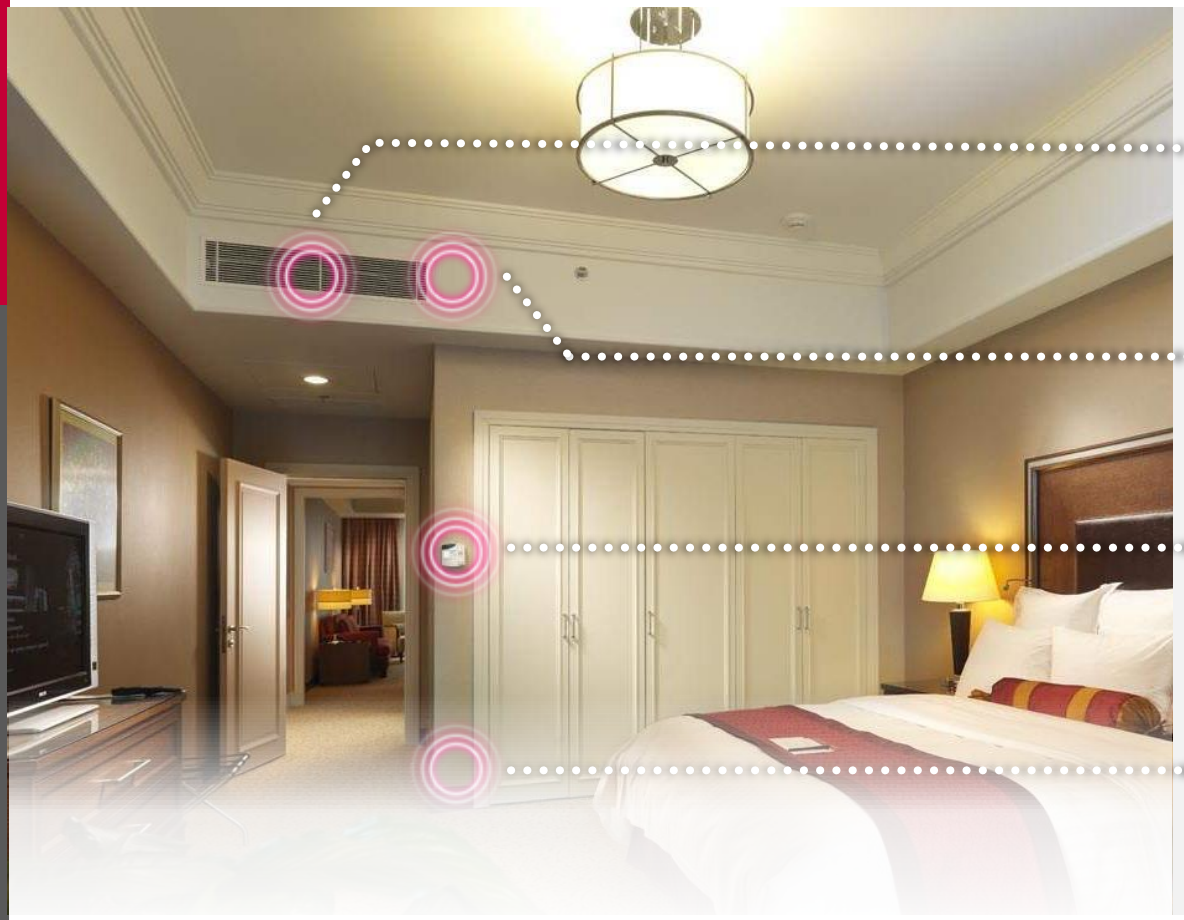
Type		kW	1.5	2.2	2.8	3.6	4.5	5.6	6.2	7.1	8.2	9.0	10.6	12.3	14.1	15.8	22.4	28.0
		Btu/h	5k	7k	9k	12k	15k	18k	21k	24k	28k	30k	36k	42k	48k	54k	76k	96k
4th generation Wall Mounted Unit	Artcool Gallery			●	●	●												
	Artcool Mirror		●	●	●	●	●	●		●								
	Standard		●	●	●	●	●	●		●		●	●					
4th generation Ceiling Mounted Cassette	4 Way Cassette (570 x 570)		●	●	●	●	●	●	●									
	4 Way Cassette (840 x 840)									●	●	●	●	●	●			
	4 Way Cassette High Sensible (840 x 840)			●	●	●	●	●		●	●		●	●	●			
	Round Ceiling Cassette									●			●		●			
	2 Way Cassette				●	●		●		●								
	1 Way Cassette			●	●	●		●		●								
4th generation Ceiling Concealed Duct	Mid / High Static			●	●	●	●	●		●	●		●	●	●	●	●	●
	Low Static		●	●	●	●	●	●	●	●								
	High Sensible			●	●	●	●	●		●	●		●	●	●			
4th generation Fresh Air Intake Units															●		●	●
4th generation Ceiling & Floor Convertible Unit					●	●												
4th generation Ceiling Suspended Unit								●		●			●		●			
4th generation Console				●	●	●	●											
4th generation Floor Standing Unit	Floor Standing Unit with Case			●	●	●	●	●		●								
	Floor Standing Unit without Case			●	●	●	●	●		●								
4th generation HYDRO KIT	Low Temperature													●				●
	High Temperature													●			●	
4th generation Energy Recovery Ventilator with DX Coil	with Humidifier						●			●		●						
	without Humidifier						●			●		●						

