

# LG AIRCONDITIONER ENGINEERING PRODUCT DATA BOOK

**MULTI V**™ Network Solution  
**V-NET**

0CAA0-01A

## **LG Airconditioners Product Data**

# **MULTI V<sup>TM</sup> V-NET Network Solution**

## **1. Control Devices**

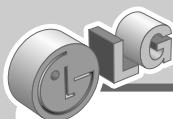
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# 1. Control Devices

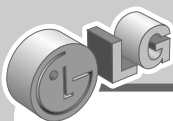
## 1.1 Wired Remote Controller

**PCRCUSZ0 (Except: Duct, Floor Standing, Artcool, Wide Artcool)**

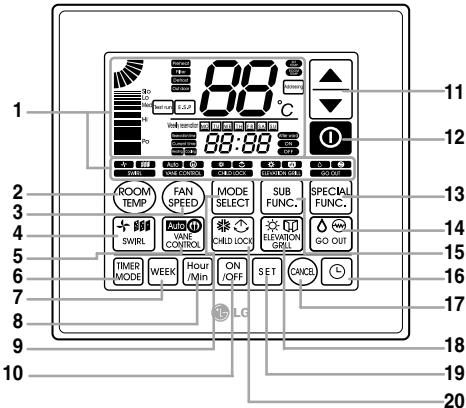
Appearance	Functions (Button Descriptions)		
	No.	Name	Function
	1.	Operation indication screen	Display the operating condition.
	2.	Swirl button	
	3.	2ndF button	
	4.	Timer set/cancel Program/Week/Holiday Hour/Min/SET/Clr/Ventilator	
	5.	Set temperature button	Used to set the temperature when required.
	6.	ON/OFF button	Operation starts when this button is pressed, and stops when the button is pressed again.
	7.	Fan operation	Used to circulate room air without cooling or heating.
	8.	Operation mode selection button	Used to select the operation mode.
	9.	Fan speed button	Used to set the desired fan speed
	10.	Horizontal/Vertical air flow direction button	
	11.	Room temperatur/filtersign release button	Used to check the room temperature and release the filter in Second Function Mode.
	12.	Plasma/Heater button	Used plasma and saved power in Second Function
	13.	Time reset button	Reset Used to set the current time and clear the setting time.
	14.	Operation lamp	

**PDRCUSZ0 (Applied: Duct, Floor Standing)**

Appearance	Functions (Button Descriptions)		
	No.	Name	Function
	1.	Operation indication screen	Display the operating condition.
	2.	Wireless remote controller receiver	
	3.	2ndF button	
	4.	Timer set/cancel Program/Week/Holiday Hour/Min/SET/Clr/Ventilator	
	5.	Set temperature button	Used to set the temperature when required.
	6.	ON/OFF button	Operation starts when this button is pressed, and stops when the button is pressed again.
	7.	Fan operation	Used to circulate room air without cooling or heating.
	8.	Operation mode selection button	Used to select the operation mode.
	9.	Fan speed button	Used to set the desired fan speed
	10.	Fan auto/Humidification button	
	11.	Room temperatur/filtersign release button	Used to check the room temperature and release the filter in Second Function Mode.
	12.	Plasma/Heater button	Used plasma and saved power in Second Function
	13.	Time reset button	Reset Used to set the current time and clear the setting time.
	14.	Operation lamp	



## PQRCUDS0

Appearance	Functions (Button Descriptions)		
	No.	Name	Function
	1	Operation Display Panel	Display the operating condition.
	2	Indoor TemperatureButton	Used to check the room temperature
	3	Fan Speed Button	Used to set the desired fan speed.
	4	Fan/Plasma/Swirl SwingButton	Fan: used to circulate room air without cooling orheating Plasma : use plasma function. Swirl Swing : use swirl swing
	5	Automatic / Power Saving/ Vane Control Button	Automatic : used to set mode by room temperatureautomatically Saving : use to save the power. vane control : used to set louver angle
	6	Reservation Mode Button	used to set reservation
	7	Date Selection Button	used to set Data for current time and reservation.
	8	Hour/Minute Button	used to set hour and minute for current time andreservation.
	9	Mode Selection Button	used select the operation mode.
	10	On/Off Button forreservation	Operation starts and stop.
	11	Temperature ControlButton	Used to set the temperature when required.
	12	On/Off Button	Operation starts and stop
	13	Special Function Button	used to use Special Function
	14	Dehumidification/ Heating/ Timer Button	Dehumidification : used to operate fordehumidification. Heating : used to operate heater when the heating. Go-OUT; use to operate when user go outs.
	15	SUB Function Button	used to select Function
	16	Simple ReservationButton	Used to set simple reservation.
	17	Unsetting Button	cancel the all reserved time.
	18	Heating/Ventilation/Elevation GrillButton	heating: used to set heating mode. ventilation: used to set ventilation Elevation Grill: used to
	19	Setting Button	used to set the reservation when the reservation.
	20	Cooling / Auto Swing / Child LockButton	Cooling : used to set cooling mode Auto Swing : used to swing the louver up and down child Lock: : used that children can not use thecontroller

## PQRCUSA0 (Applied : CST, DUCT, RAC, CVT)

Appearance	Functions (Button Descriptions)		
<p>The diagram shows a rectangular remote control with a large LCD display at the top. The display shows various icons for operation, ventilation, and temperature, along with a large digital readout showing '88.5'. Below the display are several rows of buttons. Callout 1 points to the display area. Callout 2 points to the temperature control buttons (up, down, and power). Callout 3 points to the remote controller receiver. Callout 4 points to the ventilation button. Callout 5 points to the operation selection button. Callout 6 points to the additional operation button. Callout 7 points to the function setting button. Callout 8 points to the exit button. Callout 9 points to the operate/stop button. Callout 10 points to the indoor temperature button. Callout 11 points to the fan speed button. Callout 12 points to the wind direction button. Callout 13 points to the reservation/time setting button. Callout 14 points to the set/cancel button. Callout 15 points to the up/down/left/right button.</p>	No.	Name	Function
	1	Operation display panel	- Display the operating condition.
	2	Temperature control button	- Used to set the temperature when required.
	3	Wireless remote controller receiver	- Some products do not receive wireless remote controller signal.
	4	Ventilation button	- Ventilator control function can only be set for the product with the ventilation function.
	5	Operation selection button	- Used to select the operation mode.
	6	Additional operation button	- Used to select the additional operation mode. *Air cleaner, Heater, Humidifier, Auto fan
	7	Function setting button	- Used to set the function and into the installer setting mode. * Function : Wind angle, Child lock, Elevator grill
	8	Exit button	
	9	Operate/Stop button	- Operation starts when this button is pressed, and stops when the button is pressed again.
	10	Indoor temperature button	- Used to check the room temperature
	11	Fan speed button	- Used to set the desired fan speed
	12	Wind direction button	- Used to set the direction of wind
	13	Reservation/time setting button	- Used to set the Time and Program. * Program : simple, Sleep, ON/OFF, Weekly, Holiday
	14	Set/Cancel button	
15	Up/Down/Left/Right button		





## 1.2 Wireless Remote Controller

H/P:PQWRHSF0 C/O:PQWRCSF0

Appearance		Functions (Button Descriptions)	
No.	Name	Function	
1	Start/Stop	Operation starts when this button is pressed and stops when the button is pressed again.	
2	Operation Mode Selection	Used to select the operation mode.	
3	Room temperature Setting	Used to select the room temperature.	
4	Fan Speed Selector	Used to select fan speed in four steps (low, medium, high, or CHAOS.)	
5	Jet Cool	Used to start or stop the speed cooling/heating. (Speedcooling/heating operates super high fan speed in cooling mode.)	
6	Chaos Swing	Used to stop or start louver movement and set the desired up/down airflow direction.	
7	On/Off Timer	Used to set the time of starting and stopping operation.	
8	Time Setting	Used to adjust the time.	
9	Timer Set/Cancel	Used to set the timer when required and to cancel the Timer operation.	
10	Sleep Mode Auto	Used to set Sleep Mode Auto operation.	
11	Air Circulation	Used to circulate the room air without cooling or heating (turns indoor fan on/off).	
12	Room Temperature Checking	Used to check the room temperature.	
13	Plasma(Optional)	Used to start or stop the plasma-purification function.	
14	Reset Button	Used prior to resetting time or after replacing batteries.	
15	2nd F Button	Used prior to using modes printed in blue at the bottom of buttons.	
16	Auto Clean	Used to set Auto Clean mode.	

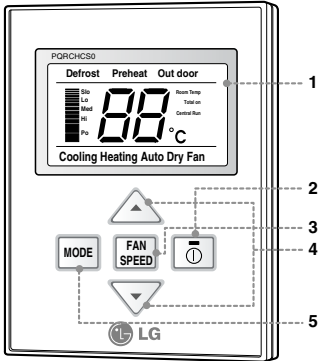
H/P:PQWRHDF0 C/O:PQWRCDF0

Appearance		Functions (Button Descriptions)	
No.	Name	Function	
1	ON / OFF	Operation starts when this button is pressed and stops when the button is pressed again.	
2	MODE	Used to select the operation mode.	
3	TEMP	Room temperature Setting	
4	FAN SPEED	Fan Speed Selector	
5	JET COOL	Jet Cool	
6	AIR FLOW	Air Flow Direction Selection	
7	Timer & Time Setting	Used to select desired timer of sleep/on/off timer or used to set the current time (push for 3 sec.)	
8	Timer & Time Setting	Used to adjust the time when set the timer or current time.	
9	Timer Set/Clear	Used to set timer or clear the selected timer.	
10	Timer all Clear	Used to clear all timer operation.	
11	Room Temperature Checking	Used to check the room temperature.	
12	Auto Clean & Smart Clean (Optional)	Used to set Auto Clean mode or Smart Clean mode. - Set AUTO CLEAN : Push 1 time and Set button. - Set SMART CLEAN : Push 2 times and Set button.	
13	Plasma(Optional)	Used to start or stop the plasma-purification function.	
14	Lighting(Optional)	Used to control lightness of display of Indoor unit.	
15	Energy-Saving Cooling Operation (Optional)	Used to start or stop the energy saving cooling operation.	
16	Smart Clean (Optional)	Used to start or stop smart clean mode when operation stops.	
17	Reset Button	Used prior to resetting time or after replacing batteries.	

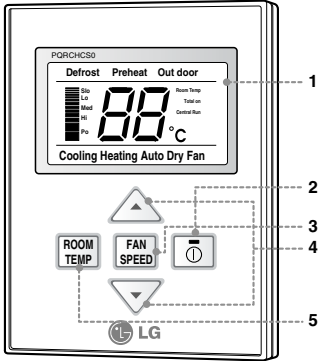


## 1.3 Simple Wired Remote Controller

### PQRCUCA0

Appearance	Functions(Button Descriptions)		
Simple wired remote controller (normal)  	No.	Name	Function
	1	Operation display	Displays the operating conditions.
	2	On/Off	Operation starts when this button is pressed, and stops when the button is pressed again.
	3	Fan speed	Used to set the desired fan speed.
	4	Room temperature setting	Used to set the room temperature when required.
	5	Operation mode selection	Used to select the operation mode.

### PQRCFCS0(Mode Change is impossible)





Appearance	Functions(Button Descriptions)		
Simple wired remote controller for hotel.  	No.	Name	Function
	1	Operation display	Displays the operating conditions.
	2	On/Off	Operation starts when this button is pressed, and stops when the button is pressed again.
	3	Fan speed	Used to set the desired fan speed.
	4	Room temperature setting	Used to set the room temperature when required.
	5	Room temperature checking	Used to check the room temperature.

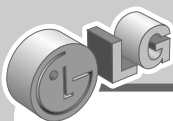






## 2. Central Control Devices

### 2.1 Overview

#### 2.1.1 Control device

Control Method	Objective/ Use	Unit Name and Model	Function	Parts	Features
Central Control	Simple Central Controller	PQCSB101S0 	<ul style="list-style-type: none"> <li>Remote Control</li> <li>Monitoring</li> <li>Indoor unit 16 / 1 Simple Controller</li> </ul>	<ul style="list-style-type: none"> <li>Controller</li> <li>Manual</li> <li>Screw 4EA</li> </ul>	<ul style="list-style-type: none"> <li>16 Indoor Units On/Off Control</li> <li>Max 16 Central Controller expansion</li> <li>Connectable with Function Controller</li> </ul>
	Function Controller	PQCSC101S0 	<ul style="list-style-type: none"> <li>Fan Speed</li> <li>Mode</li> <li>Set Temp</li> <li>Search</li> </ul>	<ul style="list-style-type: none"> <li>Controller</li> <li>manual</li> <li>Screw 6EA</li> <li>Install</li> <li>supporter</li> </ul>	<ul style="list-style-type: none"> <li>joint with Max 8 simple central controller</li> </ul> <p>8*16 = 128 indoors</p>
	Deluxe Central Controller	PQCSW502A2 	<ul style="list-style-type: none"> <li>Remote Control</li> <li>Monitoring</li> <li>Schedule Control</li> <li>Max 256 Indoor units</li> </ul>	<ul style="list-style-type: none"> <li>UMPC, Docking station</li> <li>Power supply, Manual</li> </ul>	<ul style="list-style-type: none"> <li>Touch Screen</li> <li>Individual/Integrated Operation/Monitoring</li> <li>Group Management</li> <li>Self-diagnosis Function</li> <li>Schedule Automatic Operation</li> </ul>
	PC Central Control Software	PQCSS513A0 	<ul style="list-style-type: none"> <li>Remote Control</li> <li>Monitoring</li> <li>Max 2048 Indoor units</li> <li>Schedule Control</li> <li>Peak Control</li> <li>Ventilation Control</li> <li>PDI monitoring</li> </ul>	<ul style="list-style-type: none"> <li>PC S/W (CD)</li> <li>lock Key</li> <li>Manual</li> </ul>	<ul style="list-style-type: none"> <li>PC Based (Not Provided)</li> <li>Individual/Integrated Operation/Monitoring</li> <li>Group Management</li> <li>Self-diagnosis Function</li> <li>Schedule Automatic Operation</li> <li>Peak control</li> <li>Ventilation Control</li> <li>PDI Monitoring (Special Purchase)</li> </ul>

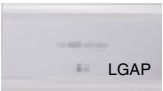





Control Method	Objective/ Use	Unit Name and Model	Function	Parts	Features
Central Control	AC Smart	<ul style="list-style-type: none"> <li>To Control all indoor unit just like remote controller</li> </ul> <p>PQCSW320A0E (for EU) PQCSW320A0C (for China)</p> 	<ul style="list-style-type: none"> <li>Control/Monitoring</li> <li>Schedule</li> <li>History</li> <li>Auto control (Auto Changeover, temperature limit control)</li> <li>Setting</li> <li>Other setting</li> <li>Multi Language</li> <li>Emergency Stop</li> <li>Max 64 Indoor units</li> </ul>	<ul style="list-style-type: none"> <li>AC Smart controller</li> <li>Power cord</li> <li>Manual</li> </ul>	<ul style="list-style-type: none"> <li>Touch screen</li> <li>Zone/Group/Unit control</li> <li>Function Lock &amp; Set Temp range restriction</li> <li>Icon/List View</li> <li>Easy upgrade by using USB</li> </ul>
	ACP	<ul style="list-style-type: none"> <li>To Control all indoor unit just like remote controller</li> </ul> <p>PQCPA11A0E (for EU) PQCPA11A0C (for China)</p> 	<ul style="list-style-type: none"> <li>Control/Monitoring</li> <li>Schedule</li> <li>History</li> <li>Peak Power Control</li> <li>PDI Monitoring</li> <li>Setting</li> <li>Max 256 Indoor units Without IO (Install with AC Manager, Interlocking is impossible)</li> </ul>	<ul style="list-style-type: none"> <li>ACP</li> <li>Power cord</li> <li>Manual</li> </ul>	<ul style="list-style-type: none"> <li>Embedded web server (Can connected internet)</li> <li>Include Central Program in the ACP Web Server</li> <li>Directly IP Setting by using key &amp; LCD</li> <li>Without DI/DO Port</li> </ul>
		<ul style="list-style-type: none"> <li>To Control all indoor unit just like remote controller</li> </ul> <p>PQCPB11A0E (for EU) PQCPB11A0C (for China)</p> 	<ul style="list-style-type: none"> <li>Control/Monitoring</li> <li>Schedule</li> <li>History</li> <li>Peak Power Control</li> <li>PDI Monitoring</li> <li>Setting</li> <li>Max 256 Indoor units With IO (Install with AC Manager, Interlocking is possible)</li> </ul>	<ul style="list-style-type: none"> <li>ACP</li> <li>Power cord</li> <li>Manual</li> </ul>	<ul style="list-style-type: none"> <li>Embedded web server (Can connected internet)</li> <li>Include Central Program in the ACP Web Server</li> <li>Directly IP Setting by using key &amp; LCD</li> <li>With DI/DO Port</li> </ul>
Central Control	AC Manager	<ul style="list-style-type: none"> <li>To Control all indoor unit just like remote controller</li> </ul> <p>PQCSS520A0E (for EU) PQCSS520A0C (for China)</p> 	<ul style="list-style-type: none"> <li>Control/Monitoring</li> <li>Schedule</li> <li>History</li> <li>Peak Power Control</li> <li>Auto control (Auto Changeover, temperature limit control)</li> <li>Interlocking</li> <li>PDI data Manage</li> <li>Setting</li> <li>Max 4,096 Indoor units</li> </ul>	<ul style="list-style-type: none"> <li>PC S/W(CD)</li> <li>Lock key</li> <li>Manual</li> </ul>	<ul style="list-style-type: none"> <li>Install with several ACP supply more detail control &amp; upgraded function</li> <li>Print &amp; down with excel of all data</li> <li>Function Lock &amp; Set Temp range restriction</li> <li>Icon/List View</li> <li>individual unit operating time manage</li> <li>Max 16 ACP connectable (Max 4.096 Indoors)</li> </ul>



#### Notes:

All the central control devices listed above are optional accessory, so these should be purchased separately when needed.



Control Method	Objective/ Use	Unit Name and Model	Function	Parts	Features
Interface Device	CNU2 (I-Gateway)	PQNFG14B0 	<ul style="list-style-type: none"> <li>• RS485 To Ethernet Protocol Converter</li> <li>• Linked control is Possible (Simple central + Deluxe or PC central control)</li> <li>• Can select old or LGAP Protocol</li> </ul>	<ul style="list-style-type: none"> <li>• Interface Assembly</li> <li>• 9V DC adaptor</li> <li>• Manual</li> </ul>	<ul style="list-style-type: none"> <li>• 1 Deluxe central / 2 CNU (1 CNU / 8outdoor)</li> <li>• 1 PC Based / 16 CNU (1 CNU / 8outdoor)</li> </ul>
	Outdoor Dry Contact	PRDSBM 	<ul style="list-style-type: none"> <li>• External dry contact switch to select operation Mode</li> </ul>	<ul style="list-style-type: none"> <li>• Contact Switch</li> <li>• Manual</li> </ul>	<ul style="list-style-type: none"> <li>• 1EA/1outdoor unit</li> </ul>
	Dry Contact	PQDSB 	<ul style="list-style-type: none"> <li>• RS485 Converter with software (Multi_V Plus)</li> </ul>	<ul style="list-style-type: none"> <li>• PCB Assembly</li> <li>• Top case</li> <li>• Bottom case</li> <li>• Screw</li> <li>• Lead wire 3</li> <li>• Sub PCB set (1leadwire+1sub PCB)</li> <li>• Manual</li> </ul>	<ul style="list-style-type: none"> <li>• 1set/1 Indoor unit</li> </ul>
	BNU-LW	PQNFB16A1 	<ul style="list-style-type: none"> <li>• RS485 To LONWORKS Protocol Converter</li> </ul>	<ul style="list-style-type: none"> <li>• Interface Assembly</li> <li>• 12V DC adaptor</li> <li>• Manual</li> </ul>	<ul style="list-style-type: none"> <li>• 64 Indoor units / 1BNU-LW commission with Web Access can be install with simple central controller</li> </ul>

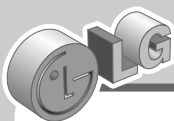


Control Method		Objective/ Use	Unit Name and Model	Function	Parts	Features
Interface Device	BNU-BAC	<ul style="list-style-type: none"> <li>To connect Outdoor units to BACnet BMS system</li> </ul>	PQNFB17B0 	<ul style="list-style-type: none"> <li>RS485 to BACnet protocol converter</li> </ul>	<ul style="list-style-type: none"> <li>Interface Assembly 12V DC adaptor Manual</li> </ul>	<ul style="list-style-type: none"> <li>256 Indoor units/ 1 BNU-BAC commission with Web Access can be install with simple central controller Directly IP Setting by using key &amp; LCD</li> </ul>
	PDI	<ul style="list-style-type: none"> <li>To Power consumption Distribution of each indoor unit</li> </ul>	PQNUD1S00 	<ul style="list-style-type: none"> <li>Accumulation of total power consumption</li> <li>Indication of current power in use</li> <li>Indication of accumulated power for period</li> <li>Indication of standby power (option setting)</li> <li>PC Central controller(PQCSS513 A0) connection is possible</li> </ul>	<ul style="list-style-type: none"> <li>PDI Assembly Manual</li> </ul>	<ul style="list-style-type: none"> <li>1 PDI / 1 OUTDOOR</li> </ul>

1) CNU:Central control Network interface Unit

#### Notes:

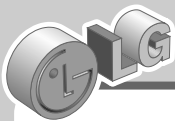
All the central control devices listed above are optional accessory, so these should be purchased separately when needed.