MULTI V™

INDOOR UNIT

HVAC Proposal for Hotel

Guest Room



1 Flexible

Ceiling Concealed Duct
- E.S.P. Control
- Flexible Installation (Low height)
- 1 Point external input

2 Ventilation solution

ERV
- Comfort air & Energy saving
- Ventilation(Fresh air)
- CO_2 Auto Operation

3 Individual control

Standard III Remote Controller
- 1 Digital output port (3rd party device on/off control)
- 4.3 Inch color LCD

4 Safety

Refrigerant Leak Detector
- R410A detector
- Detected concentration 6,000ppm

Solution

CCD + ERV + Standard III R/C + Refrigerant leak detector + VRF

HVAC Proposal for Hotel

Restaurants / Lounge / Bar

1 Luxurious exterior

Round Cassette
- Premium design
- Comfortable air flow
- Easy installation

Alt. Comfort & Clean air

4 Way CST
& Air Purification Kit
- Air purification
- Compact and stylish design
- Independent vane control
- Low noise

2 Ventilation solution

ERV
- Comfort air & Energy saving
- Purifying of Fresh air
- CO_2 Auto Operation

3 Air purification display

Standard III Remote Controller
- Dual sensors
  (Temp. and Humidity)
- 4.3 Inch color LCD

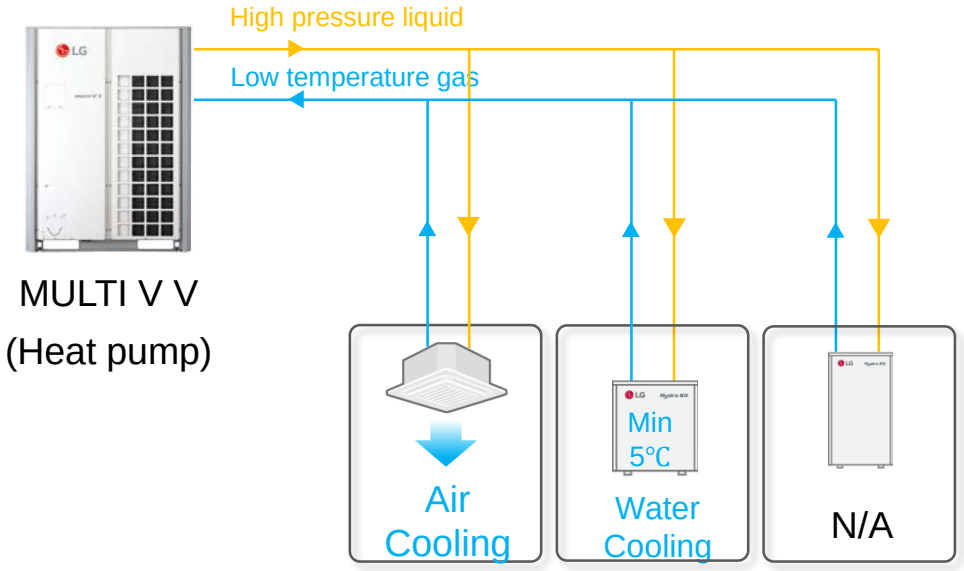
Solution

Round Cassette + ERV + Standard III remote controller + VRF
Or 4 Way Cassette & Air Purification Kit

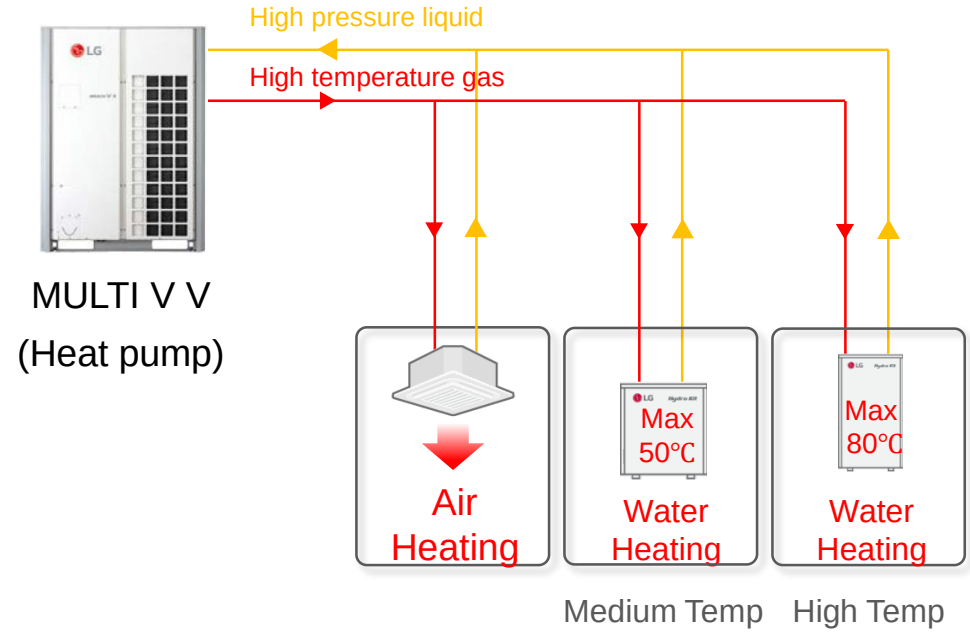
Sanitary Water Production By Hydro Kit

- Hot water supply unit by VRF heating cycle
- High temperature unit provides heated water up to 80℃ by 2-stage compressor using R134A
- Medium(Low) temperature unit provides heated or chilled water by heat pump cycle

Cooling Mode

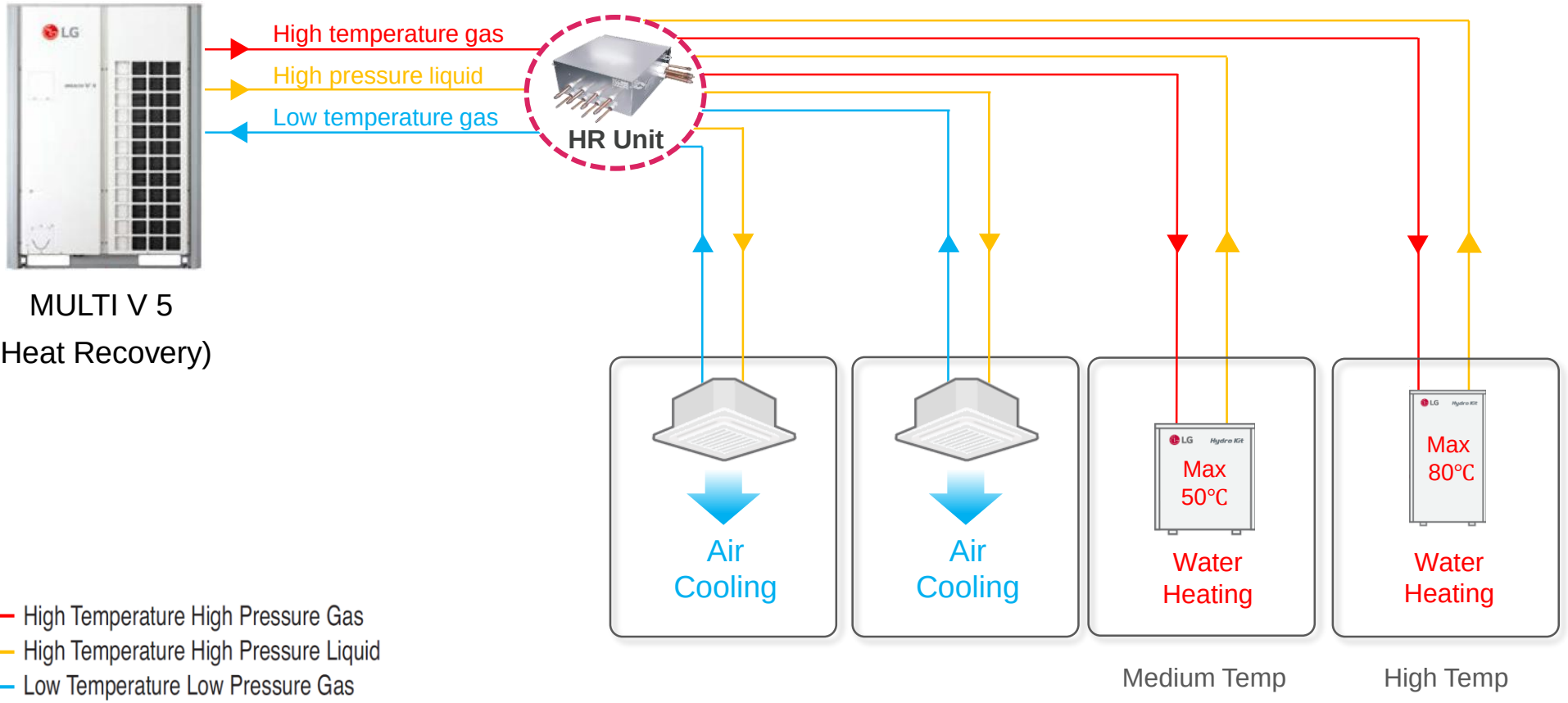


Heating Mode



Best Performance & Efficiency by Heat Recovery

Simultaneous Mode



Line up

Line up

Heating
Cooling

	Type		Max. Temp	4HP	8HP	10HP
Hydro Kit	Low temperature (Heating&Cooling)		~50℃ ~5℃	13.8kW 12.3kW		31.5kW 28.0kW
	High temperature (Heating only)		~80℃	13.8kW	25.2kW	

Indoor Air Quality

Air purification function purify indoor air by **5 phase filter.** And each filter can be **reused just by washing** without replacement. Also, it is easy to check air quality status with several devices