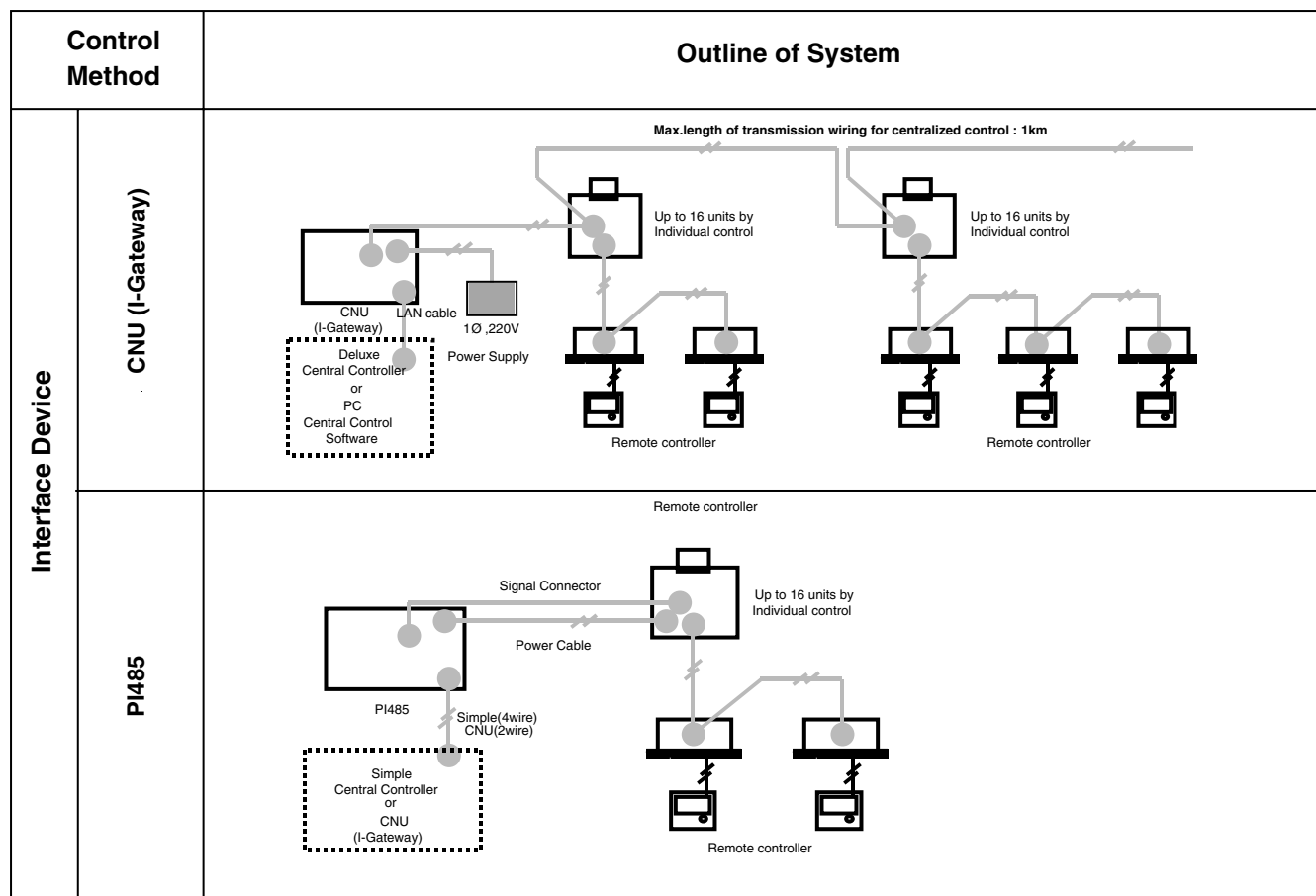
## 2.1.2 Various Central Control systems

Control Method	Outline of System
Central Control	<p><b>Simple Central Controller</b></p> <p>Same Method connection</p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>16 units Can be connected by 1 group</p> <p>#2 #1</p> <p>Simple Central Controller</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p> <p>&lt; Note &gt; -16 Indoor unit/ 1 Simple Central Controller</p>
	<p><b>Function Controller</b></p> <p>Same Method connection</p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>16 units Can be connected by 1 group</p> <p>#2 #1</p> <p>Function Controller</p> <p>Simple Central Controller</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p> <p>&lt; Note &gt; -16 Indoor unit/ 1 Simple Central Controller</p>
	<p><b>Deluxe Central Controller</b></p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Ethernet (Cross UTP Cable)</p> <p>CNU</p> <p>Deluxe Central Controller</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p>
	<p><b>PC Central Control Software</b></p> <p>■ When Connecting only 1 CNU with PC, then Cross UTP Cable must be used without HUB</p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Up to 8 PI485(outdoor) by Individual control</p> <p>Ethernet (Cross UTP Cable)</p> <p>CNU</p> <p>PC Central Control Software</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p> <p>System Configuration &gt; -16CNU / 1PC Central Controller -8 PI485 / 1 CNU -1OUTDOOR / 1 PI485</p>





Control Method	Outline of System	
Central Control	AC Smart	<p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Up to 64 units by Individual control</p> <p>Deluxe Central Controller</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p>
	ACP	<p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Ethernet (Cross UTP Cable)</p> <p>Internet web server</p> <p>Up to 256 units by Individual control</p> <p>ACP</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p>
	AC Manager	<p>■ When Connecting only 1 ACP with PC, then Cross UTP Cable must be used without HUB</p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Ethernet (Cross UTP Cable)</p> <p>AC manager Central control Software</p> <p>ACP</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p>
		<p>■ When Connecting 16 ACP with PC, then Direct UTP Cable must be used with HUB</p> <p>Max.length of total transmission wiring for centralized control : 1km</p> <p>Ethernet (Direct UTP Cable)</p> <p>AC manager Central control Software</p> <p>HUB</p> <p>ACP 1</p> <p>ACP 15</p> <p>ACP 16</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Up to 16 units by Individual control</p> <p>Remote controller</p> <p>Remote controller</p>



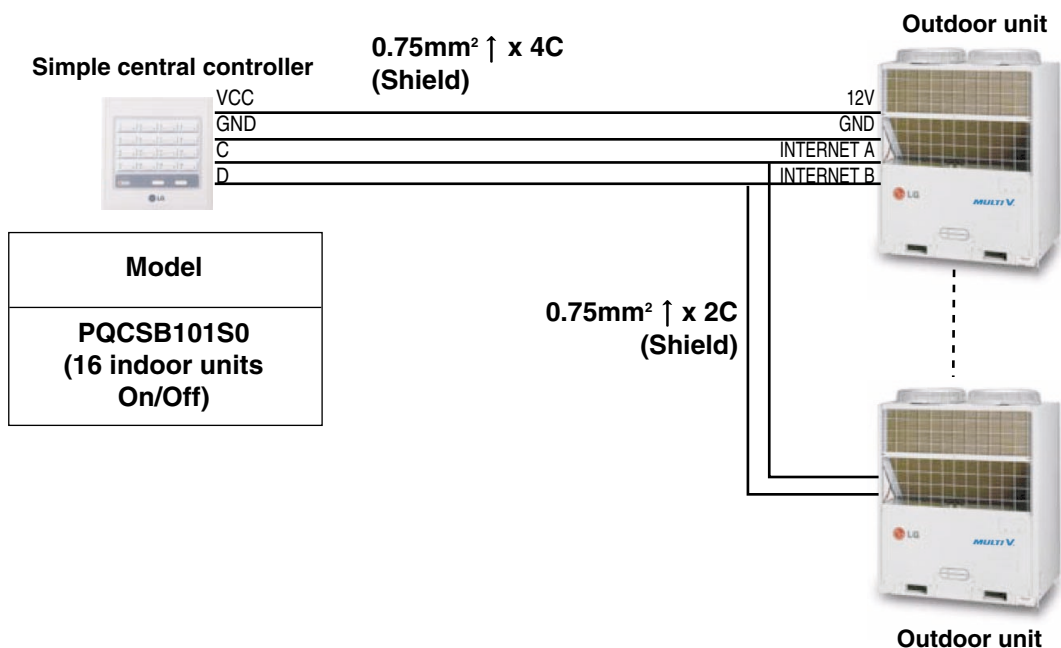
**Note:**

All central controllers can not be used at the same time.



## 2.2 Simple Central Controller

### 2.2.1 Overview



### Combination

16 Indoor Unit can be connected in a simple central controller. Total 16 simple central controller can be connected together.

(One of simple central controller is setting 'MASTER', the others of it to be 'SLAVE')

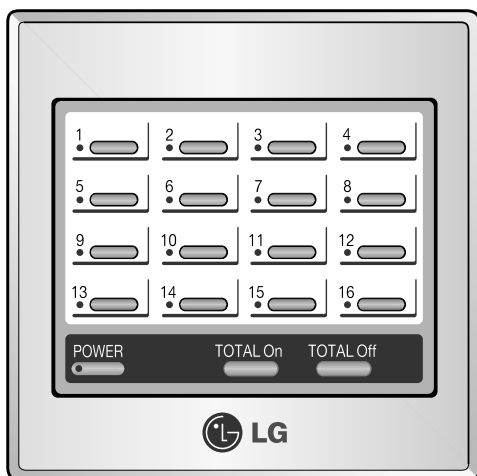
### Control wirings

All Outdoor Units should be connected with control wiring in parallel.

12V/GND is connected to simple central controller from an outdoor unit and the other outdoor units are connected to PI485 Communicating wires.



## 2.2.2 Features



- Easy operation button.
- Independent operation for 16 indoor units each.
- Simultaneously, turn ON/OFF all of indoor units connected.
- Easy change operation mode to cooling or heating
- Set and clear lock-mode for each indoor unit
- Simultaneously set and clear lock-mode for all indoor units connected.
- Display function for all of indoor units connected.

## 2.2.3 Terminology of each part and their function

### PQC5B101S0

#### On/Off display LED (TOTAL 16EA)

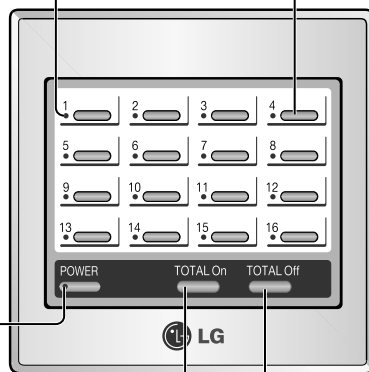
- On pressing individual on/off button, display the present operation state.
  - Cool/Dry/Fan : Green.
  - Heat : Orange
  - Error mode : Red
  - Stop : Off

#### Power display LED

- Indicate the state of DC Power supply in central control unit.
  - On : red(Heating), green(Cooling)
  - Off : no signal
  - Error mode : blinking with red color

#### Individual On/Off button

- Control ON/OFF of a single unit



#### 'TOTAL Off' button

- Stop all linked units sequentially.

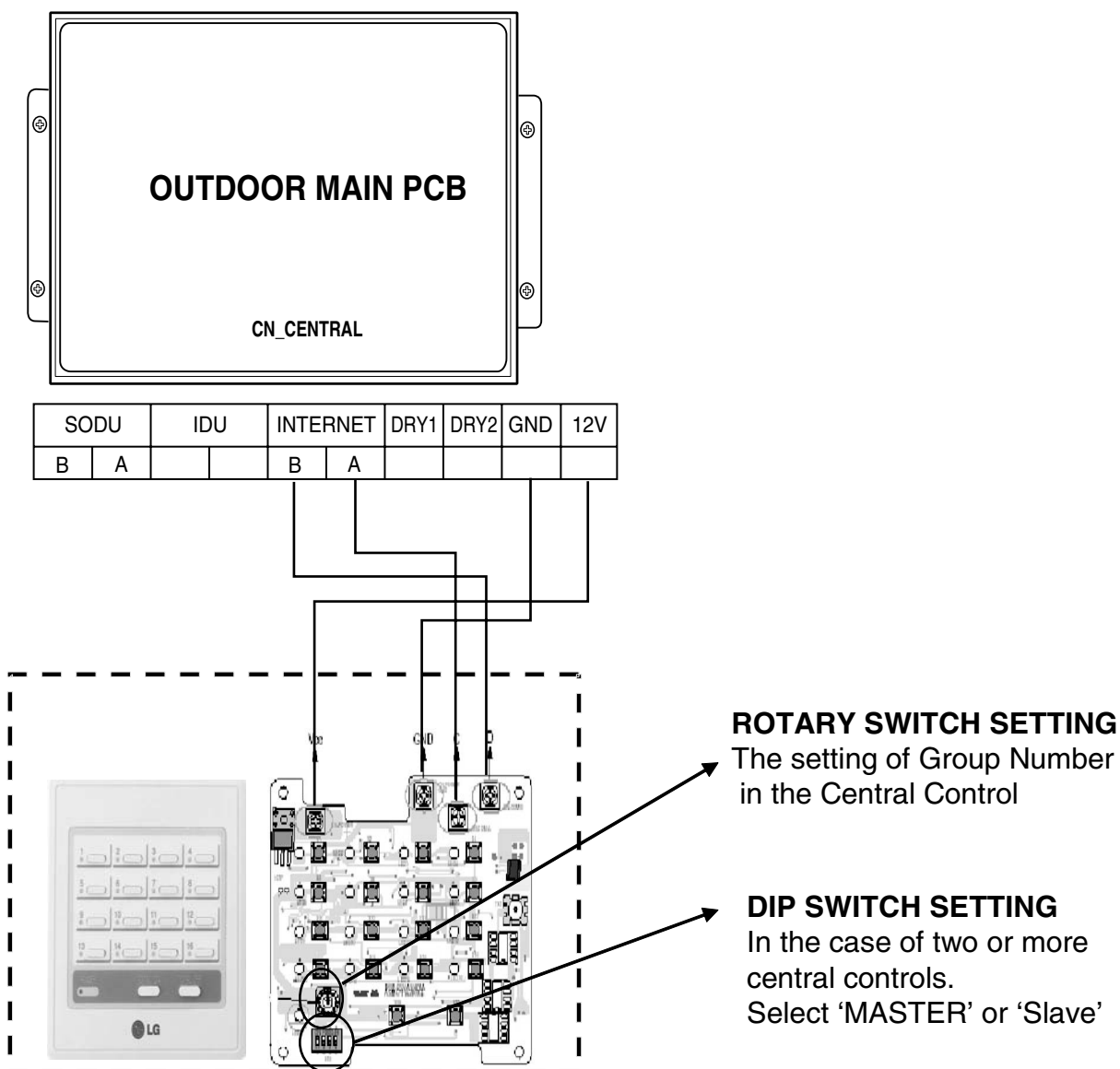
#### 'TOTAL on' button

- Operate all linked units sequentially.



## 2.2.4 Electrical wiring

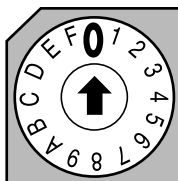
### ■ PICTORIAL VIEW OF THE CONNECTION





## ■ ROTARY SWITCH SETTING

The setting of Group Number in the Central Control is done by the rotary switch as shown in the figure below.

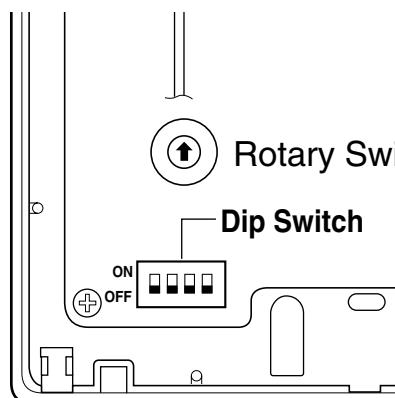


It is possible to set 0~15 Group (Total 16 Groups). All the numbers on the rotary switch represent the different Group Numbers. By changing the knob we can set rotary switch to the group number we want to control. The above fig. shows the control of group number "0". Similarly we can control all the 16 Groups.

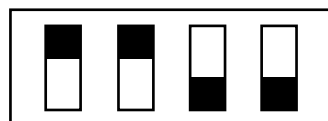
## ■ DIP SWITCH SETTING(INSTALLATION FOR 2 OR MORE SIMPLE CENTRAL CONTROL)

### CAUTION

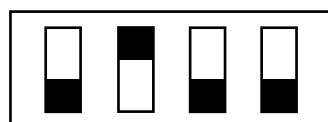
- Dip switch is now used only for the setting of master or slave mode.( In the case of two or more central controls.)
- Set one to Master, the others to slave.



**Master Mode**

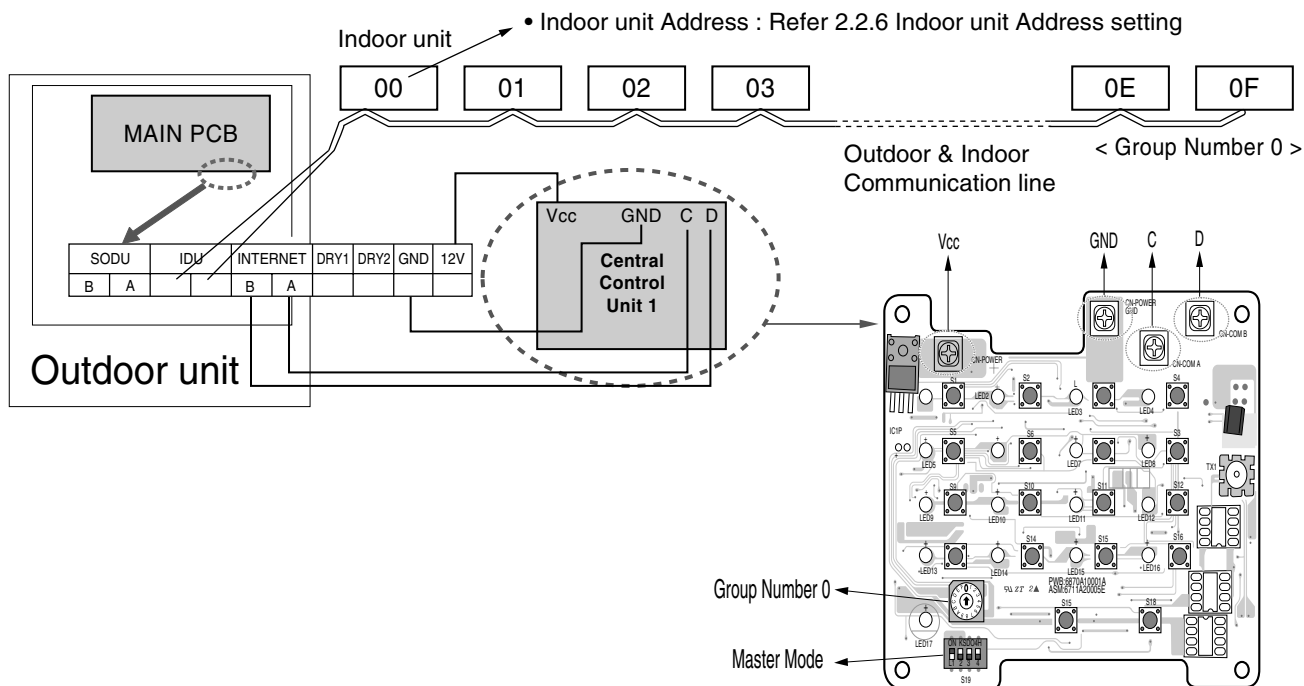


**Slave Mode**

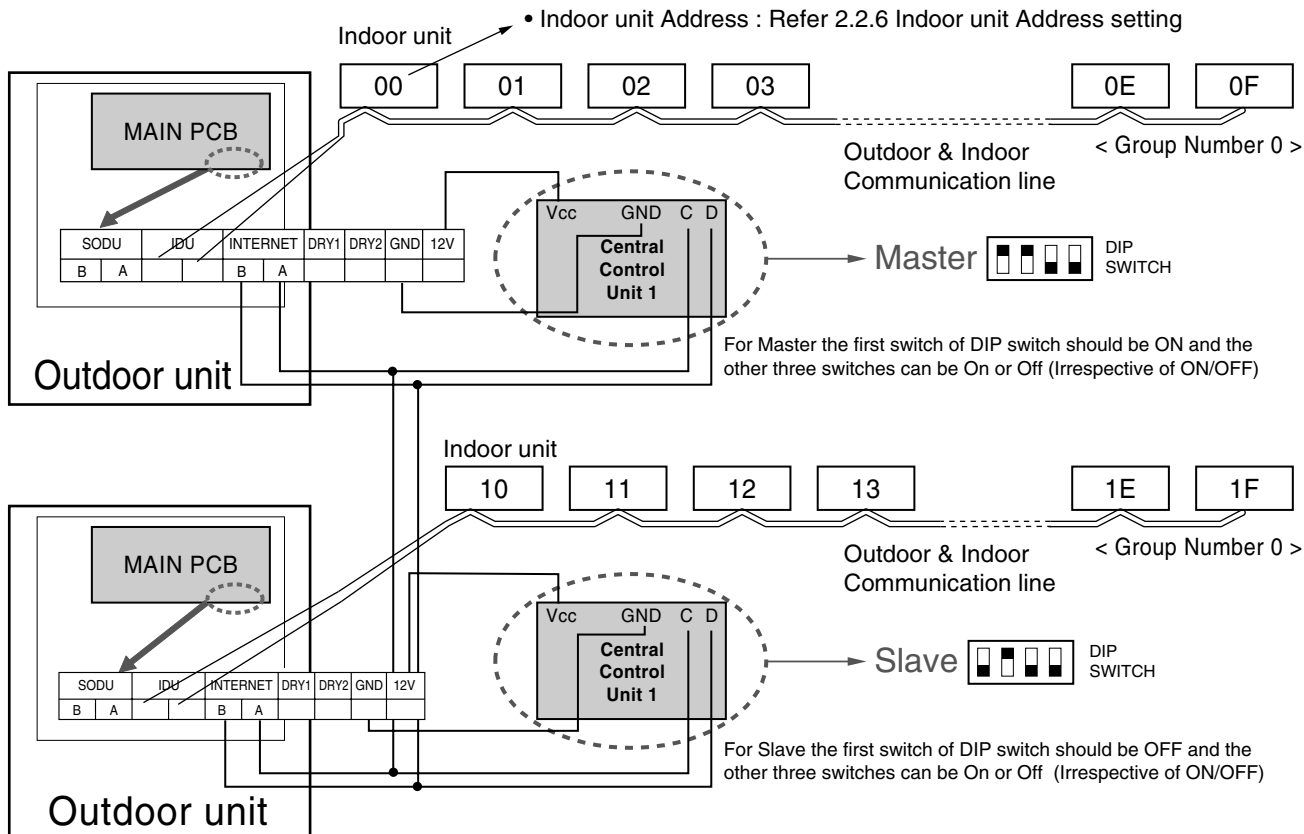




## ■ ONE SIMPLE CENTRAL CONTROL CONNECTION



## • 2 or MORE SIMPLE CENTRAL CONTROL CONNECTION







## 2.2.5 Method to Set Switch

### ■ GROUP SETTING

Select the group using rotary switch in the front of controller PCB for the central controller.