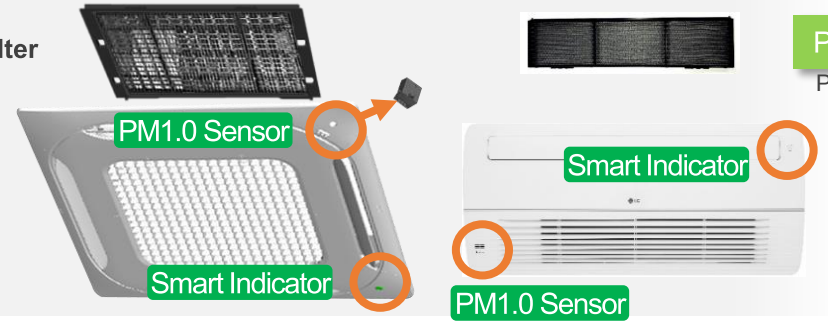
Air Purification kit & Panel

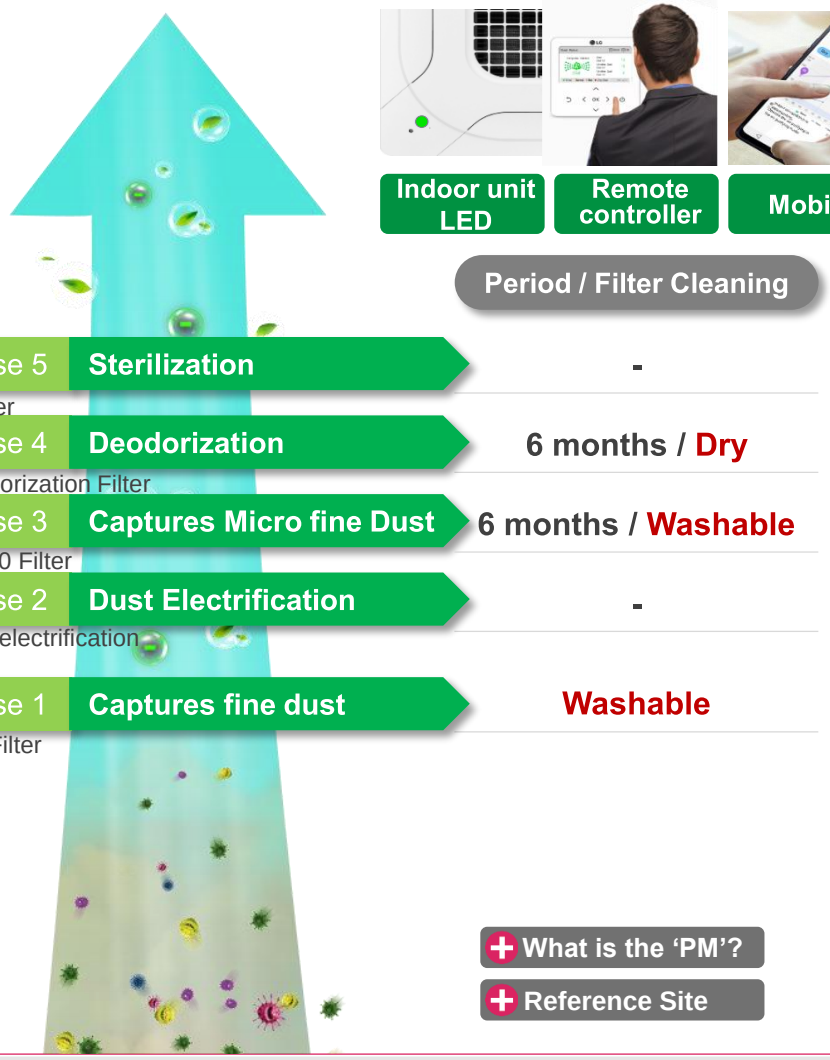
4Way Cassette

1Way Cassette

Air Purification Kit

Air Purification Panel





Indoor unit LED | Remote controller | Mobile

Period / Filter Cleaning

Phase 5	Sterilization Ionizer	-
Phase 4	Deodorization Deodorization Filter	6 months / Dry
Phase 3	Captures Micro fine Dust PM1.0 Filter	6 months / Washable
Phase 2	Dust Electrification Dust electrification	-
Phase 1	Captures fine dust Pre-Filter	Washable

+ What is the 'PM'?

+ Reference Site

※ Air purification kit and panel are optional. Electrical diffusion makes dust electrification.