Group number	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Setting of rotary switch																

### ■ SETTING OF MASTER/SLAVE

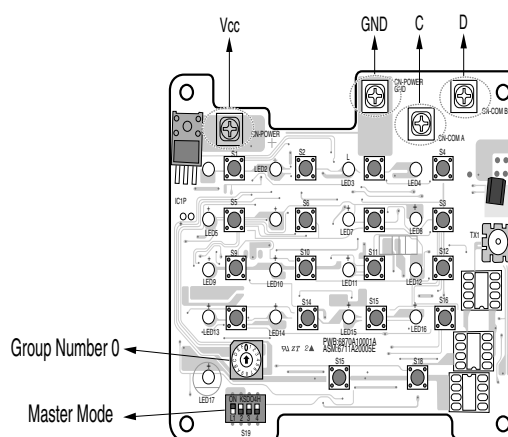
Using dip switch no.1 located in the front of controller PCB, set the relevant central controller as master/slave as per the requirement.

**Installation of 1 central controller:** Dip Switch No. 1 On/ No.2, 3, 4 Off (Master)

**Installation of more than 2 central controllers:**

Dip Switch No. 1 On/ No.2, 3, 4 Off (Master)

Dip Switch No. 1, 2, 3, 4 Off of remaining central controller (slave)



Master/ Slave Class	Master controller	Slave controller
Setting of dip switch	<div> <div><input type="checkbox"/></div>4           <div><input type="checkbox"/></div>3           <div><input type="checkbox"/></div>2           <div><input checked="" type="checkbox"/></div>1           <div>On</div> </div>	<div> <div><input type="checkbox"/></div>4           <div><input type="checkbox"/></div>3           <div><input type="checkbox"/></div>2           <div><input type="checkbox"/></div>1           <div>On</div> </div>

### ⚠ CAUTION:

1. For setting of Group/Master, use precise driver [(-) 20mm(W)] and set applied weight to 198N (2kg) or less. When applying unreasonable force, PCB and switch may be damaged due to shock.
2. Do not set more than 2 Masters. Where multiple of Master is set, communication with the outdoor unit is not done and thus it becomes impossible to control the indoor unit.
3. Always initialize power after setting the switches. If power is not initialized, it becomes impossible to recognize the settings of group and master/slave.



## ■ Master/slave setting when applying LGAP

Select the on/off of dip switch no. 2 located on the front side of the controller PCB to decide whether to apply LGAP or not.

Master Slave Classifi- cation	Master Controller for <b>LGAP</b>	Slave Controller for <b>LGAP</b>
Dip switch setting		

- When you turn on the dip switch no. 2, the LGAP protocol will be applied.

When communicating with the product using LGAP, turn on the dip switch no. 2.

- The master/slave setting is applied by turn on/off the dip switch no.1.

- When installing in connection to the PC/advanced central controller with LGAP applied, simple central controller must be set with the dip switch as slave control with LGAP application.

\* When installing a simple central controller with LGAP, the dip switch No. 4 of PI-485 must be turn on for normal operation.

\* When using only the simple central controller, it is possible to either apply the LGAP or not apply the LGAP. But the LGAP setting of PI-485 and that of the simple central controller must be the same.

\* Refer to the PC/advanced central controller manual on how to apply the LGAP for PC/advanced central controller.

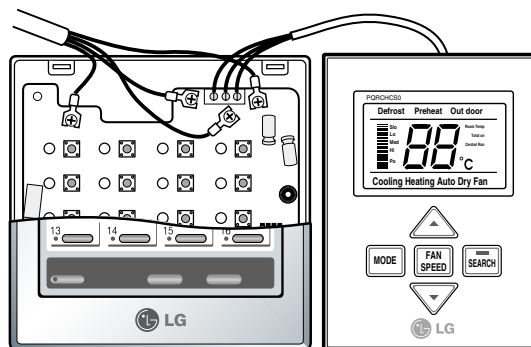
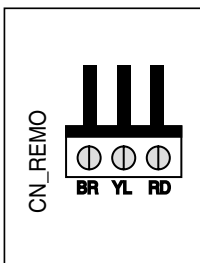


## ■ CONNECTION METHOD OF FUNCTION CONTROLLER

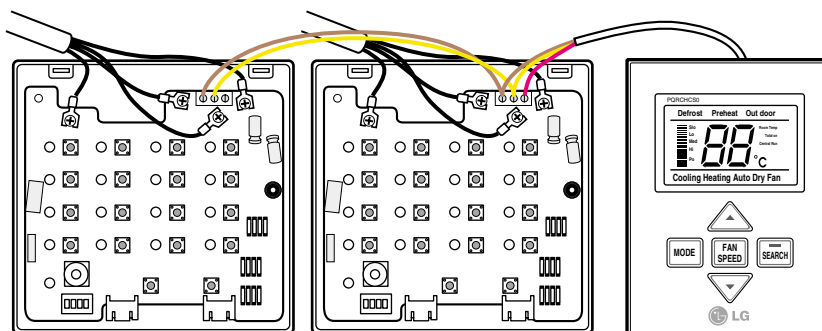
Power should always be off while connecting function controller to the central controller.

- 1 Connect the function controller as shown below. Symbols shown as CN\_REMO at the terminal block of the central controller and color of cable connecting the function controller must correspond.

Central controller CN_REMO	Function controller cable
RD terminal (12V)	Red
YL terminal (signal)	Yellow
BR terminal (GND)	Brown



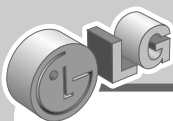
- 2 Connect red wires and brown wires to the relevant terminals of the central controller at CN\_REMO respectively a where a function controller is also installed as shown below.



- 3 Close the central controller case and check the operation after application of power.

## ⚠ CAUTION

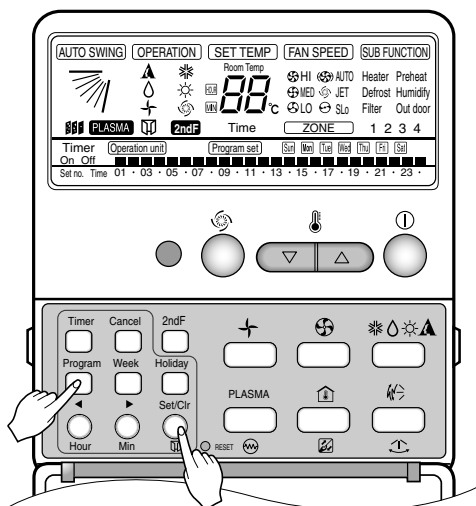
1. Adhere the communication cable between function controller and central controller.
2. Use 3P-0.75 square wires where cable extension is required.
3. Installed cable length should be within 1m.
4. If wiring is not proper, the product may be damaged or not operate when the power is applied.



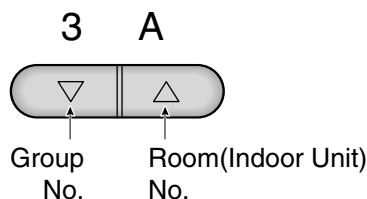
## 2.2.6 Indoor unit Address setting

### ■ Using wired remote controller

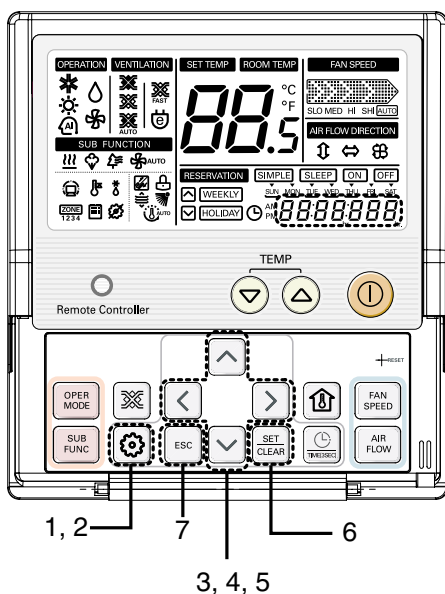
1. Press Program(Weekly Reservation), Set/Clr button at the same time for 3 seconds.
2. The current group and the indoor unit numbers are indicated on the "88" of the wired remote control.



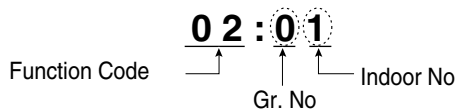
3. Set numbers by using the temperature adjust key.



4. Press Program(Weekly Reservation), Set/Clr button at the same time for 3 seconds.
5. Transmit the number setting command to the indoor unit.
6. If transmit recognition data is received from the indoor unit, it returns to the general operation mode.



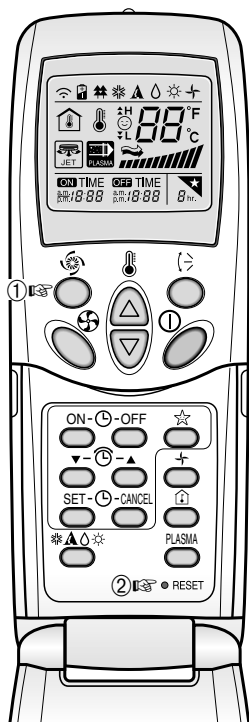
1. Press the Function Setting button for 4 seconds to enter the installer setting mode until clock segment display "01:01".
2. Repeat pressing Function Setting key to select Function code 02



3. Set Group No. by pressing Up/Down button.
4. Move to Indoor No. setting option by pressing Right key
5. Set Indoor No. by pressing Up/Down button
6. Press Set/ Clear button to save or release
7. Press ESC button to exit or system will automatically exit after 25 sec without any input.



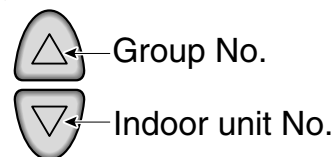
## When using the wireless remote controller



### Address setting mode

- ① Press the top left button for more than 3 seconds. ② While the top left button pressed, press the Reset button .  
※ The wireless remote controllers have different shapes according to the model.
- By using the temperature adjustment button, set the indoor unit address.  
Setting range: 00~FF
- After setting the address, press the ON/OFF button toward the indoor unit 1 time.
- The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
- Reset the remote controller to use the general operation mode.

### Temperature adjustment

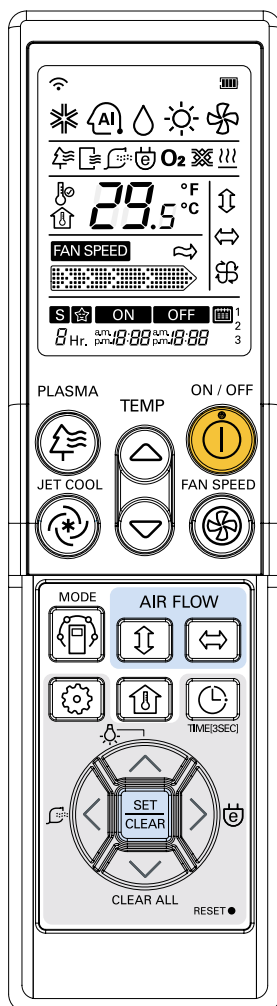


### Address check mode

- With the top right button pressed, press the Reset button. (Press the left button for more than 3 seconds.)
- Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
- Reset the remote controller to use the general operation mode.

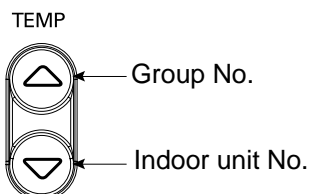
※ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.

It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.



## Address setting mode

1. While the MODE button pressed, press the Reset button .
2. By using the temperature adjustment button, set the indoor unit address.  
Setting range: 00~FF



3. After setting the address, press the ON/OFF button toward the indoor unit 1 time.
4. The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
5. Reset the remote controller to use the general operation mode.

## Address check mode

1. With the PLASMA button pressed, press the Reset button.
2. Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
3. Reset the remote controller to use the general operation mode.

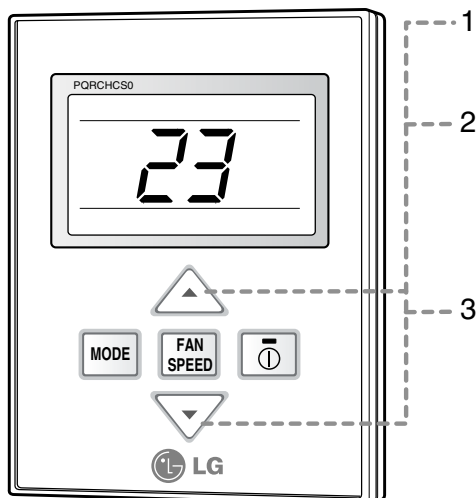
✱ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.  
It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.



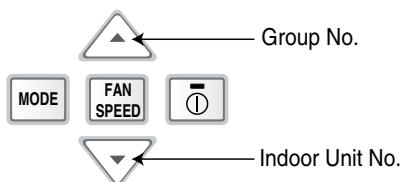
## ■ Using simple wired remote controller

Please set the address when using the central controller.

You don't need to set address If you don't use central controller.

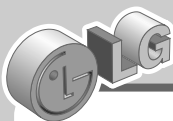


- 1 If you want to set the address on the temperature display, press the two temperature control buttons (▲/▼) at the same time for three seconds.
- 2 Press the temperature-increasing button to change the group number. Press the temperature-decreasing button to change the indoor unit number.  
EX) Group Address: 2  
Indoor Unit Number: 3
- 3 Set the address by pressing the two temperature control buttons (▲/▼) at the same time for three seconds.



- If you connect the indoor unit to the central controller, you should set the network address of the indoor unit so that the central controller could recognize it.
- The center-control address is composed of the group number and the indoor-unit number.



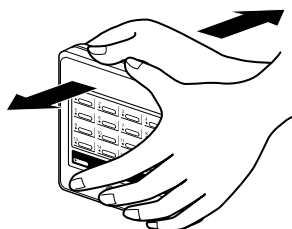


## 2.2.7 Test run method

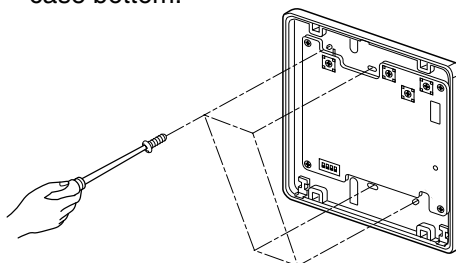
1. Set the wiring of system and indoor unit.
2. Apply power to the setting.
3. Do auto addressing to the outdoor unit.
4. After addressing then initialize the central controller(Manual initialize: Total on + total off + 16 key).
  - Cooling: Setting basically(Total On + Total Off + 4 key)
  - Heating: Total On + Total Off + 8 key. -> Red power lamp 'On'
5. Check up On/Off with a related indoor key pressing.

## 2.2.8 Installation sequence operations

1. Remove upper & lower case.



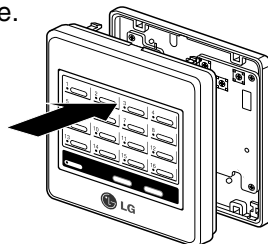
2. Fixate screw in the holes of the case bottom.



3. For Dip switch, and rotary switch setting, refer to the page "How to Install".

4. For wiring connection, refer to the "Installation Procedure"

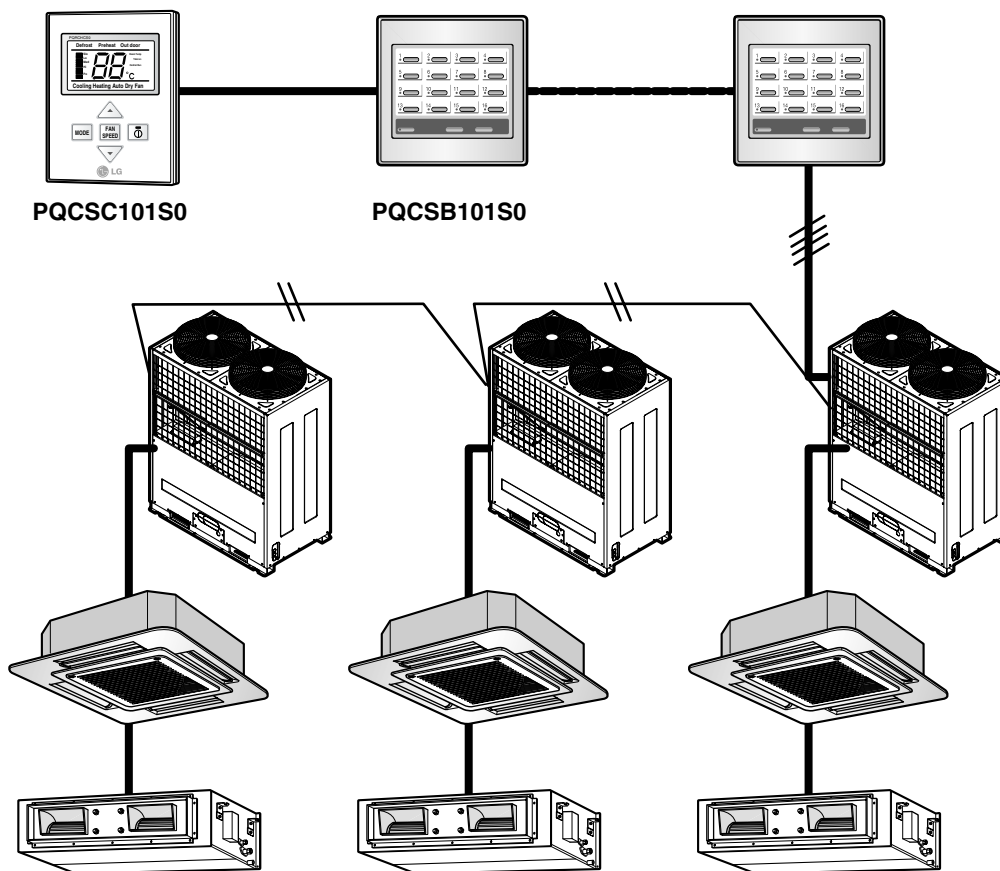
5. Adjust the upper case in accordance with back case while assembling as shown in the figure.



6. Check the operation by supplying the power.



## Over view



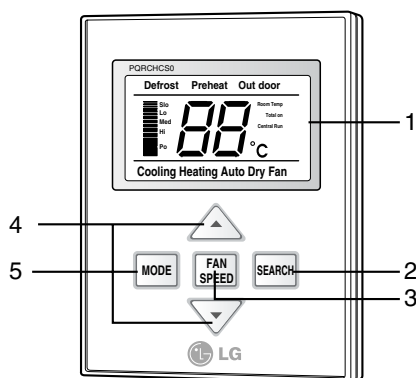
One Function Controller can connect Max 8 Simple Central Controller(PQCSB101S0)

(Max Indoor Unit = 8 \* 16 = 128 Indoors)

The distance from Simple Central Controller to Function Controller is maximum 1m

## Feature

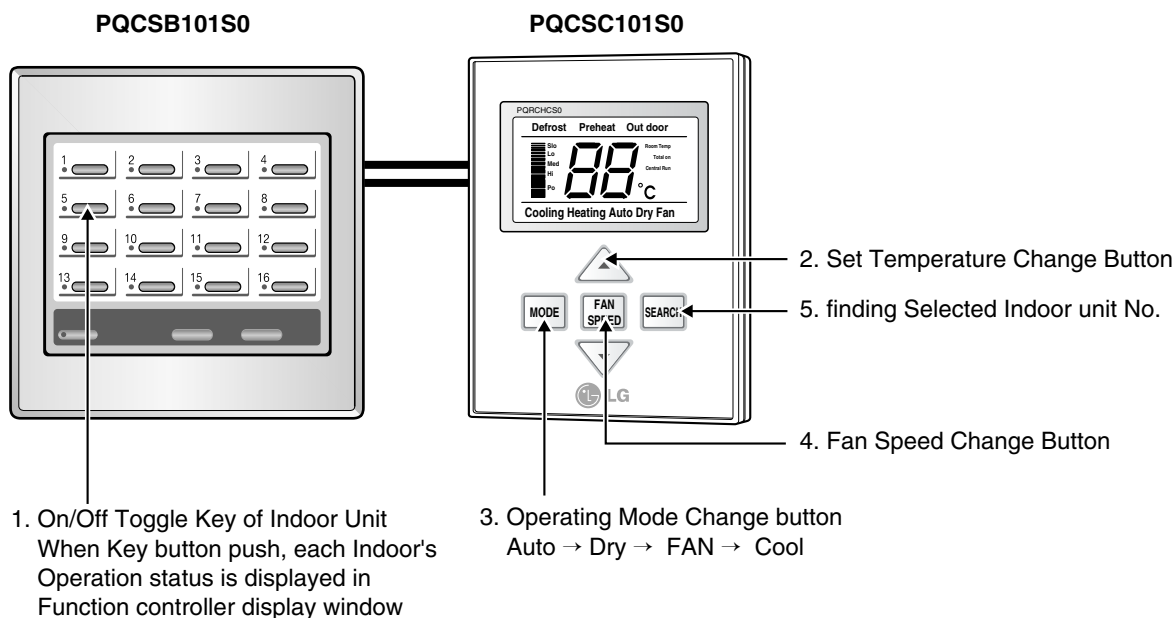
### Controller Display



1. LCD Display
2. Indoor Search Key
3. Fan Speed Key
4. Set Temperature key
5. Mode Change Key



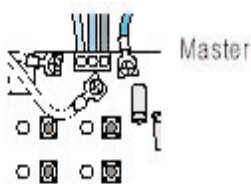
## Over view



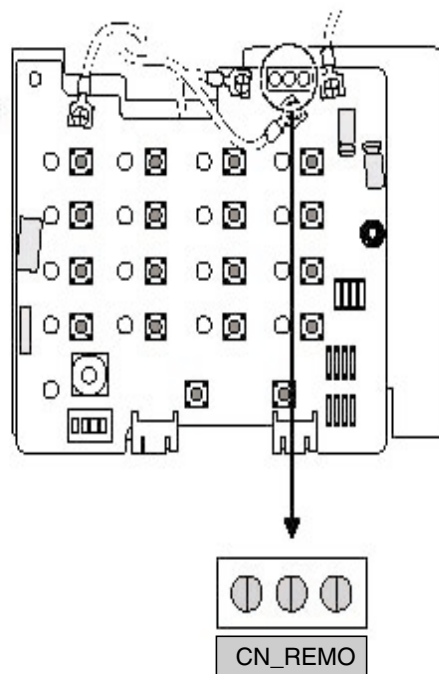
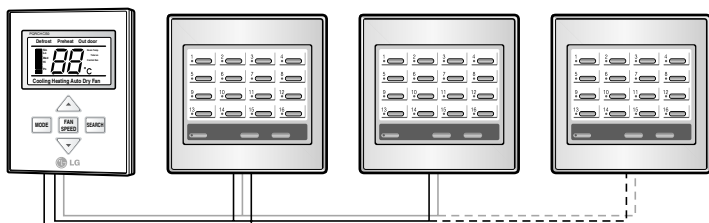
## Wiring

1. Connect the CN\_REMO on master central controller to the cable from function controller according to the following color

CN_REMO	Cable
RD (12V)	RED
YL (Signal)	YELLOW
BR (GND)	BROWN



2. While connecting several central controller, connect yellow & brown cable from Master central controller to slave central controller as follows (one function controller can connect max 8 simple central controller)

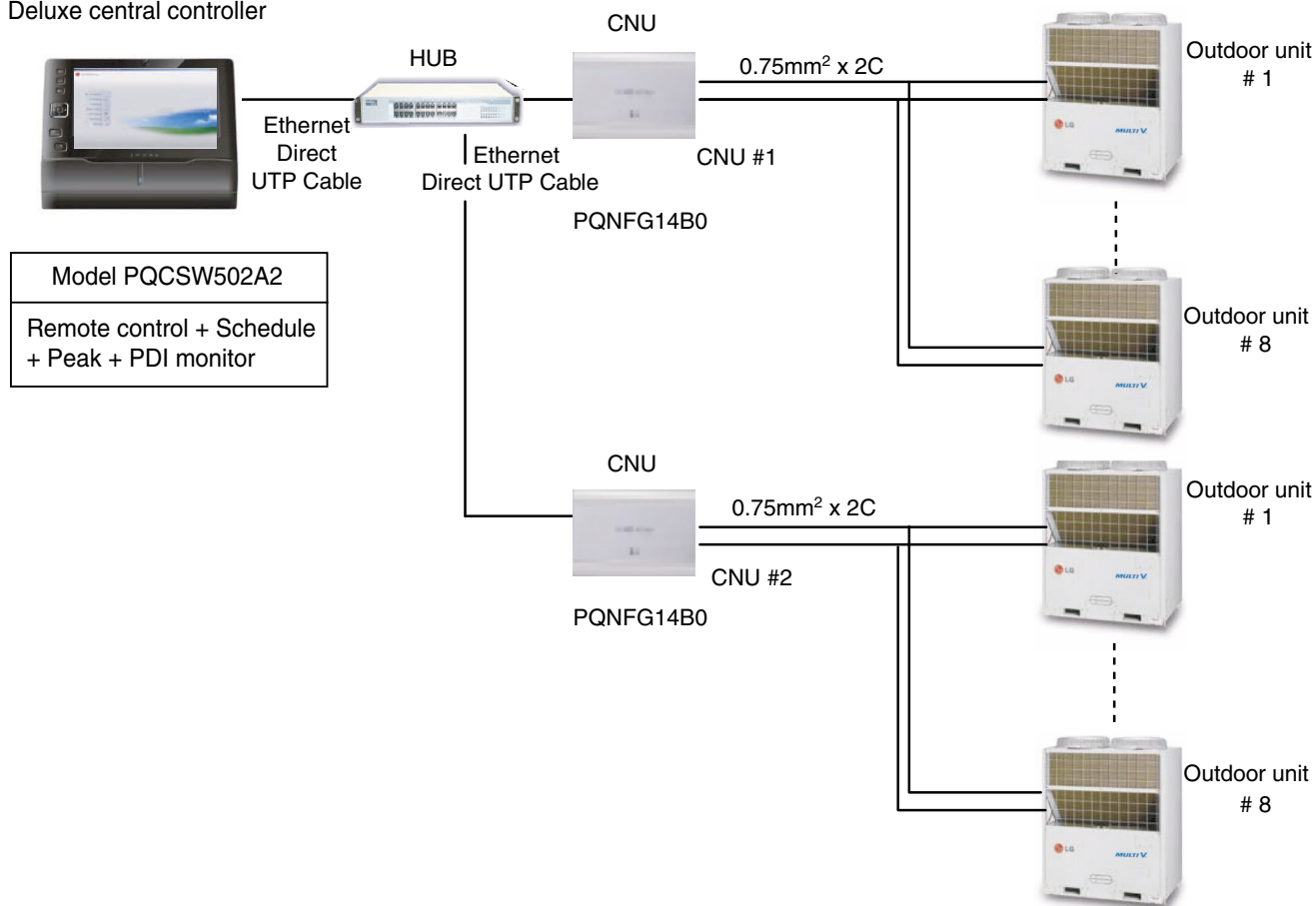




## 2.3 Deluxe Central Controller

### 2.3.1 Overview

Deluxe central controller



### Combination

A deluxe central controller can connect 2CNU(max.) / 256 indoor units(max.)

A CNU Can connect up to 8 outdoor units.

### Control wirings

All outdoor units should be connected with control wiring in parallel and the control wiring should be installed to CNU terminals.



### 2.3.2 Features & Major Characteristics of Deluxe Central Controller



#### Comparison Between Central control Characteristics

	<b>PQCSW502A2</b>
<b>PARTS</b>	UMPC , Docking station Power supply
Max. Control Indoor Units Numbers	MAX 256 Indoor Multi V Outdoor16
User Interface	Touch Screen GUI(Graphic User Interface)
Control & monitoring	Available
System setup	Available
User's lock	Available
Upgrade	Available
Built-in Flash DB (backup)	Available
Schedule management	Available
Peak Control	Available
PDI Monitoring	Available (Special Purchase)
Life	Semi-permanent



### **1. Individual/Integrated Operation/Monitoring**

- You can identify operation status of the Air-Conditioner, operation mode, Fan speed, locking, temperature setting and error, etc by selecting the installed Air-Conditioner through individual selection, group selection or all selection.

Individual setup and explanation of the detailed functions are available.

Therefore, the manager can use a central control with the Deluxe Central Controller only installed at the control room at a building where a number of Air-Conditioners are installed.

### **2. Group Management**

- Grouping management of the installed Air- Conditioners is available.

Thanks to group setup: separation by nature, location and size of each Air-Conditioner enables convenient use. In addition, allotment of respective name to the setup group allows further intuitive management.

### **3. Self-diagnosis Function**

- The Air- Conditioner installed can self-diagnose its error status and then transmits the result to the central controller. Therefore, a rapid countermeasure against failure of Air-Conditioner allows easy management and increases the life of Air-Conditioner.

### **4. Semi-permanent Life / Convenient Maintenance**

- Since the Deluxe Central Controller is designed for the semi-permanent use, this system can be used semi-permanently after installation differently from the existing PC or a large central control system which require a continuous management.

### **5. Management Cost Down**

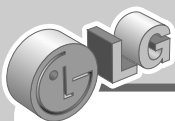
- In absence of the Central Control System, the manager had to control a number of Air-Conditioners individually. Even if Central Control System is used, it has only the on/off management function, thus 2 or 3 building managers were actually required. However, manipulation of all functions can be now done at a control room for the Deluxe Central Controller and so a manager can easily control all Air- Conditioners. Automatic operation is also allowed without a manager if schedule function is used.

### **6. Convenient GUI / Touch Screen**

- No special education is required for using the Deluxe Central Controller, it can be conveniently used just by pressing the buttons on the screen, and its function can be understood with an intuitive pictogram. Especially, schedule setting is done by simply dragging the screen as patented technology differs from the existing system which requires to press the button by more than an average 30 times to enter a schedule.

### **7. Schedule Automatic Operation Management / Energy Saving(PQCSW502A0)**

- For the Scheduled Automatic Operation, weekly setting is available. Schedule making can be done in such a way that non processing schedule (national holiday) can be excluded that preventing the unnecessary operation and saving a substantial amount of energy.



## ■ Deluxe Central Controller each part description



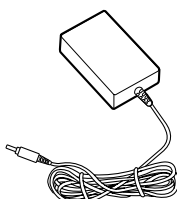
Web Pad Frontview



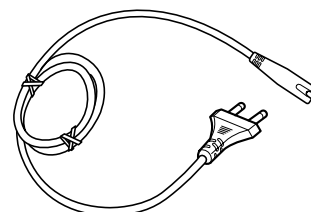
Side View



USB Hard\_Lock key  
(52mm\*15mm\*7mm)

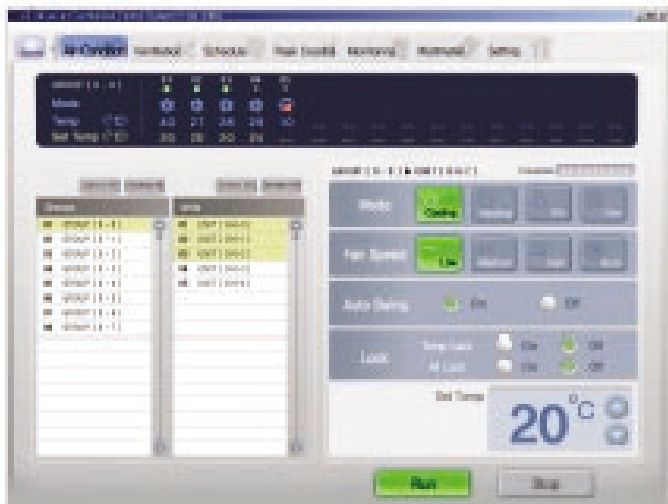
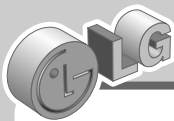


Power Supply External S.M.P.S  
DC 19V, 3.42A  
Notice: only use supplied S.M.P.S



Power Cord: AC100V~240V 1.7A  
50/60 Hz Input

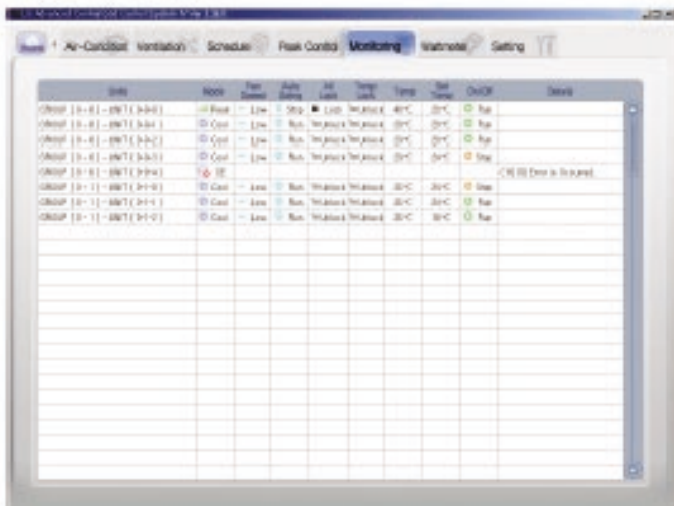




### [System Control - Air condition]

To check general monitoring functions of the air conditioner central control system such as group selection and air conditioner selection, air-conditioner control, monitor function etc.

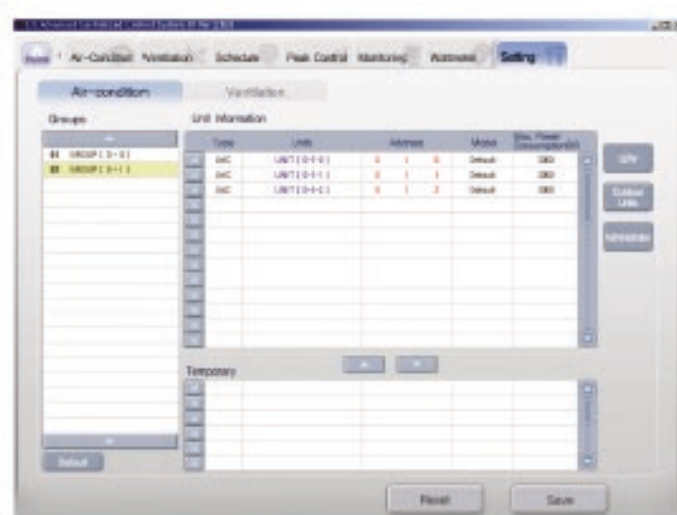
PQCSW502A2



### [System Monitor]

To check the actual status of air-conditioner currently.

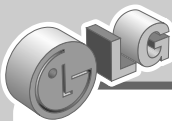
PQCSW502A2



### [System Set-up]

To manage the air-conditioner through grouping and record the setup of group and installation position, etc.

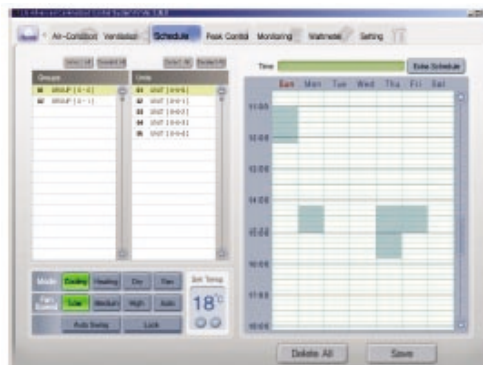
PQCSW502A2



## [System Control – Ventilator(Eco-V)]

To check general control and monitoring functions of the ventilator central control system such as group selection and ventilator selection, ventilator control , monitor function etc.

PQCSW502A2



## [Schedule Control]

Setup of a weekly schedule for all, group and individual air conditioner enables operation of the system. Processing through enlist of extra schedule for a year is available.

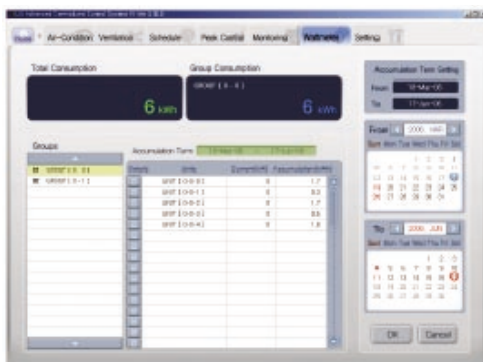
PQCSW502A2



## [Peak Control]

to control the maximum demand power power, it has an effect on cutting down power costs by keeping the amount of all the air conditioners consumption lower than Demand Power authorized

PQCSW502A2



## [Power consumption Display Function]

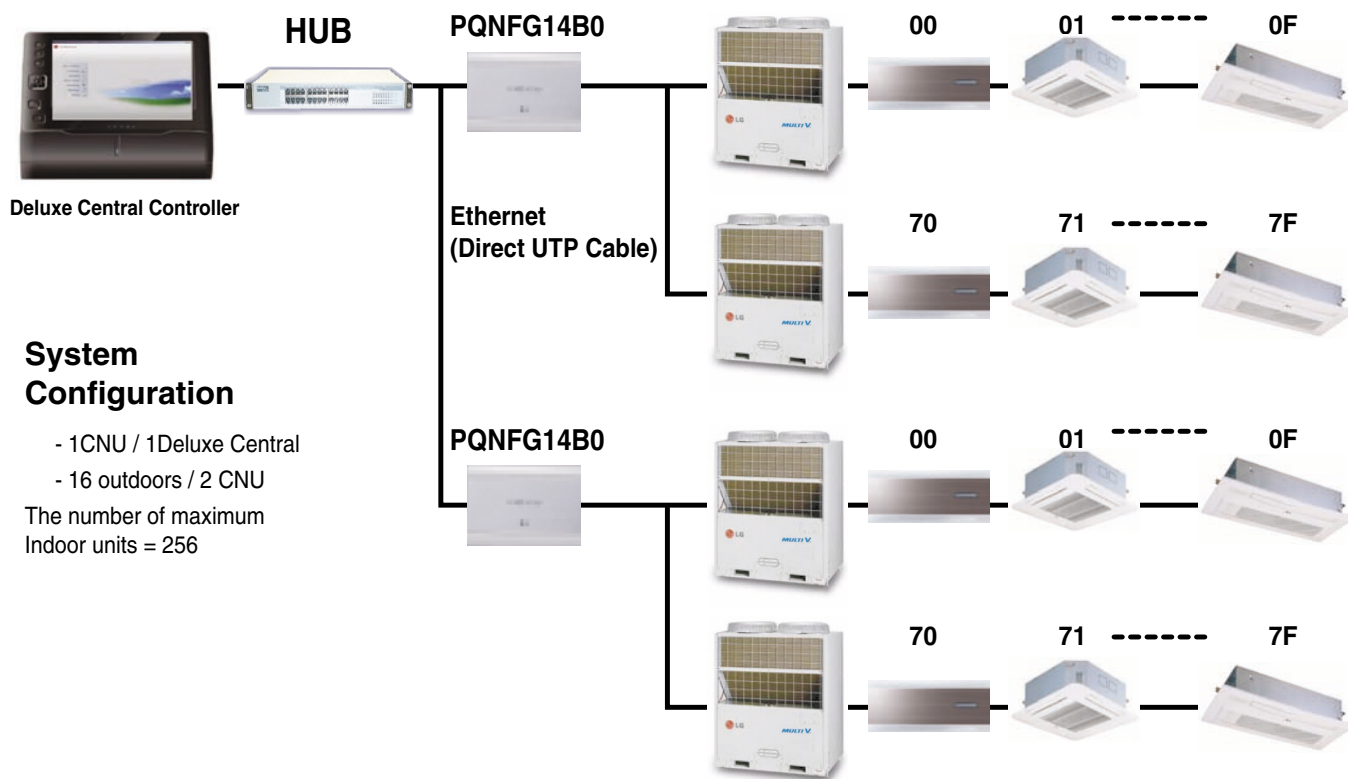
To check the total amount of power consumption of the total air-conditioners by indoor

PQCSW502A2

\* Needed specially purchasing : PDI(PQNUD1S00)



### 2.3.3 System Connection



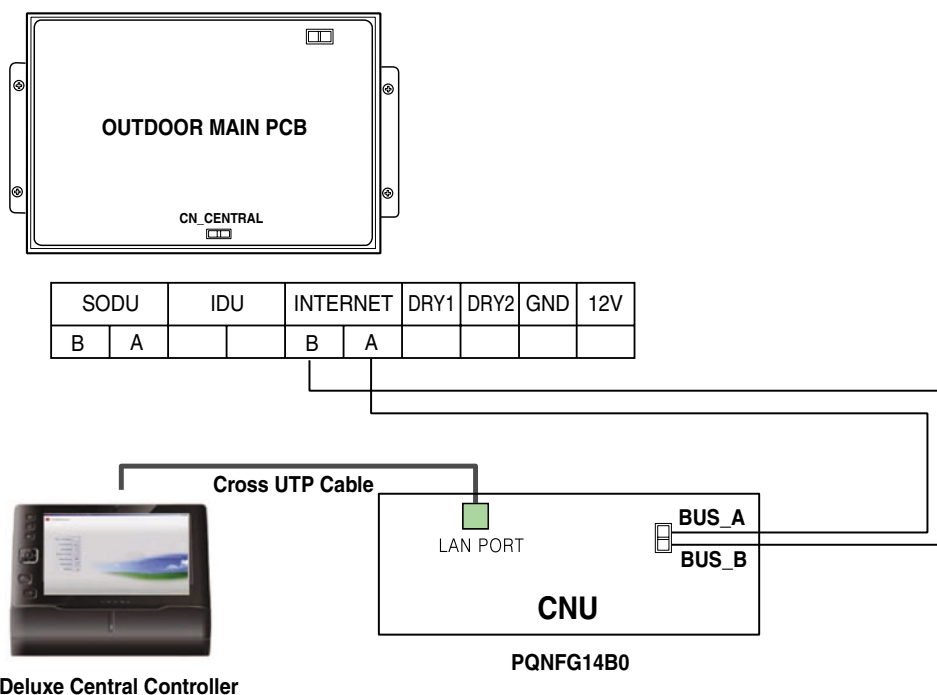
#### System Configuration

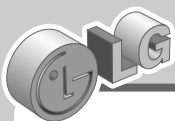
- 1CNU / 1Deluxe Central
- 16 outdoors / 2 CNU