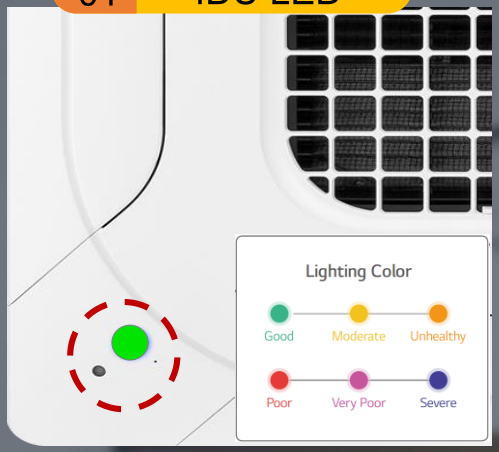
Indoor Air Quality

LGE Internal Use Only

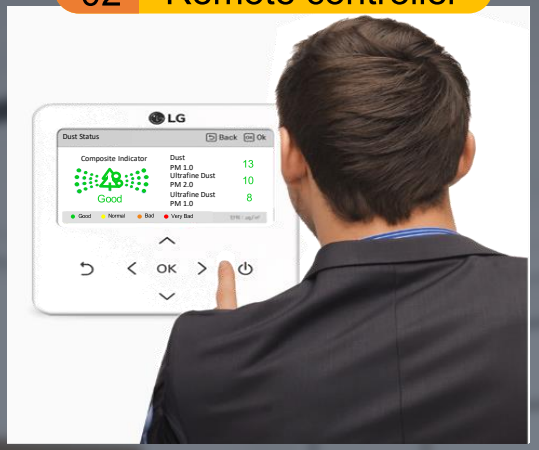
Air quality monitoring

It is possible to monitor the indoor air quality via various way

01 IDU LED



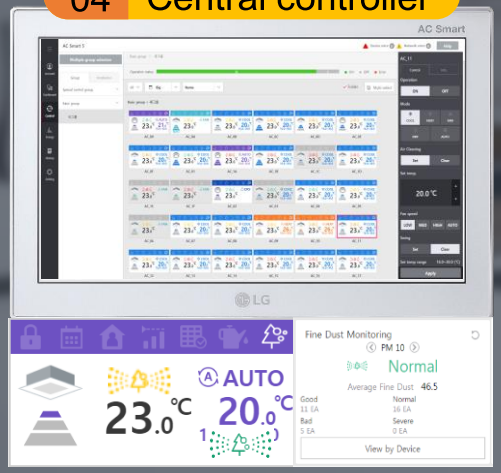
02 Remote controller



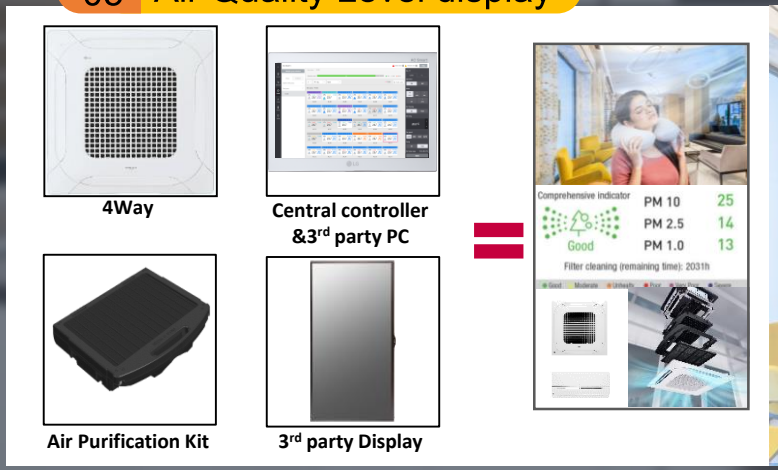
03 Mobile

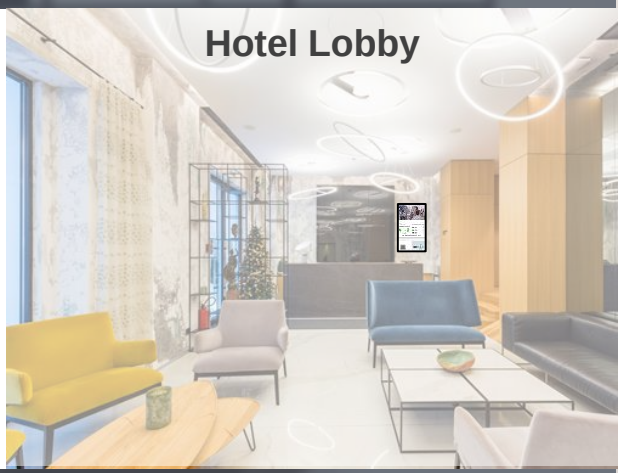
※ Wi-Fi Module is an option

04 Central controller



05 Air Quality Level display



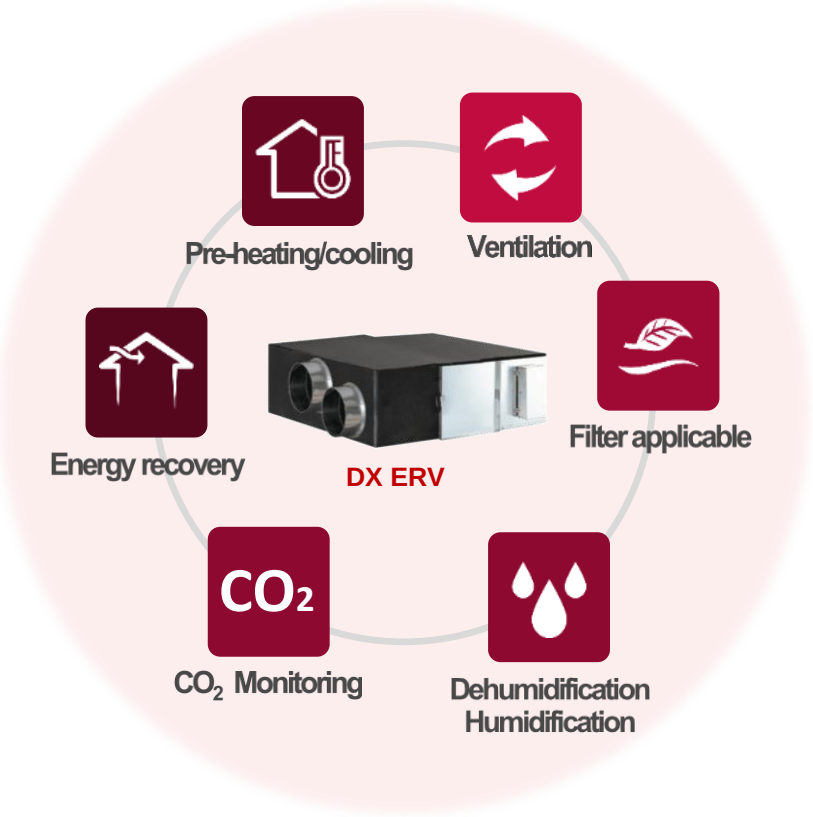


Ventilation

Ventilation System - Energy Recovery Ventilator

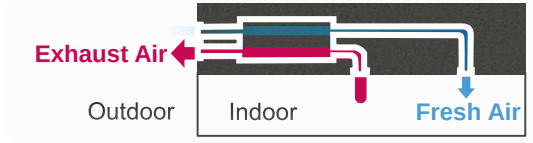
Natural ventilation proceeds very slowly and energy is wasted exhausting polluted inside air, but ERV can always be used to quickly ventilate and save energy by heat recovery system.