The number of maximum Indoor units = 256

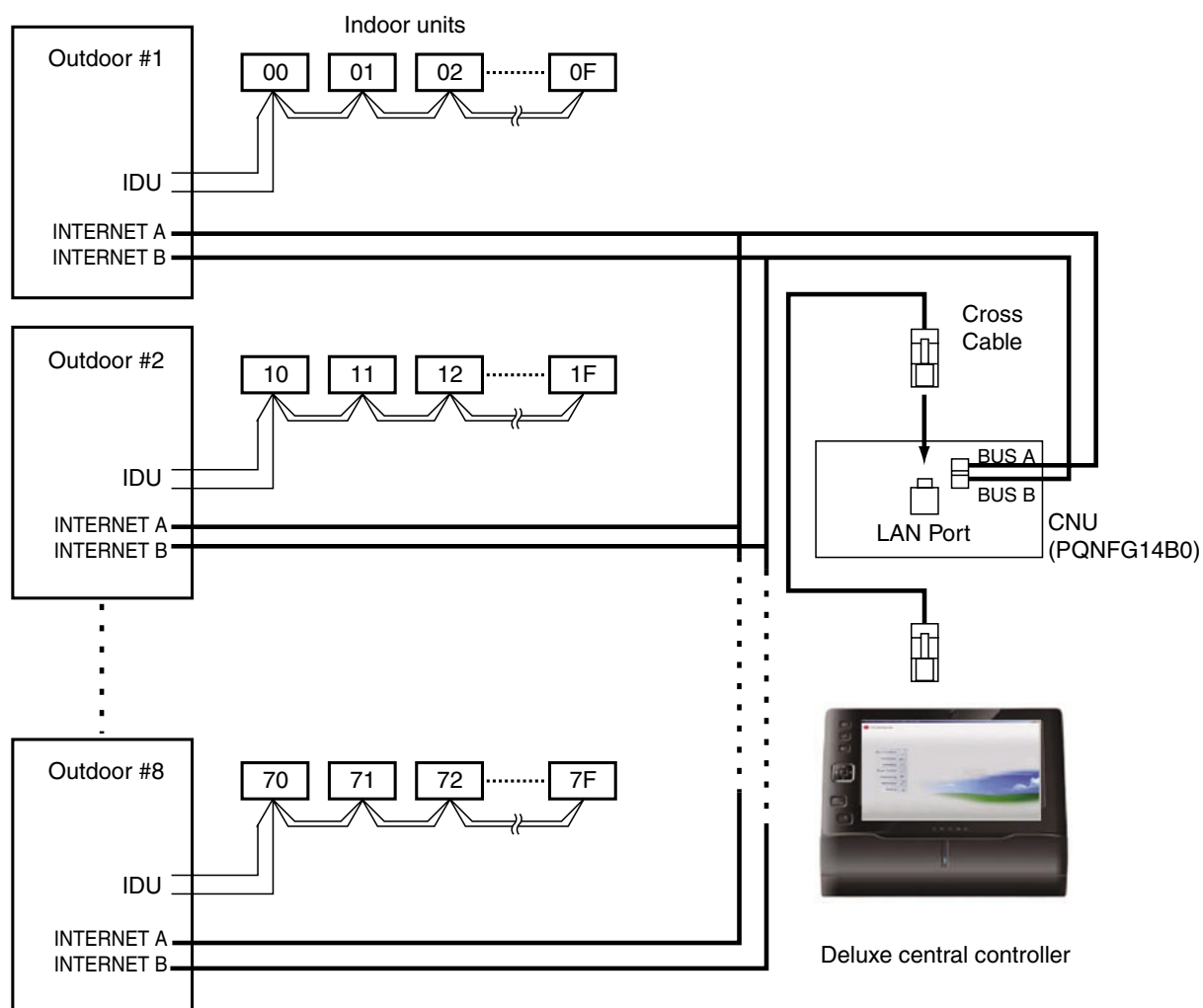
### 2.3.4 Electrical wiring

#### • PICTORIAL VIEW OF THE CONNECTION



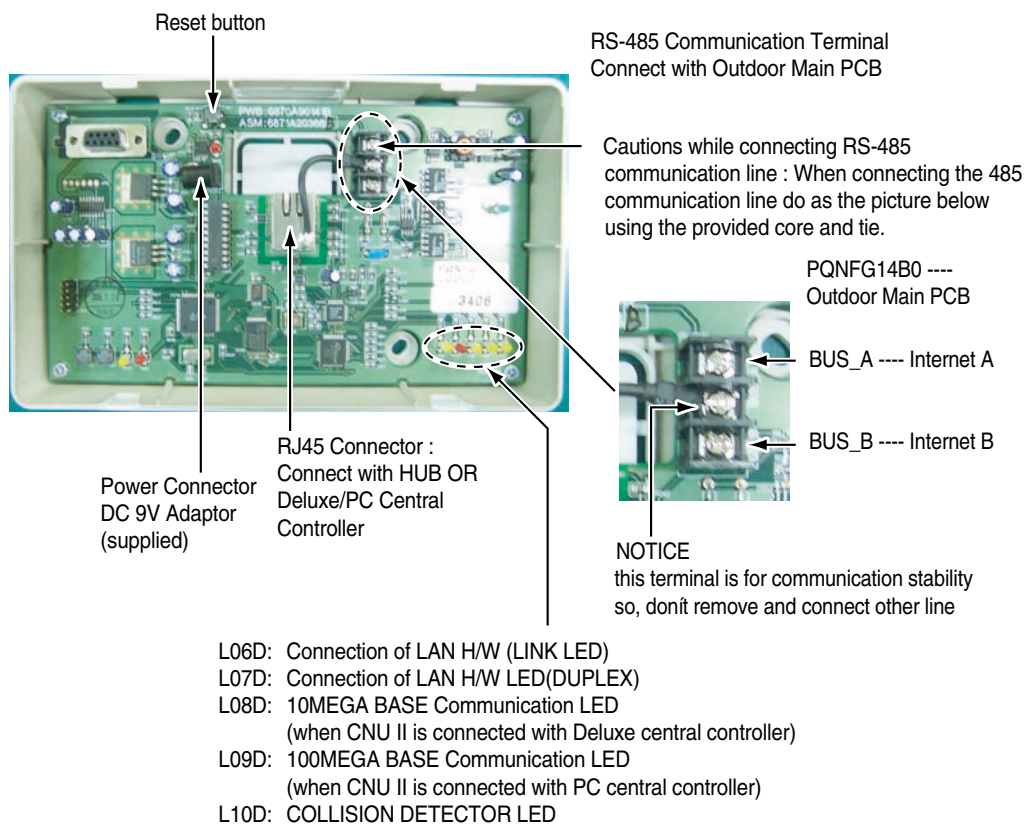


## ■ Wiring diagram and connect communication line

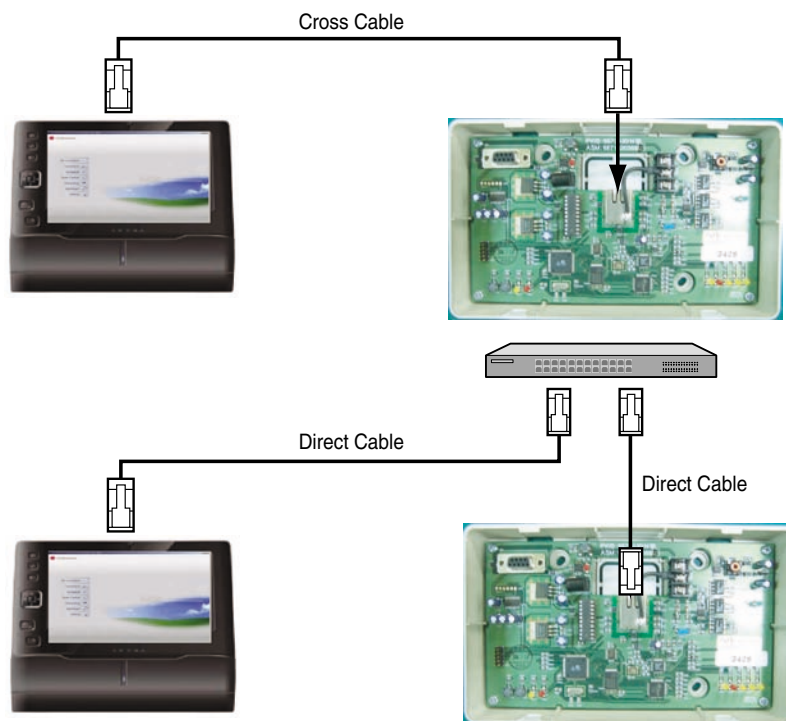




## ■ CNU(PQNFG14B0) connection



## Wiring Diagram



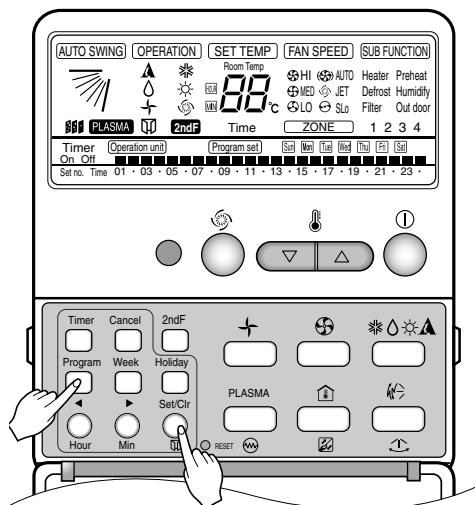
Use the cross cable if not using the hub.  
If willing to use the hub, use the direct  
cable to connect with the hub



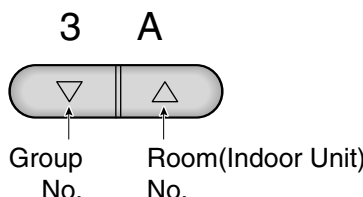
## 2.3.5 Indoor unit Address setting

### ■ Using wired remote controller

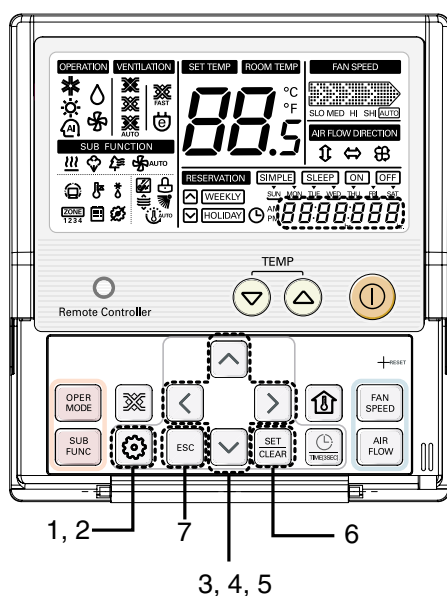
1. Press Program(Weekly Reservation), Set/Clr button at the same time for 3 seconds.
2. The current group and the indoor unit numbers are indicated on the "88" of the wired remote control.



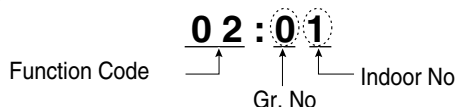
3. Set numbers by using the temperature adjust key.



4. Press Program(Weekly Reservation), Set/Clr button at the same time for 3 seconds.
5. Transmit the number setting command to the indoor unit.
6. If transmit recognition data is received from the indoor unit, it returns to the general operation mode.



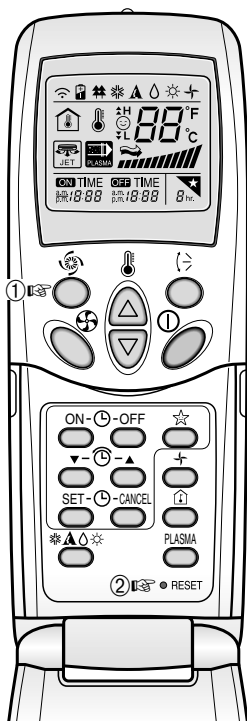
1. Press the Function Setting button for 4 seconds to enter the installer setting mode until clock segment display "01:01".
2. Repeat pressing Function Setting key to select Function code 02



3. Set Group No. by pressing Up/Down button.
4. Move to Indoor No. setting option by pressing Right key
5. Set Indoor No. by pressing Up/Down button
6. Press Set/ Clear button to save or release
7. Press ESC button to exit or system will automatically exit after 25 sec without any input.



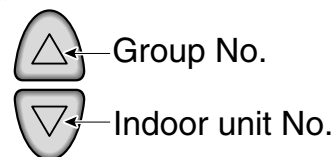
## When using the wireless remote controller



### Address setting mode

1. ① Press the top left button for more than 3 seconds. ② While the top left button pressed, press the Reset button .  
 ※ The wireless remote controllers have different shapes according to the model.
2. By using the temperature adjustment button, set the indoor unit address.  
 Setting range: 00~FF
3. After setting the address, press the ON/OFF button toward the indoor unit 1 time.
4. The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
5. Reset the remote controller to use the general operation mode.

### Temperature adjustment



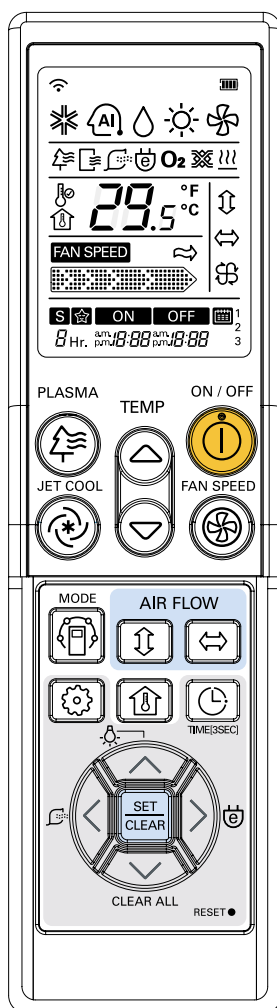
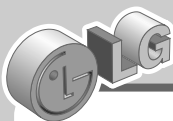
### Address check mode

1. With the top right button pressed, press the Reset button. (Press the left button for more than 3 seconds.)
2. Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
3. Reset the remote controller to use the general operation mode.

※ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.

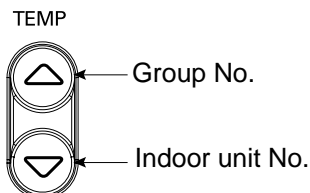
It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.





### Address setting mode

1. While the MODE button pressed, press the Reset button .
2. By using the temperature adjustment button, set the indoor unit address.  
Setting range: 00~FF



3. After setting the address, press the ON/OFF button toward the indoor unit 1 time.
4. The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
5. Reset the remote controller to use the general operation mode.

### Address check mode

1. With the PLASMA button pressed, press the Reset button.
2. Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
3. Reset the remote controller to use the general operation mode.

※ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.  
It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.

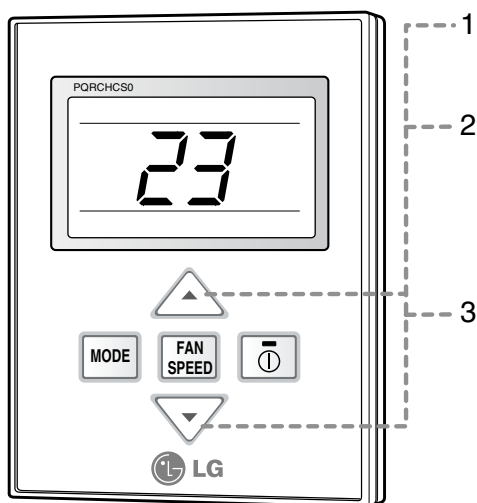




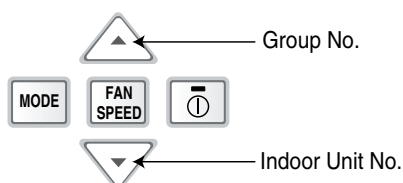
## ■ Using simple wired remote controller

Please set the address when using the central controller.

You don't need to set address If you don't use central controller.



- 1 If you want to set the address on the temperature display, press the two temperature control buttons (▲/▼) at the same time for three seconds.
- 2 Press the temperature-increasing button to change the group number. Press the temperature-decreasing button to change the indoor unit number.  
EX) Group Address: 2  
Indoor Unit Number: 3
- 3 Set the address by pressing the two temperature control buttons (▲/▼) at the same time for three seconds.



- If you connect the indoor unit to the central controller, you should set the network address of the indoor unit so that the central controller could recognize it.
- The center-control address is composed of the group number and the indoor-unit number.



### 2.3.6 Running of the Program(LG ACCS IV)



#### ■ Engine S/W Registration in service program

Installed ACCS IV Program in computer is classified GUI program and Engine Program.

"LG ACCS IV Ver. [name of version]" is GUI Program, "LG ACCS IV Service Manager" is program to handle the Engine.

Actual air conditioner control, monitoring and other function operate in Engine.

So Engine S/W must operate in control Inside PC at all time.

It is possible to control air conditioner.

Click [Start] ' [Program] ' [LG Electronics Inc] ' [LG ACCS IV] ' [LG ACCS IV Service Manager]

After install, Engine program is registered in Service Program, then the program is executed automatically.

If service Program is not executed, click on "Install" then click on "Start"

After becomes the execution, though window is closed by click on "OK"

S/W is executing continuously.

\* Once you have set Register at the first operation, you do not need to set again.

Engine S/W which registered at the Service Program will operate automatically when PC is rebooting after



▲ LG ACCS IV Service Manager



Click the Program LG ACCS in the start menu in the program menu of windows

(Click the LG ACCS icon  on the desktop)

When the program is started, loading image is displayed.  
Afterwards, Initial display appears on the screen.



On the Login window, Insert ID and Password, click the Login button.

[At first time ID is admin Password is digital21]

when click on cancel, this program is closed

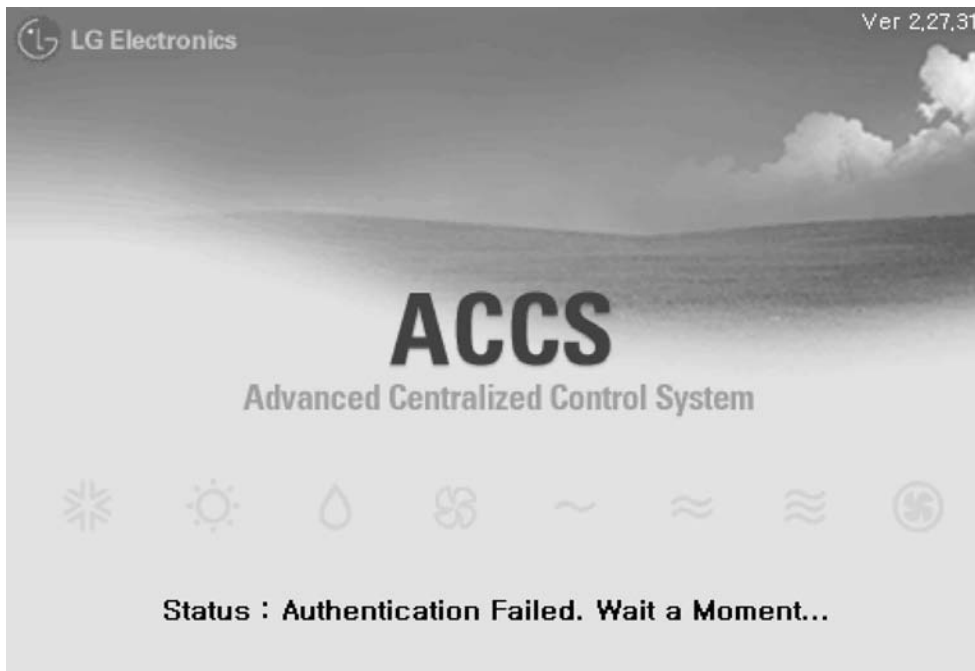
- PC Central program can be executed only when the approval hard\_lock is inserted in your desktop  
When the Hard\_Lock is pull out, PC central Program can not be executed, Some error will be displayed.

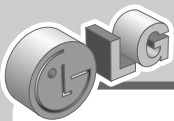


## ■ Failed the Log-in

Loading screen is not appeared but appear fail message

1. Status : Please, Input ID and a Password..."
  - The case which does not put in the ID of Password
2. Status : Authentication Failed. Wait a Moment..."
  - In case input ID or Password is wrong.
3. Status : There is No Response, Login Failed. Wait a Moment..."
  - The case which does not operate Engine S/W
4. Status : Connection Error, Login Failed. Wait a Moment..."
  - The case where the data transmission of receipt of a message goes wrong
5. Status : Client License Access Over..."
  - Access people are over than
6. Status : Permission Error. Retry Again..."
  - Although succeed Log-in, it cannot receive Permission information or receive wrong Permission



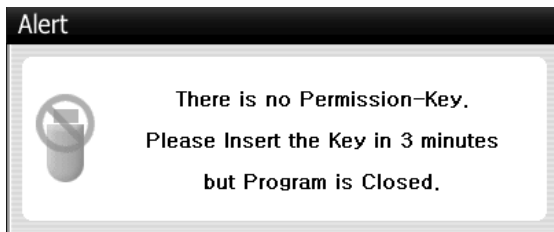


## ■ How to use approval hard\_lock



PC Central program can be executed only when the hard\_lock is inserted in computer. When the Hard\_Lock is pulled out, PC central Program can not be executed. In such a case some error will be displayed as shown in left picture. So click the OK button and insert the approval hard\_lock and then execute again.

▲ Hard\_lock warning window appears in case key is not inserted.(When program starting)



A when approval hard\_lock is pulled out or remove it on operating program, warning message will be displayed As show in left picture.

If approval hard\_lock is inserted within 3 minutes, warning message is disappeared and the program is operated in the normality.

**Approval Hard\_lock Warning Window  
(While program is operating)**



**USB Hard\_Lock key  
(52mm\*15mm\*7mm)**



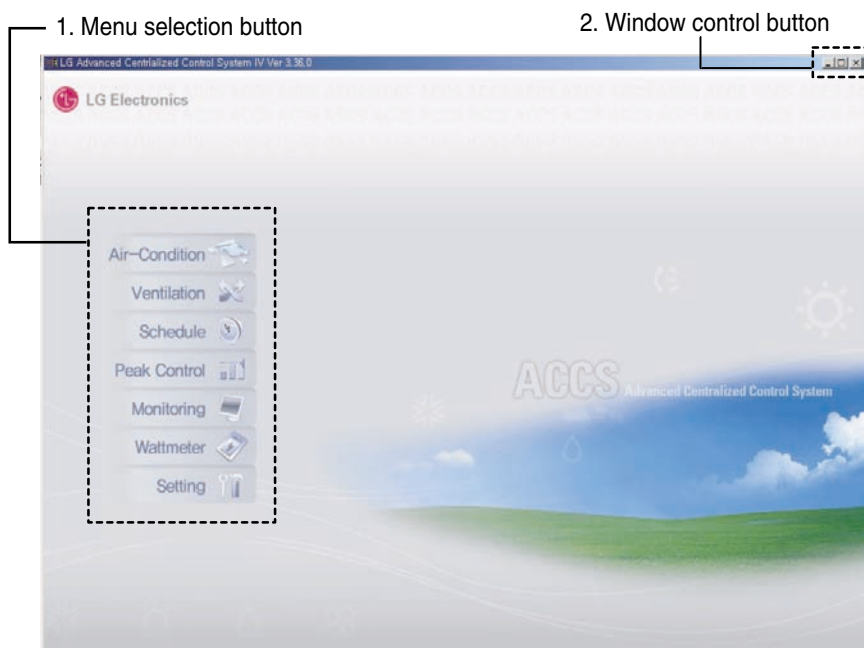
### 2.3.7 Screen composition of LG ACCS IV

Let's see the details of the function of each basic part and understand in more detail on how to use the functions through easy to learn examples.

The program menus currently provided are Air conditioner control, Ventilation control, Schedule control, Peak power control, Monitoring, Error history, Power consumption and System setting.

(1) **Menu selection button** : You can run control, monitoring or setting functions by selecting the applicable menu.

(2) **Window control button** : Window maximize and minimize



**Full screen of PC central controller**



## 2.3.8 System set-up

The system information about outdoor unit, G/W, ID/PW etc. can be seen in the system set-up.

6. Ventilation setting

1. G/W information entry

2. Outdoor unit information entry

5. ID/PW Setting

4. Air conditioner information entry & temporary save window

8. Save

7. Reset

3. Group entry window

**System set-up window**



## ■ Function description of each part

### (1) G/W information entry

#### G/W • Gateway information entry window connection button

You can set, edit or delete the gateway information.

You can install maximum of 8 outdoor units to 1 set of gateway. Also 1 outdoor unit can be connected to a maximum of 16 indoor units (air conditioners). Therefore for 1 gateway you can install up to a maximum of 128 air conditioners.

Maximum of 16 gateways can be installed, meaning you can control up to a maximum of  $16 \times 8 \times 16 = 2048$  air conditioners.


What is a gateway? Gateway is a device to mutually connect different computers to the network and generally acts as a mid point door for a network or a cluster to pass through.

If you click on the location to enter (from top row), you will see the entry window.

G/W No.	G/W info	IP Address
0	GATEWAY 0	192.168.1.101:6001
1	GATEWAY 1	192.168.1.101:6001
2	GATEWAY 2	192.168.1.101:6001
3	GATEWAY 3	192.168.1.101:6001
4	GATEWAY 4	192.168.1.101:6001
5	GATEWAY 5	192.168.1.101:6001
6	GATEWAY 6	192.168.1.101:6001
7	GATEWAY 7	192.168.1.101:6001
8	GATEWAY 8	192.168.1.101:6001
9	GATEWAY 9	192.168.1.101:6001
10	GATEWAY 10	192.168.1.101:6001
11	GATEWAY 11	192.168.1.101:6001
12	GATEWAY 12	192.168.1.101:6001
13	GATEWAY 13	192.168.1.101:6001
14	GATEWAY 14	192.168.1.101:6001
15	GATEWAY 15	192.168.1.101:6001

Default OK

G/W information entry

- **G/W number** : Set the CNU number connected to the air conditioner (0-31)
- **G/W information** : Enter the name or installed location.
- **Internet address** : Enter the Internet address assigned to each gateway. It must satisfy (IP: PORT).
-  : This deletes unnecessary information.

**Note:** The port of CNU(PQNFG14B0) is fixed to 6001.

#### ⚠ CAUTION

When you delete the gateway information, the information of all indoor and outdoor units under the gateway is also deleted.

When one of the three related information (G/W number, G/W information, Internet address) is missing, the row will not be set.

#### • Default entry

This automatically enters in default value (predefined data).

But you must edit the Internet address to the assigned address.

**Ok:** Press Ok after entering the information to close the G/W information entry window





## (2) Outdoor unit information entry

### Outdoor Units

- Assign the number for the outdoor unit to which the air conditioners are connected.  
You can install up to 8 outdoor units to 1 gateway.

- The information of each outdoor unit is used as the physical group information connecting the G/W with the sublevel indoor units.

The logical group information can be corrected or edited from [Air condition information entry] window.

- 1) Physical group : This refers to the outdoor unit physically connecting the G/W and indoor units.
- 2) Logical group : This is the group used for management purpose irrelevant from the physical connection.  
You can add, correct or edit from the [Group] window of (3) and by using the [Temporary save] function from the [Air condition information entry] window, you can customize the classification of indoor units to groups by user criteria.

(Example) In school when the air conditioners of 1<sup>st</sup> grade classrooms are connected to different outdoor units, you can still create a logical group called 1<sup>st</sup> grade classrooms by editing the air conditioner group information.

G/W No.	Outdoor Unit No.	Outdoor Unit Name	Type	Model	Max. Power Consumption
0	0	OUTDOOR UNIT (0-0)	UAC	Default	9000
0	1	OUTDOOR UNIT (0-1)	UAC	Default	9000
0	2	OUTDOOR UNIT (0-2)	UAC	Default	9000
0	3	OUTDOOR UNIT (0-3)	UAC	Default	9000
0	4	OUTDOOR UNIT (0-4)	UAC	Default	9000
0	5	OUTDOOR UNIT (0-5)	UAC	Default	9000
0	6	OUTDOOR UNIT (0-6)	UAC	Default	9000
0	7	OUTDOOR UNIT (0-7)	UAC	Default	9000

Adding, editing or deleting outdoor unit

- When adding an outdoor unit : When you click on the window, you will see the yellow entry window.  
Enter the G/W number, outdoor unit number, name, type, model and maximum power consumption.
- When editing the outdoor unit : Select the outdoor unit to edit and make changes.
- When deleting the outdoor unit: Press of the outdoor unit to delete.

### CAUTION

When you delete the outdoor information, the information of all indoor units under the specific outdoor unit will be deleted.



### • G/W number and outdoor unit number

#### Enter the number.

For the G/W number, you can set it from the entered information from the existing [G/W information].

Also the outdoor unit number cannot be duplicated within the same G/W number and must be within the range of (0-7).

When you pressed the default button, it succeeds the higher G/W information and automatically generates the values.

#### Module type selection

- UAC : Integrated air conditioner (applied with LGAP)



**Note** : SGL for special model , Don' t select SGL

### • Maximum power consumption

Set it according to each model manually.

By setting the maximum power consumption value of the air conditioner, the system limits the power consumption within the set limit.

**Note1: For peak control, you must enter the maximum power consumption for each indoor unit**

**Note2 : Indoor power consumption set method**

$$\text{Power consumption of nth indoor unit (Display value on Program)} = \frac{\text{Power consumption of nth indoor unit (Real value on product)}}{\text{Total indoor unit power consumption}} \times (\text{Outdoor unit power consumption} + \text{Total indoor unit power consumption})$$

### (3) Group entry window

You can enter from the top row for all entry windows



- **When adding a group** : When you click on the window, you will see the yellow entry window. Enter the group number. The group number is automatically entered in series.
- **When editing the group** : Select the group to edit and make changes.
- **When deleting the group**: Select the group to delete and delete the name.

#### ⚠ CAUTION

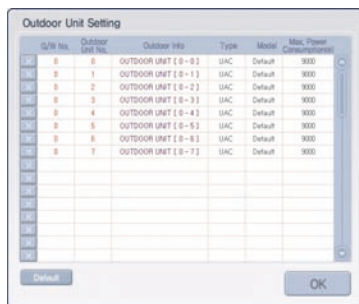
When you delete a group, the information of all indoor units under the specific group will be deleted.

- **Default** : **Default entry**  
Based on the gateway information and outdoor unit information set above, default values are automatically entered for a maximum number of indoor units.




#### (4) Air conditioner information entry & temporary save window

##### Air conditioner information entry



Adding, editing or deleting outdoor unit

You can add, edit or delete the indoor unit

- When adding an air conditioner : When you click on the window, you will see the yellow entry window.  
Enter the type, air conditioner name, physical address, model name and maximum power consumption.
- When editing an air conditioner : Select the air conditioner to edit and make changes.
- When deleting an air conditioner : Press the  of the air conditioner to delete.

##### Air conditioner information entry

Type	<ul style="list-style-type: none"> <li>■ UAC: Integrated air conditioner (applied with LGAP)</li> <li>■ SGL for special model, Don't select SGL</li> </ul>
Units	<ul style="list-style-type: none"> <li>■ Click on the air conditioner to add or edit and you will see the yellow entry window where you can edit the name.</li> </ul>
Address	<ul style="list-style-type: none"> <li>■ When you press the Default entry button, it will succeed the higher information and automatically generate the default values.</li> <li>■ The first and second number indicates the G/W number and outdoor unit number, and they can only be edited within the information entered in the existing [G/W information] and [outdoor unit information]. The third number, the indoor unit (air conditioner) number, cannot be duplicated within the same outdoor unit number and must be within the range of (0-15).</li> </ul>
Model	Base - Default
Maximum power consumption	<p>Set by each model.</p> <p>By setting the maximum power consumption value of the air conditioner, the system limits the power consumption within the set limit.</p> <p><b>Note:</b> For peak control, you must enter the maximum power consumption for each indoor unit.</p>



### (5) Administrator : ID/PW Setting

Administrator

To set ID and PW , click the ID/PW button and the enter your id and password in the ID/PW Window.  
If you Log-in with new ID/PW then The PC central control program will be operate user MODE  
So, system set-up function window will not display ; Set up function is for install

[illegible]

Save

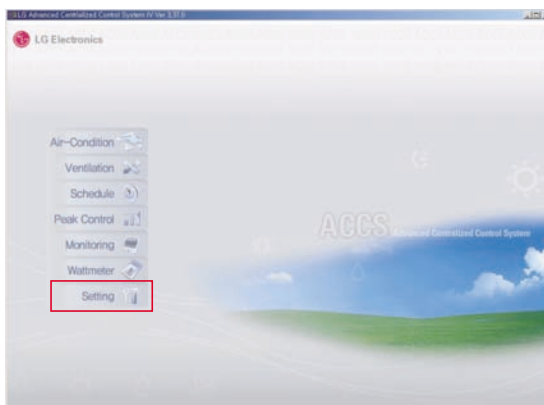
: Save new ID and PW

Cancel

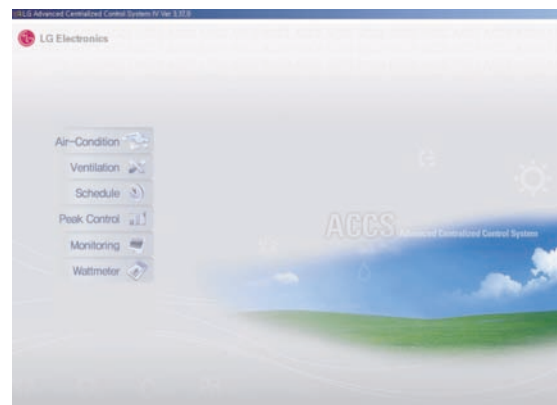
: Cancel new ID and PW

A/S

: this key is for update in future it will not select `



### Display window with Log-in ID 'admin'



### Display window with Log-in ID additional new ID by user

**Note :** The ID 'admin' is for installation



## (6) Ventilation setting

Type	Units	Address	Model	Max. Power Consumption(W)
MASTER	UNIT [ 0-0 ]	0 - 0 0	Default	1000
MASTER	UNIT [ 0-1 ]	0 - 1 0	Default	1000
MASTER	UNIT [ 0-2 ]	0 - 2 0	Default	1000
MASTER	UNIT [ 0-3 ]	0 - 3 0	Default	1000
MASTER	UNIT [ 0-4 ]	0 - 4 0	Default	1000
MASTER	UNIT [ 0-5 ]	0 - 5 0	Default	1000
MASTER	UNIT [ 0-6 ]	0 - 6 0	Default	1000
MASTER	UNIT [ 0-7 ]	0 - 7 0	Default	1000
MASTER	UNIT [ 0-8 ]	0 - 8 0	Default	1000
MASTER	UNIT [ 0-9 ]	0 - 9 0	Default	1000
MASTER	UNIT [ 0-10 ]	0 - 10 0	Default	1000
MASTER	UNIT [ 0-11 ]	0 - 11 0	Default	1000
MASTER	UNIT [ 0-12 ]	0 - 12 0	Default	1000

- When you press the ventilation setting button, the group, ventilation information entry and temporary save window will be shown as above.

### Ventilation group entry

You can only set the ventilation group within range of the information entered in the existing [G/W information] window.

Also the ventilation number must not be duplicated within the same G/W number.

- NOTE : Ventilators are connectable 16 units per 1 CNU
- NOTE : Set Ventilator address only [00] ~ [0F] by ventilator wired remote controller

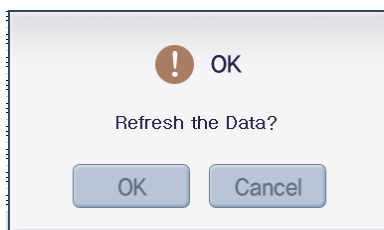
When you press the default entry button, the default values for the ventilation information based on the previously entered G/W information will be automatically entered for the maximum number of ventilation units.



Ventilation information entry	
Type	<ul style="list-style-type: none"> <li>■ Master: Master Ventilation</li> <li>■ Slave: Ventilation connected lower to the master</li> </ul>
Units	<ul style="list-style-type: none"> <li>■ Click on the ventilation window to add or edit and you will see the yellow entry window where you can edit the name.</li> </ul>
Address	<ul style="list-style-type: none"> <li>■ Just like the air condition information entry, enter the G/W number, outdoor unit number, individual ventilation number in order.</li> <li>■ You can enter the physical address value for the master type ventilation but for the save type ventilation, it must succeed the master value and be automatically generated. (Cannot be entered)</li> <li>■ When the ventilation is directly connected to G/W without going through the outdoor unit, you must enter a "-" to the outdoor unit number.</li> <li>■ In installing ventilator , Set Ventilator address only [00] ~ [0F] by ventilator wired remote controller Because 1 CNU is connectable 16 ventilator(max)</li> <li>■ The number on the farthest right is automatically set according to the ventilation type. (0 for master and 1, 2, 3.... for slave.)</li> </ul>
Model	<p>Default value</p> <p>Set by each model.</p>
Maximum power consumption	<p>By setting the maximum power consumption value of the ventilation system, the system limits the power consumption within the set limit.</p>
Temporary save	<p>It is convenient to use this function when moving the ventilation to another group or changing the order of the ventilation.</p> <p>When you save the master ventilation, the sub slave ventilation also follows.</p> <p><b>⚠ CAUTION</b> When saving the changes, the information in temporary save will be deleted.</p>



### (7) Reset



Click on **Reset** when you do not want to change the information.

Click 'Ok' if you want to undo the group information change or 'Cancel' to cancel.



#### CAUTION

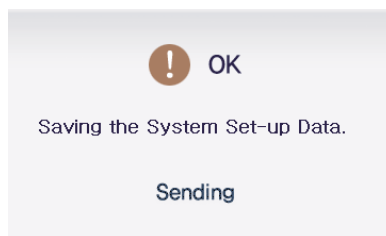
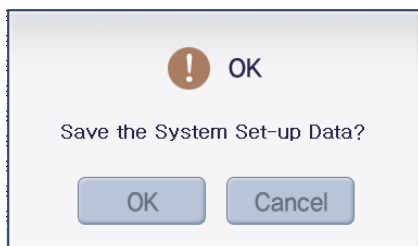
When you click on Ok, the information of G/W and outdoor unit not saved during the editing is also undone.

### (8) Save

You must save after editing the information (G/W, outdoor, indoor) from the system setting.

When you press the **Save** button, the following 'Ok' window will be shown.

To save the setting information click on Ok, and to not save the setting, click on Cancel.



When you click on Ok, you will see the message saying that the setting is being saved for a few seconds, and the saved setting is re-called and applied to the whole program.

\* During the few seconds when the setting is being saved, you cannot set other things.



#### CAUTION

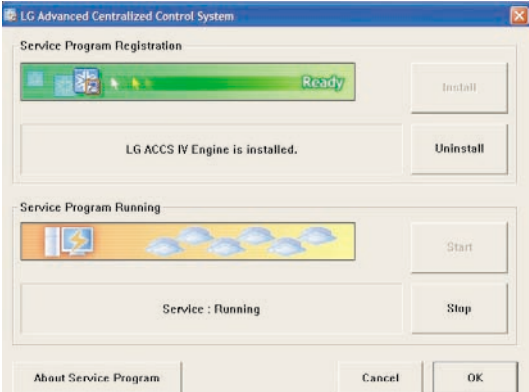
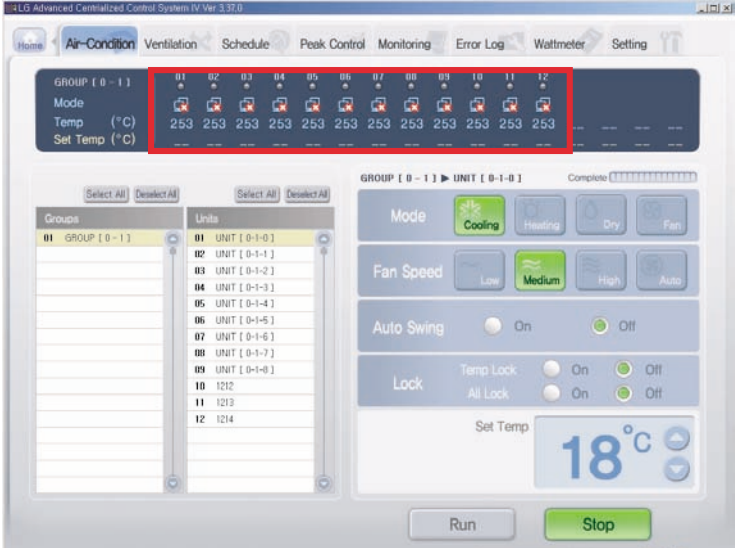
When you save the setting in [System setting] window, the existing schedule information, peak power control (peak exception air conditioner) and error log will all be initialized.





## 2.3.9 Troubleshooting

### Defect phenomena and check method

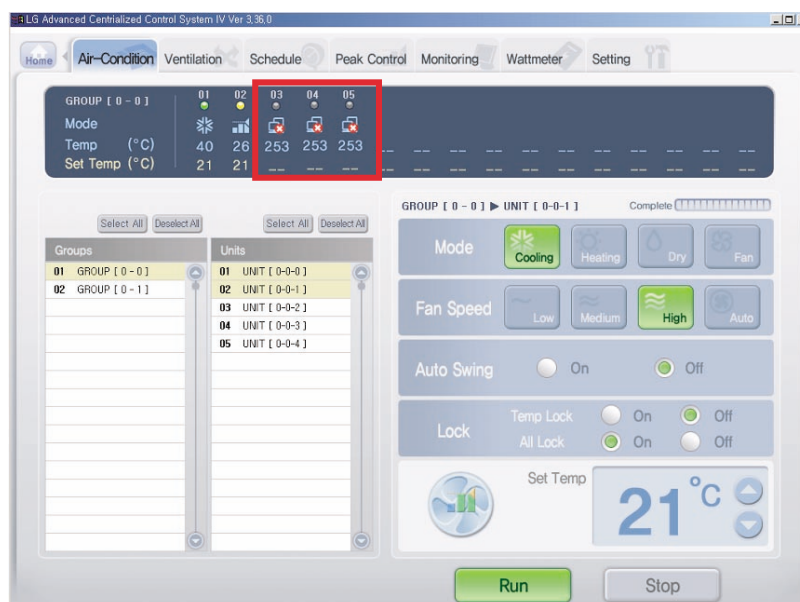
Defect	Double click the ICON on the screen but the LOGIN screen does not appear
Check method	<ul style="list-style-type: none"> <li>Double click the Service manager on the screen to stop the program execution . Then again press the start button</li> </ul>  <p>Take out the Hard Lock key and insert again or after the program update save the Service manager and after that restart the program.</p>
Defect	In case all indoor units at the same outdoor of the central control appears to be non activated
Check method	 <ul style="list-style-type: none"> <li>Confirm PC IP of the PC control. (CNU has to be in the same NETWORK )</li> <li>Confirm whether the power is supplied to CNU(I-G/W).</li> <li>Confirm if there is any abnormality in the LAN wire touching .</li> <li>Confirm Whether the Outdoor</li> <li>Internet A(BUS_A)/Internet B(BUS_B)</li> </ul>



## Defect

The specifications on the central controller screen is not communicated to the indoor appear

- Double click the Service manager on the screen to stop the program execution . Then again press the start button



## Check method

- Operating the indoor units confirm the communication between the outdoor units.
- If case there is non communication between indoor /outdoor units then there is no communication with the central controller.
- ADDRESS setting confirmation
- In case the same address has been assigned to more than 2 indoor units then all indoor units will not appear on the central controller.
- When The registration of the central controller is different from the actual product, the central controller will not recognize the respective indoor units.
- LAN Line connection confirmation confirm the LAN wire connection contact.