Main functions of DX ERV



Ventilation

Ventilation capacity
: 250 ~ 2,000CMH

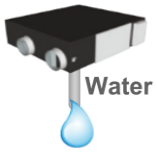


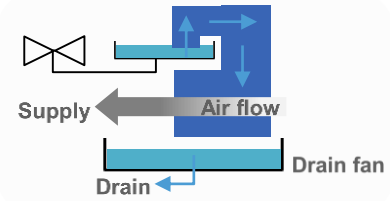
Filter application

High grade filter
(MERV13 Filter option)

Dehumidification
Humidification

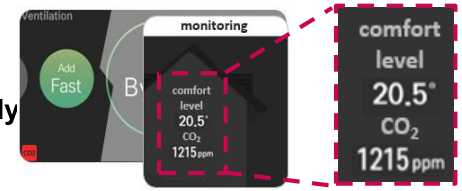
Dehumidification function
Humidifier option





CO_2 Monitoring

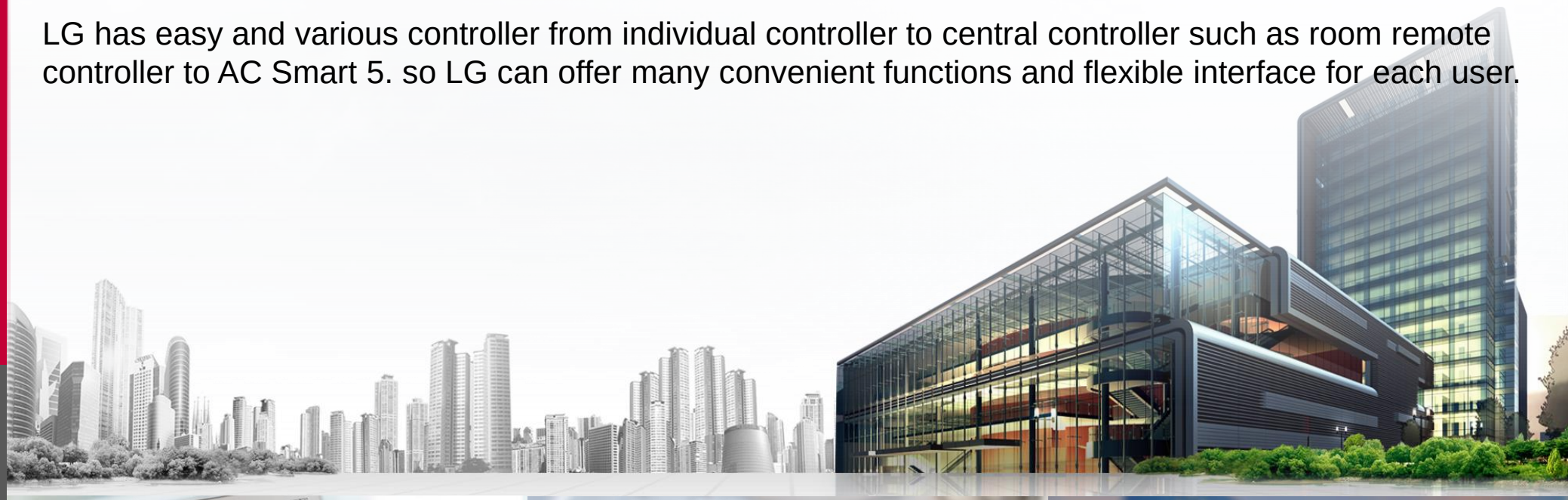
CO2 sensor embedded
Monitor CO2 level on RS3
Controls the fan speed automatically

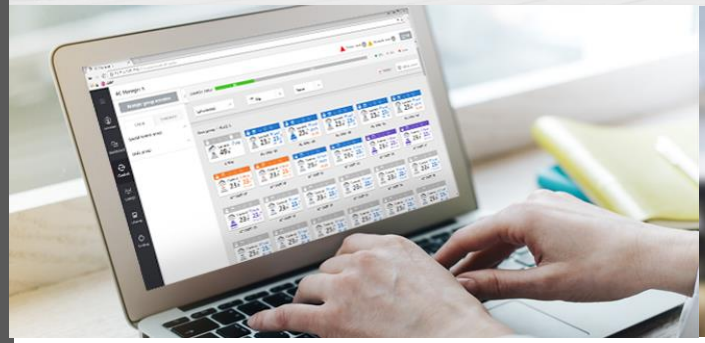


Versatile Central Control

LG Central Controller

LG has easy and various controller from individual controller to central controller such as room remote controller to AC Smart 5. so LG can offer many convenient functions and flexible interface for each user.