## ■ Network error code

Error indication number	Error items	Meaning	Cause
240	Central controller Connector Error (I-G/W connection failure)	Communication connection failure between the central controller and CNU	<ul style="list-style-type: none"> <li>• Communication wire connection defect</li> <li>• CNU defect central controller and CNU IP</li> <li>• Setting is not correct</li> <li>• Communication defect</li> </ul>

### • Defect check method

- 1) Confirm whether the communication wire is connected properly.
- 2) If the central controller is connected to whole network then conform whether CNU, central controller etc IP is correct.
- 3) It seems CNU has been changed .

Error indication number	Error items	Meaning	Cause
244	Central controller (receiving time is more then 3 seconds)	Communication failure between the central controller and the CNU	<ul style="list-style-type: none"> <li>• CNU Defect</li> <li>• Failure in central controller initialization</li> </ul>

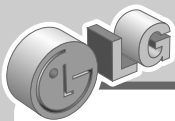
### • Defect check method

- 1) Confirm whether the communication wire is connected properly.
- 2) If the Central controller is connected to whole network then conform whether CNU, Central controller etc IP is correct.
- 3) Check the CNU.

Error indication number	Error items	Meaning	Cause
250/251	Central controller Check sum Error	Central controller Check sum Error	<ul style="list-style-type: none"> <li>• NOISE occurrence</li> <li>• CNU defect</li> <li>• Timing non-synchronizing</li> <li>• Air-conditioner defect</li> </ul>

### • Defect check method

- 1) Confirm whether the Air-conditioner addressing of the central controller and the actual system's addressing is same or not.
- 2) Restart the central controller service (engine ) program.
- 3) Replace the CNU.



Error indication number	Error items	Meaning	Cause
252	Central controller Wrong Address Error	Central controller Wrong Address Error	<ul style="list-style-type: none"> <li>• NOISE occurrence</li> <li>• CNU defect</li> <li>• Timing non-synchronizing</li> <li>• Air-conditioner defect</li> </ul>

• **Defect check method**

- 1) Confirm whether the air-conditioner addressing of the central controller and the actual system's addressing is same or not.
- 2) Restart the central controller service (engine ) program.
- 3) Replace the CNU.

Error indication number	Error items	Meaning	Cause
253	Indoor unit power off, Indoor connection bit is zero	Indoor unit power off, Indoor connection bit is zero	<ul style="list-style-type: none"> <li>• NOISE occurrence</li> <li>• CNU defect</li> <li>• Timing non-synchronizing</li> <li>• Air-conditioner defect</li> </ul>

• **Defect check method**

- 1) Confirm whether the air-conditioner addressing of the central controller and the actual system's addressing is same or not.
- 2) Restart the central controller service (engine ) program.
- 3) Replace the CNU.



## ■ Trouble shooting tablet PC

This chapter describes locating and solving problems that you may encounter while using your computer.

### CHECKING CABLES AND CONNECTIONS

Start by performing a careful visual inspection of the exterior of the computer.

If no LEDs are illuminated, make sure that your computer and its peripherals are getting power and communicating with each other properly.

To check the power cables, and connections:

1. If you have been using battery power, connect the computer to an external power source and make sure that the battery has a charge.
2. If you are using the computer with the AC adapter, check the power outlet, the power cord, and any power switches that may affect your computer.
3. Check the wall outlet or power strip with an item that you know is functioning properly. A lamp or radio is a convenient item for checking the power. You may also need to check the fuses and breakers in your electric box.
4. If the outlet is controlled by a wall switch, make sure that the switch is on.
5. If the outlet is controlled by a dimmer switch, use a different outlet.
6. If your computer is plugged into a power strip with an On/Off switch, make sure the switch is on.
7. With the computer's power switched off, check all cable connections. If the computer is connected to any peripheral devices, look for loose or disconnected cables.

If the computer is too close to a wall, a cable connection may be loose or the cables may be crimped.

**Note: Do not substitute cables for different devices (other than the manufacturer recommended cables) even if they look exactly alike. The wiring inside the cable may be different.**

8. When you are certain that you have power available and all connections are good, turn the computer on again. If the computer still does not start, you may have a hardware problem.



## GENERAL PROBLEMS

A few common hardware problems and suggested solutions are presented in the table below:

### SYSTEM NOT RESUMING OPERATION

If the system will not resume operation after system operation has been suspended, check the following possible causes: The battery may either be defective, or discharge to a critically low level. To correct this problem, connect an external power supply such as AC adapter.

### DISPLAY SCREEN IS BLANK OR DIFFICULT TO READ

If the system is blank or unreadable, please confirm the system is running (this can be seen on the Power icon if it is lit).

- ▶ The brightness control may be set too low, change the brightness by using on the brightness control at the right side of the system.
- ▶ The video timeout may have expired, tap on the display screen to reactivate the display.

### TABLET PC IS NOT RESPONDING TO THE PEN

If the Tablet PC does not respond to the pen, connect an external keyboard to the system to see if it responds to keyboard commands. If the system doesn't respond to a keyboard, the application or system may have crashed, and it may be necessary to reboot the system. If the system responds to a keyboard but not to a pen, contact your local dealer for further assistance.

### THE TABLET PC CAN NOT POWER ON

Check on the Lock key located right beside the Power button if it is in lock position.

### THE CURSOR NOT IN POSITION WHILE USING THE ORDINARY PEN

Change the settings in the touchkit settings window. Select TouchKit program>4 pts Cal to calibrated.

### THE COMPUTER IS UNABLE TO CONNECT TO THE INTERNET

Account for Internet service provider (ISP) is not properly configured. Ask for your ISP assistance.

### NO SOUND ON THE EXTERNAL SPEAKERS OR HEADPHONES

Connected to the wrong jack. Change to the correct jack.

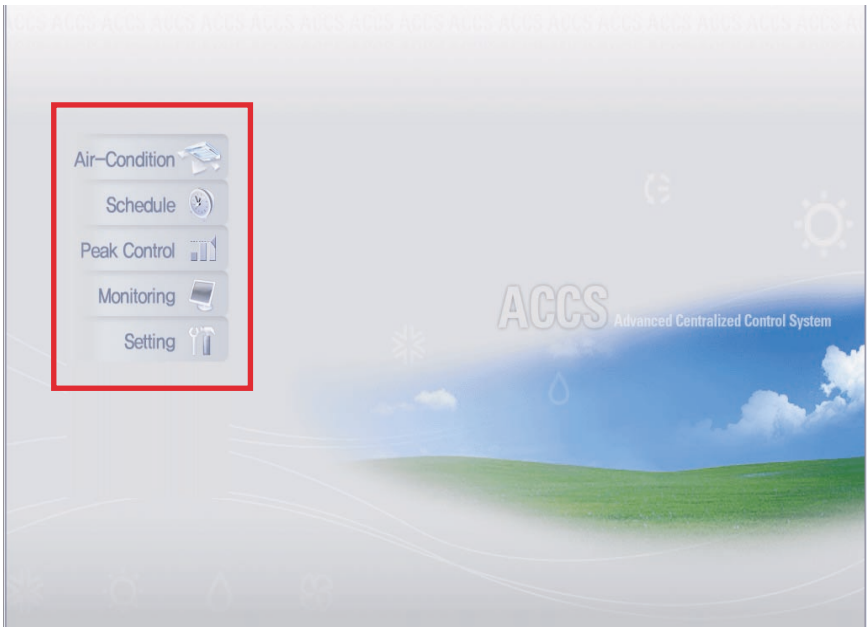
### BEEPING SOUND

Connect the computer to an external power source immediately.

### IF THE CURSOR IS NOT IN POSITION WITH THE TOUCH PEN

Please make sure you have made the linearization with the touchkit utility. Please refer to Chapter 4 on the topic of calibration to correct in aligning the cursor with the pen.

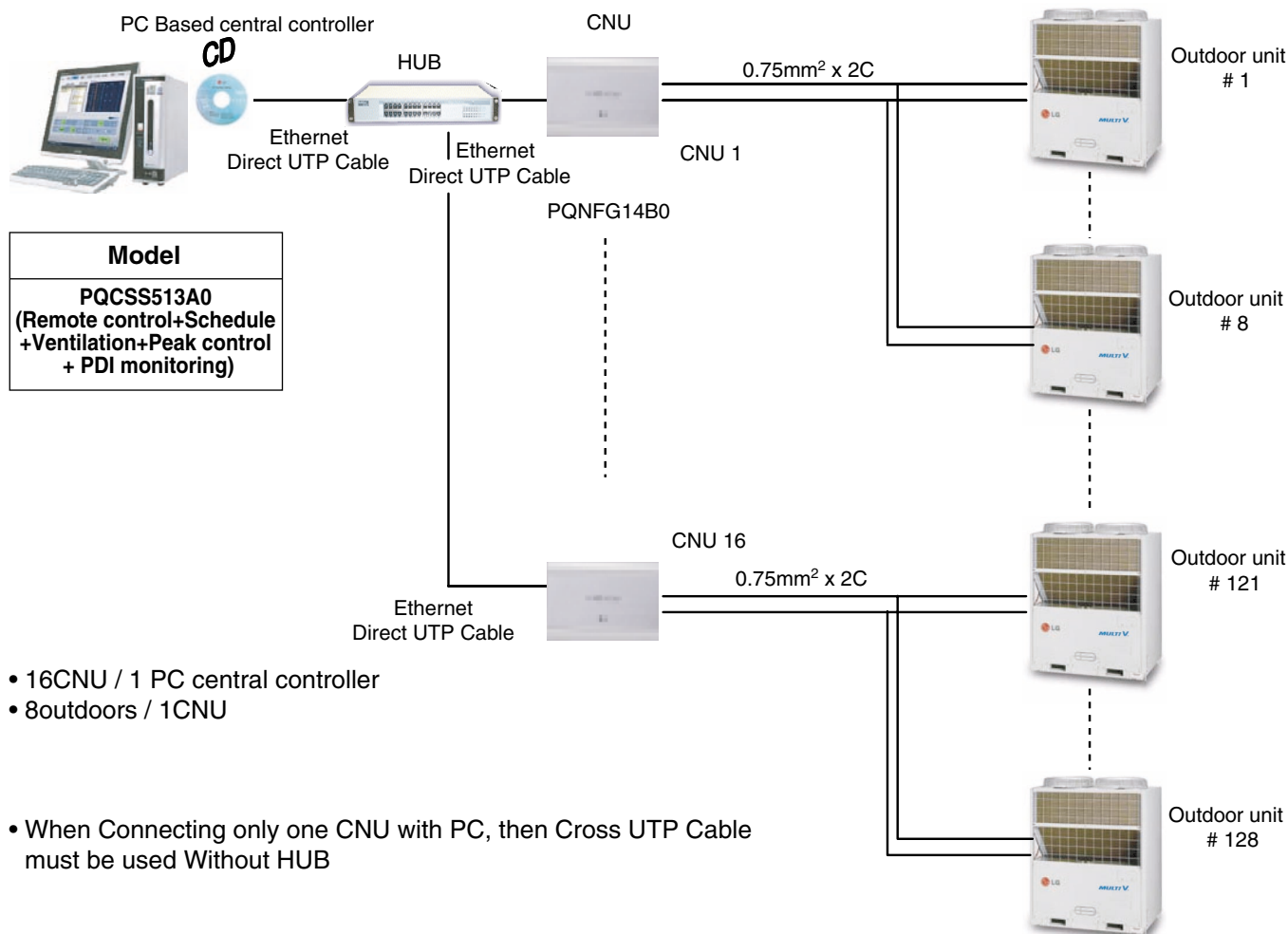


Defect	After finished the installation, if all menu icon does not click.
Check method	<div></div> <p>Cause : When you save the file, it could occur some time. At that time please open folder which is “C:\WINNT\system32\LGAC\Database” and delete the newest data file.</p>



## 2.4 PC Based Central Controller

### 2.4.1 Overview



### Combination

A PC based central controller can connect up to sixteen CNU.

A CNU can connect up to eight outdoor units(PI485) Max.

An outdoor unit can connect only a PI485 unit.  
(16 Indoor Units /1 Outdoor Unit)

There can be a change in combination without informing the network system.





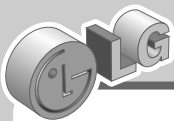
## 2.4.2 Features & Characteristics



### Personal Computer for PC Central Controller(Not Provided)

MODEL	FUNCTION	REFERENCE
PQCSS513A0	<ul style="list-style-type: none"> <li>- Control &amp; Monitoring</li> <li>- Schedule+Ventilation</li> <li>- Peak control</li> <li>- PDI monitoring</li> </ul>	CNU

	PQCSS513A0
Parts	User S/W Engine S/W PC(Not provided)
Program	Install CD
Max. Control Indoor Units Numbers	Max 2048 16 CNU/1PC 8 Outdoor /1 CNU 16 Indoor /1 Outdoor
Internet Remote Control	Available
System set-up	Available
Control & monitoring	Available
User's lock	Available
Schedule management	Available
-	-
Life	PCLife
Peak control	Available
PDI Monitoring	Available
Ventilation Control&Monitoring	Available



### **1. Individual/Integrated Operation/Monitoring**

- You can identify operation status of the Air-Conditioner such as operation mode, Fan speed, locking, temperature setting and error, etc by selecting the installed Air-Conditioner through individual selection, group selection or all selection. Individual setup and explanation of the detailed functions are available. Therefore, the manager can use a central control with the PC Central Controller only installed at the control room at a building where a number of Air-Conditioners are installed.

### **2. Group Management**

- Grouping management of the installed Air- Conditioners is available.  
Thanks to group setup: separation by nature, location and size of each Air-Conditioner enables convenient use. In addition, allotment of respective name to the setup group allows further intuitive management.

### **3. Self-diagnosis Function**

- The Air- Conditioner installed can self-diagnose its error status and then transmits the result to the central controller. Therefore, a rapid countermeasure against failure of Air-Conditioner allows easy management and increases the life of Air-Conditioner.

### **4. Semi-permanent Life / Convenient Maintenance**

- Since the PC Central Controller is designed for the semi-permanent use, this system can be used semi-permanently after installation differently from the existing PC or a large central control system which require a continuous management.

### **5. Management Cost Down**

- In absence of the Central Control System, the manager had to control a number of Air-Conditioners individually. Even if Central Control System is used, it has only the on/off management function, thus 2 or 3 building managers were actually required. However, manipulation of all functions can now be done at a control room for the PC Central Controller and so a manager can easily control all Air- Conditioners. Automatic operation is also allowed without a manager if schedule function is used.

### **6. Convenient GUI**

- No special education is required for using the PC Central Controller, it can be conveniently used just by pressing the buttons on the screen, and its function can be understood with an intuitive pictogram. Especially, schedule setting is done by simply dragging the screen as patented technology differs from the existing system which requires to press the button by more than an average 30 times to enter a schedule.

### **7. Schedule Automatic Operation Management / Energy Saving**

- For the Schedule Automatic Operation, weekly setting is available. Schedule making can be done in such a way that non processing schedule (national holiday) can be excluded that prevents the unnecessary operation thereby saving a substantial amount of energy. This function can be applied if there is a fixed schedule for elementary school, middle school, high school and college or university to get excellent results.

### **8. Stable Data Storage/Backup**

- Setup information is saved even if no power is supplied since all data is saved in the built-in flash memory.



## 2.4.3 Terminology of each part and their function



USB Hard\_Lock key  
(52mm\*15mm\*7mm)



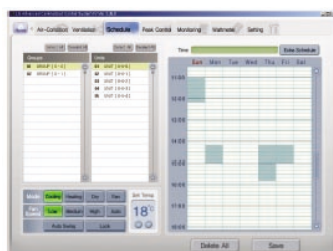
Connect USB Hard\_Lock key in Personal Computer for PC Central Controller

**NOTICE : USB Hard\_Lock key determines All Functions of PC Central Controller**



### [System Control]

To check general monitoring functions of the Air-Conditioner central control system such as group selection and Air-Conditioner selection, Air-Conditioner control monitor function etc.



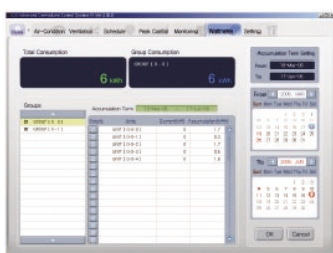
### [System Monitor]

To check the current status of air-conditioner.



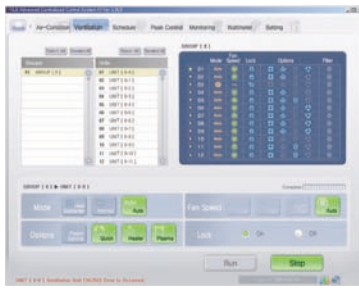
### [System Set-up]

To manage the air-conditioner through grouping and record setup of group and installation position, etc.



### [Time Schedule]

Weekly schedule can be set up for an individual or a group of Air-Conditioners. If required, scheduling for a year is also available.



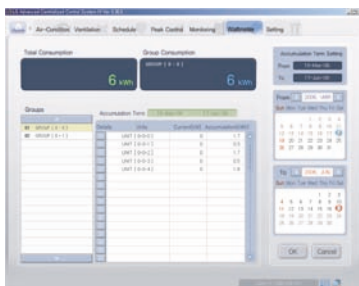
### [System Control – Ventilator(Eco-V)]

To check general control and monitoring functions of the ventilator central control system such as group selection and ventilator selection, ventilator control , monitor function etc.