PC : Monitoring room

Tablet : Checking each room

Mobile : Working outside

Schedule function

Energy Management

Operation Trending Report

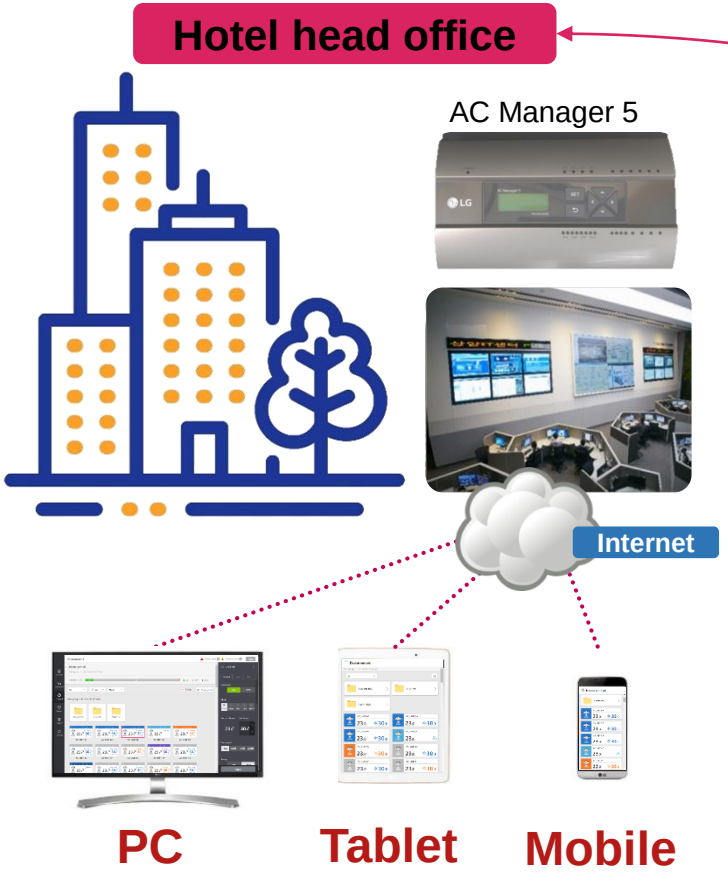
Automatic E-mail Sending

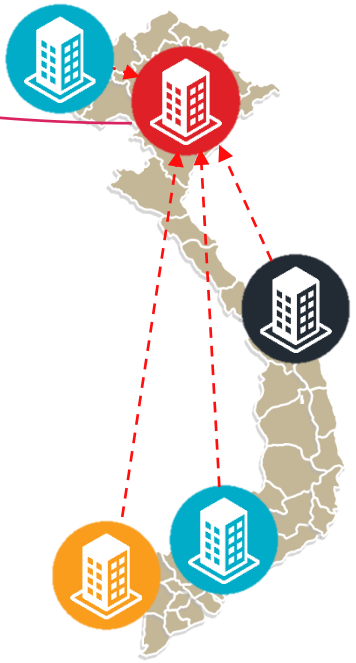
※ Each controller has different functions, so refer to the manual for details.

Versatile Central Control

Easy Management of Every Building

AC Smart / ACP / AC Manager enables Hotel's HQ side to control and manage the entire HVAC system of the hotel from anywhere via internet.





Necessary

ACP 5

AC Smart 5

Devices that can be interfaced

-The devices of AC Manager 5 that can be interfaced are as follows.

Product type	Interfacing product	Remark
Central controller	ACP IV	It shall be connected to AC Manager 5 through TCP/IP
	ACP 5	It shall be connected to AC Manager 5 through TCP/IP
	AC Smart IV	It shall be connected to AC Manager 5 through TCP/IP
	AC Smart 5	It shall be connected to AC Manager 5 through TCP/IP
	ACP BACnet	It shall be connected to AC Manager 5 through TCP/IP
Remote control	PC	Needs web browser supporting HTML5(Safari v5.1.7 or higher, Internet Explorer 10 or higher, Crome v55.0 or higher)
	Tablet PC	
	Smart Phone	

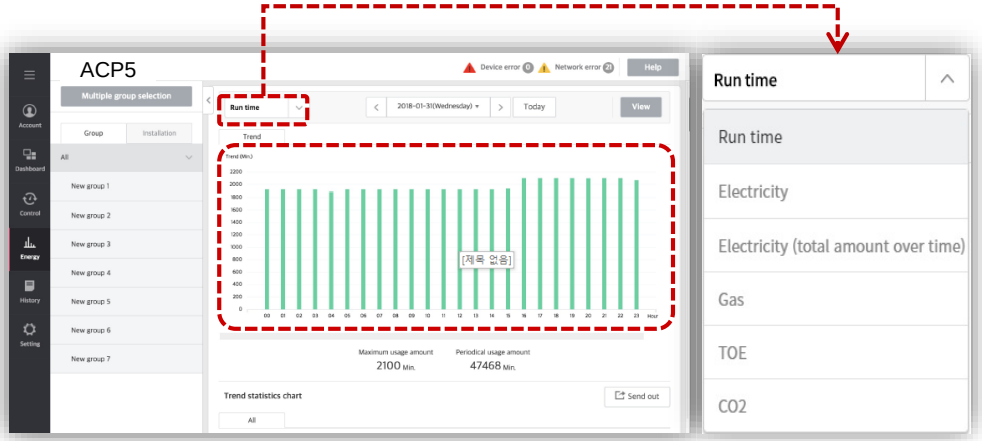
Energy Management System

Energy Report & Operation Trend Function

LG central controller can show energy report that statistical data about indoor units.
By analyzing operation trends, it will help you establishing a reasonable operational plan for Hotel.

Energy Report

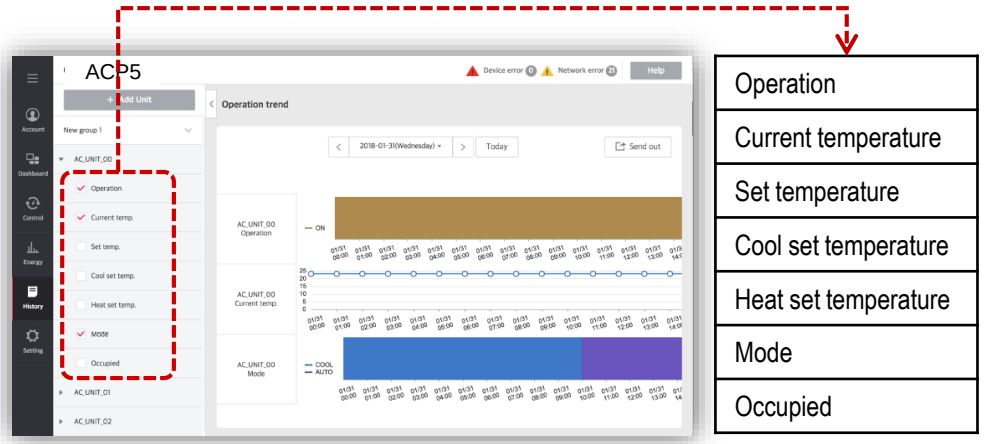
- Energy Report function can check operation time, electricity usage amount, gas usage amount, TOE*, and CO_2 with values and graph



- TOE : Tonnage of oil equivalent(Electricity usage amount + Gas usage amount)
- Energy report function applied to ACP 5 / AC Smart 5
- Electricity inquiry is available only when PDI is installed.

Operation Trend

- Operation trend function provide the past status change of the selected device to help establishing reasonable operation plan

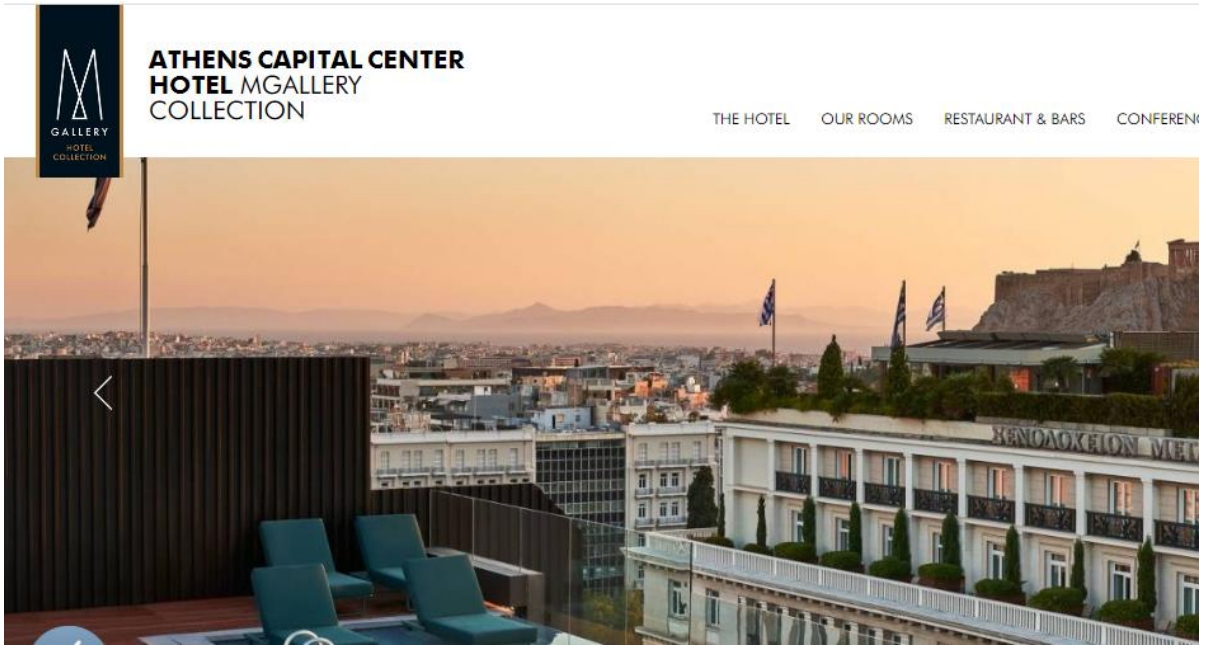


Case Studies 1 – Portes Lithos – Chalkidiki (Resort Hotel)

Hotel Needs : Air Conditioning (Duct for Guest Rooms)
Sanitary water production
Ventilation

Solution Provided : Heat Recovery Systems (A/C & Hydro Kit) for better efficiency
ERV

Case Studies 2 – MGallery Athens / King's Palace (City Hotel)



Hotel Needs : Air Conditioning
Sanitary water production
Ventilation
Central Control

Solution Provided : Heat Recovery Systems (A/C & Hydro Kit) for comfort & better efficiency
ERV
ACP

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