### [Peak Control]

To control the maximum demand power power, it has an effect on cutting down power costs by keeping the amount of all the air conditioners consumption lower than Demand Power authorized



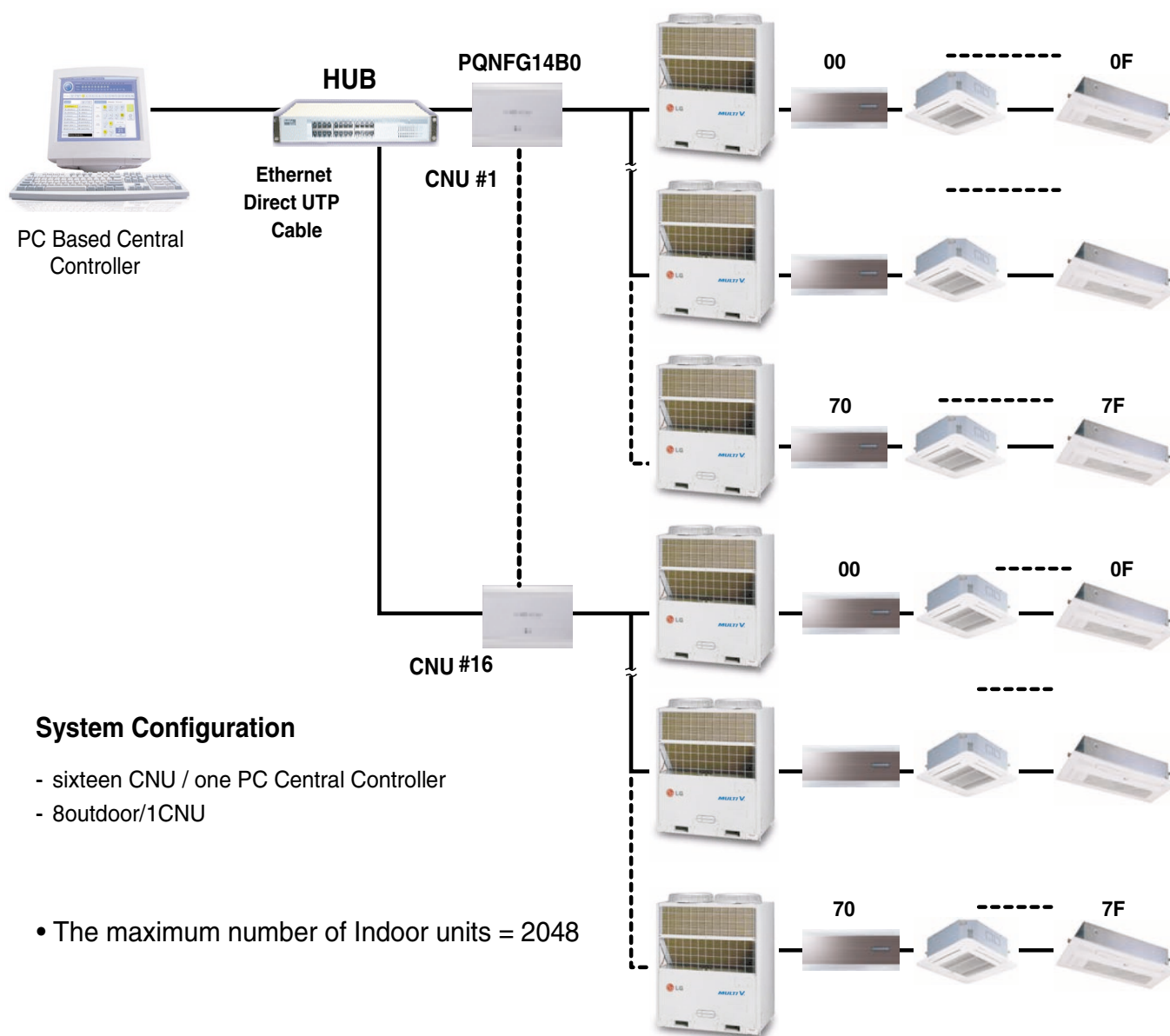
### [Power consumption Display Function]

To check the total amount of power consumption of the total air-conditioners by indoor

**\* Needed specially purchasing : PDI(PQNUD1S00)**

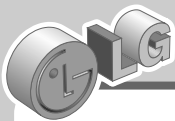


## 2.4.4 System Connection



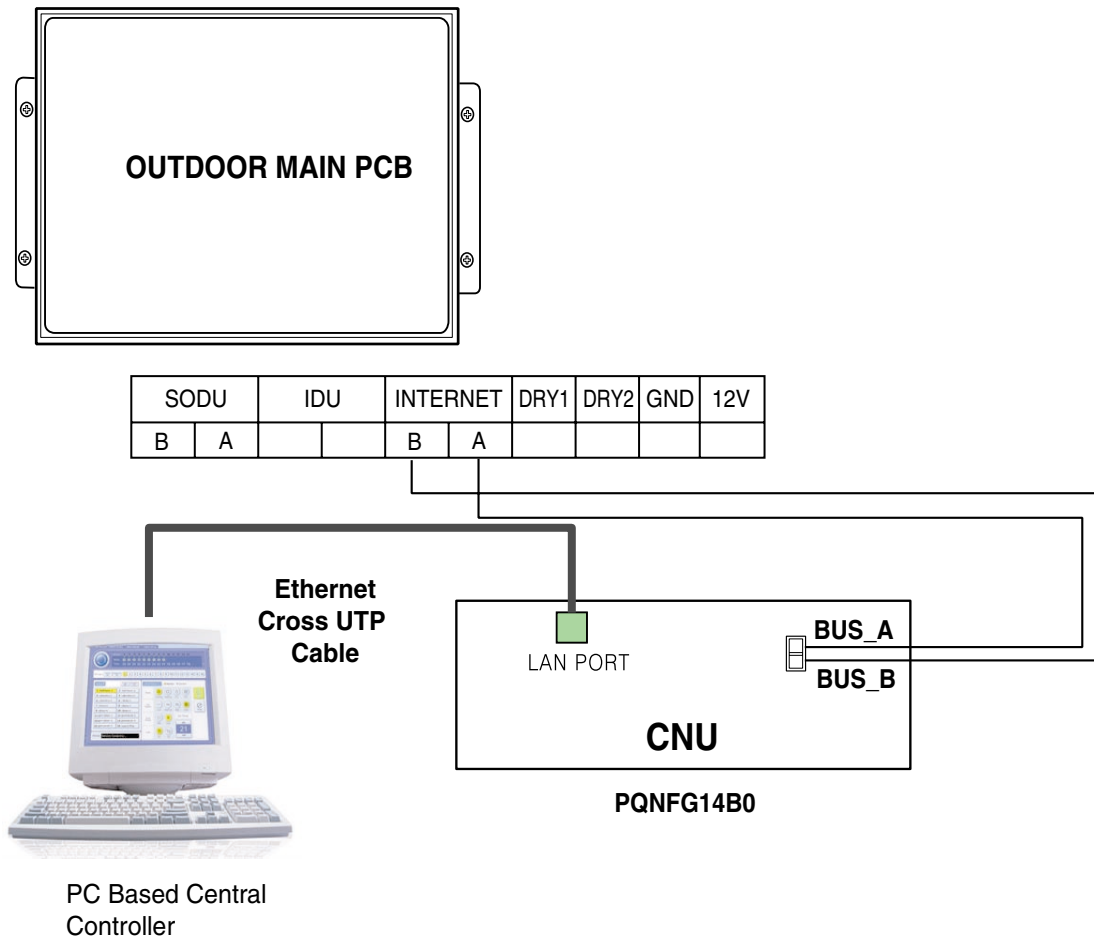
### System Configuration

- sixteen CNU / one PC Central Controller
- 8outdoor/1CNU
- The maximum number of Indoor units = 2048



## 2.4.5 Electrical wiring

### • PICTORIAL VIEW OF THE CONNECTION

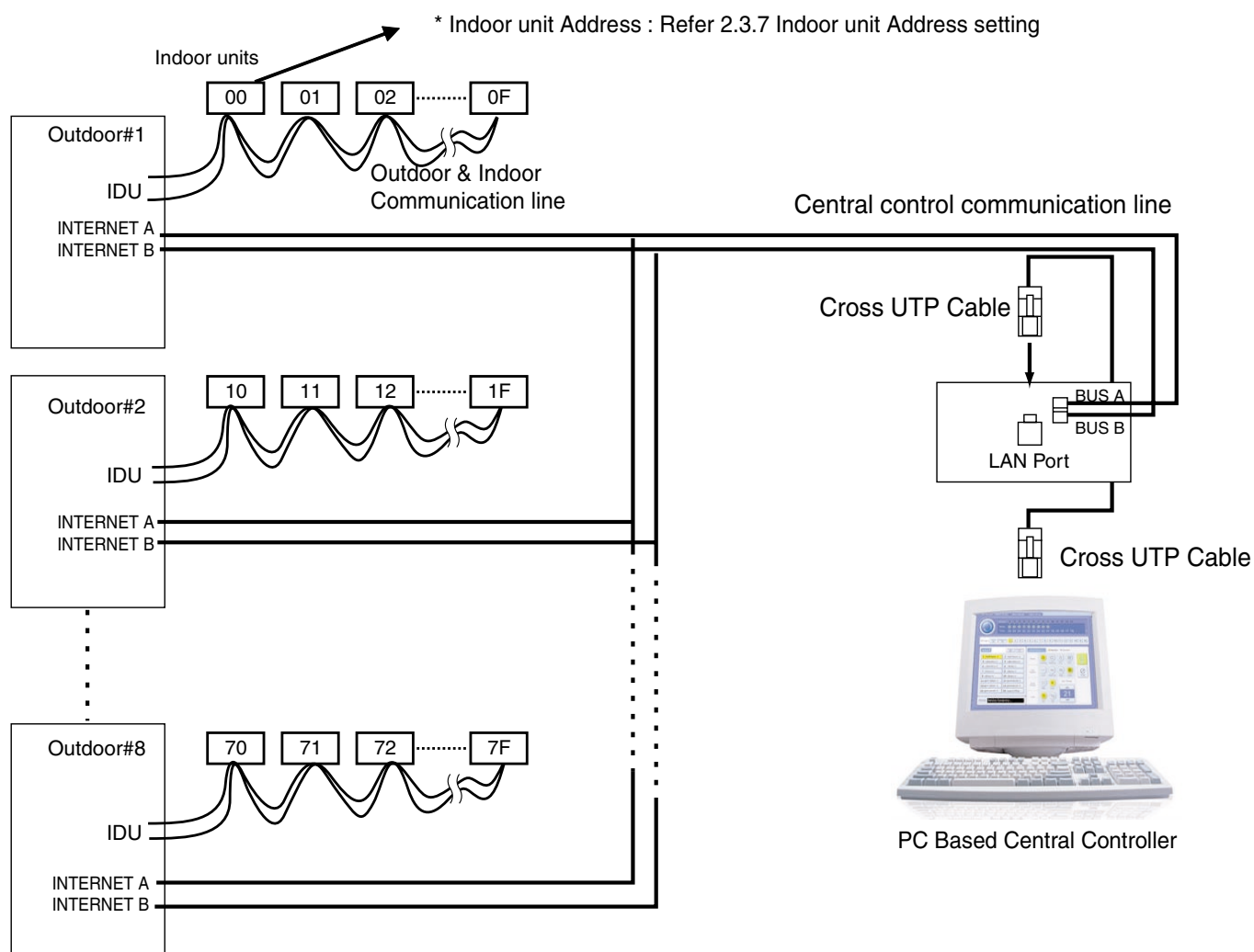


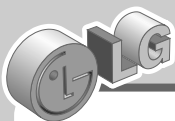
**When Connecting only one CNU with PC, then Cross UTP Cable must be used Without HUB**  
**When Connecting more than one CNU with PC , Then Direct UTP Cable must be used with HUB**



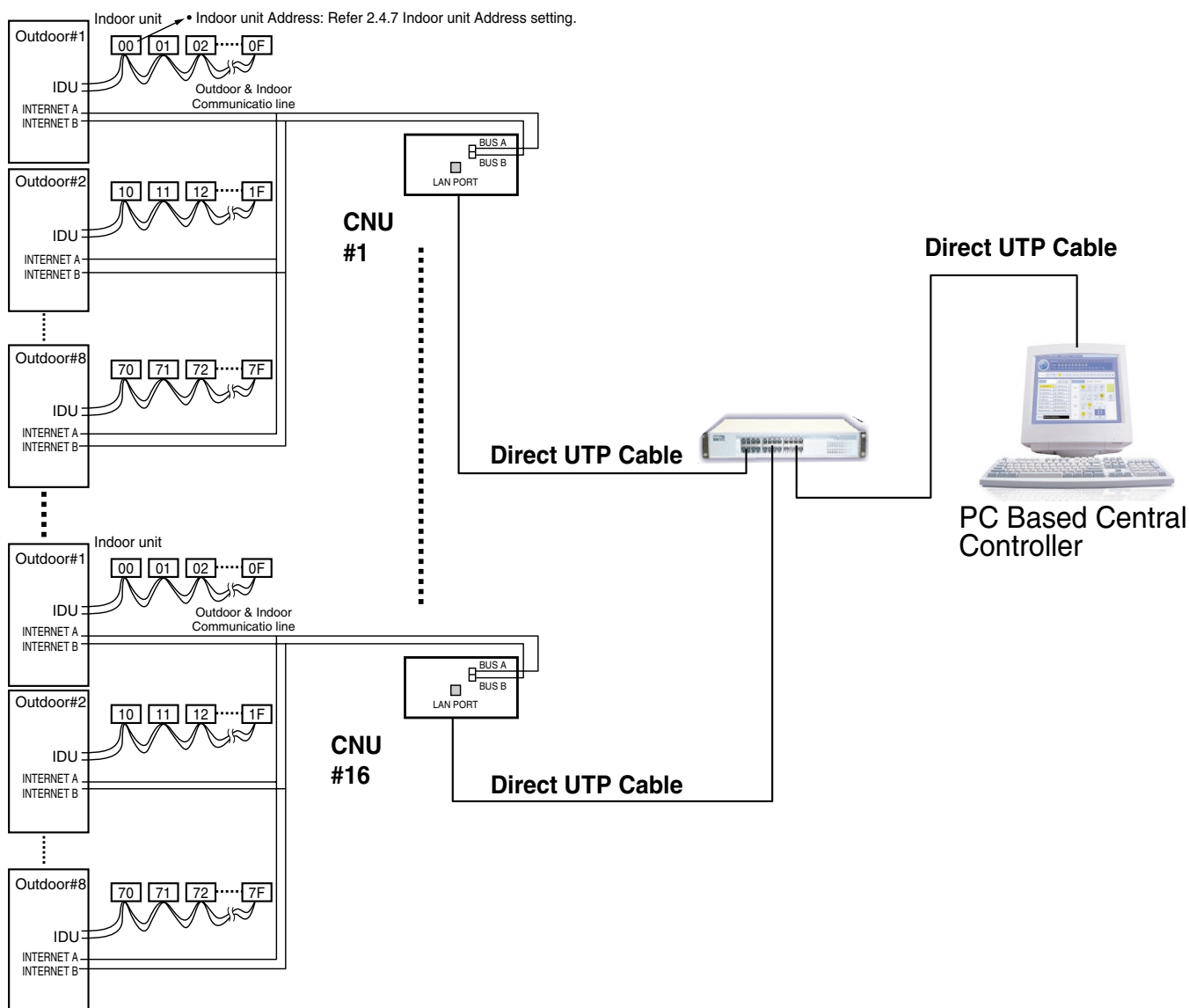
## ■ Wiring diagram and connect communication line

### 1) Using only one CNU(PQNFG14B0)





## 2) Using more than one CNU(PQNFG14B0)



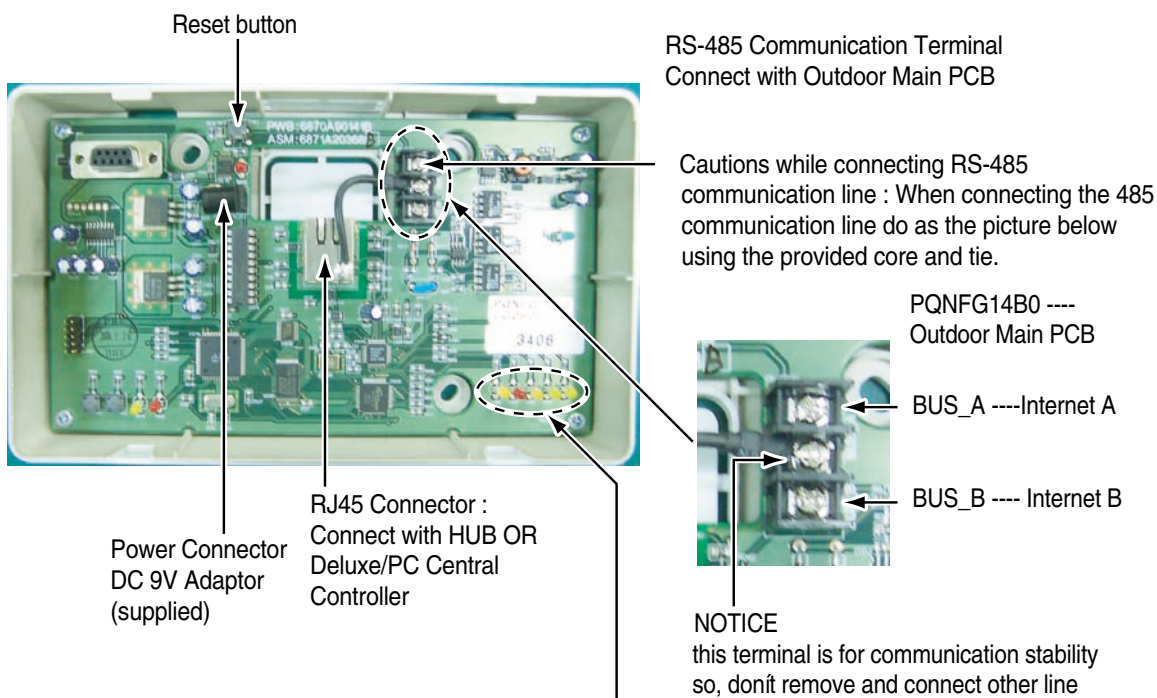




## 2.4.6 Network Interface setting

### ■ CNU connection

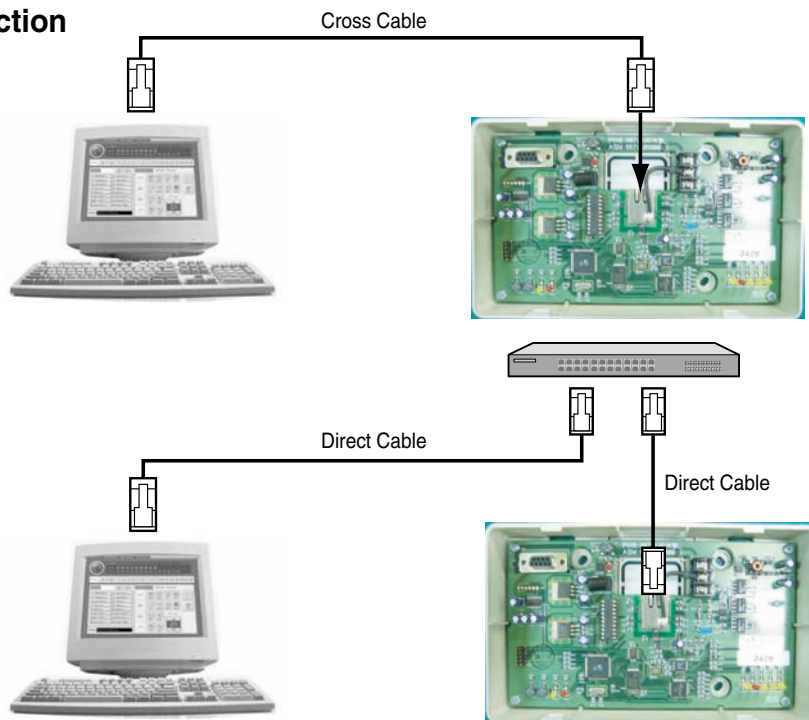
#### CNU(PQNGF14B0) Part description



- L06D: Connection of LAN H/W (LINK LED)
- L07D: Connection of LAN H/W LED(DUPLEX)
- L08D: 10MEGA BASE Communication LED  
(when CNU II is connected with Deluxe central controller)
- L09D: 100MEGA BASE Communication LED  
(when CNU II is connected with PC central controller)
- L10D: COLLISION DETECTOR LED



## ■ CNU LAN connection



Use the cross cable if not using the hub.  
If willing to use the hub, use the direct  
cable to connect with the hub

**NOTE :** Refer PQNFG14B0 install manual for detail CNU setting method

### 2.4.7 Indoor unit address setting (Refer 2.3.7 Indoor unit address setting)

### 2.4.8 Installation of PC Based Central Controller Program

#### ■ Recommended System Configuration

LG PC central Control program is executed in the Window NT,2000,XP,2003

And when installing, 50 Mbytes Memory is necessary

- CPU : Over Pentium  $\geq$  2.2GHz
- Main Memory : Over 256MB
- Operation System : Windows NT/ 2000/ XP/ 2003 (include Microsoft Java VM)
- Hard Disk : minimum space:600M (Request more 600M when operating)
- Web browser : Over Internet Explore 5.0

※ So far as possible exclusive use of PC is recommended.

#### ■ How to install program

Insert supplied CD in CD-ROM driver, double click the Set-up icon

With setting the Install program, after a while initialization screen appears

Click on the install which start installing

**NOTICE :** In case there is no Microsoft Java VM(MS JVM)program, then Pop up Window appears.

click on “OK”

Then the MS JVM program is Installed.



## ■ Engine S/W Registration in service program

Installed ACCS // Program in computer is classified GUI program and Engine Program

“LG ACCS // Ver[name of version]” is GUI Program, “LG ACCS //Service Manager” is program to handle Engine.

Actual air conditioner control, monitoring and other function operate in Engine.

So Engine S/W must operate in control Inside PC at all time. There by making it is possible to control air conditioner.

Click [Start] → [Program] → [LG Electronics Inc] → [LG ACCS //] →

[LG ACCS // Service Manager]

After installation, Engine program is registered in Service Program, then the program is executed automatically.

If service Program is not executed, click on 'Install' then click on 'Start', the program starts running.

After that though window is closed by clicking on 'OK'

S/W is operating continuously.

\* Once you have set Register at the first operation, you do not need to set again.

Engine S/W which registered at the Service Program will operate automatically when PC is rebooting after

Click the Program LG ACCS in the START Menu in the program menu of windows ( Click the LG ACCS icon on the desktop )

When the program is started, loading image is displayed.

Afterwards, Initial display appears on the screen.



On the Login window, Insert ID and Password, click the Login button.

[Default ID is "admin" Password is "digital21"]

when click on "CANCEL", this program is closed

- PC Central program can be executed only when the approval hard\_lock is inserted in your desktop When the Hard\_Lock is pull out, PC central Program can not be executed, Some error will be displayed.



On the Login window, Insert ID and Password, click the Login button.

[Default ID is "admin" Password is "digital21"]

when clicked on cancel, this program is closed

- PC Central program can be executed only when the approval hard\_lock is inserted in your desktop When the Hard\_Lock is pull out, PC central Program can not be executed, Some error will be displayed.

Failed the Log-in

Loading screen is not appeared but fail message appear

"Status : Please, Input ID and a Password..."

- The case which does not put in the ID of Password

"Status : Authentication Failed. Wait a Moment..."

- In case input ID or Password is wrong.

"Status : There is No Response, Login Failed. Wait a Moment..."

- The case which does not operate Engine S/W

"Status : Connection Error, Login Failed. Wait a Moment..."

- The case where the data transmission of receipt of a message goes wrong

"Status : Client License Access Over..."

- Access people are over than

"Status : Permission Error. Retry Again..."

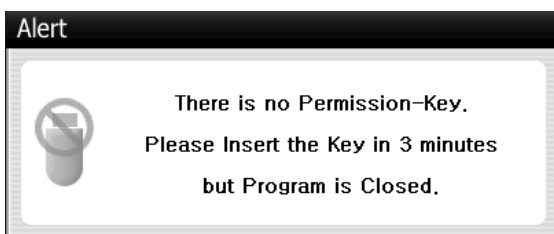
- Although succeed Log-in, it cannot receive Permission information or receive wrong Permission

## How to use approval hard\_lock



PC Central program can be executed only when the approval hard\_lock is inserted in your desktop When the Hard\_Lock is pull out, PC central Program can not be executed, Some error will be Displayed like the next picture Left So click the OK button and insert the approval hard\_lock and then run the programme again.

### ▲ Approval hard\_lock Warning Window(When program starting)



When approval hard\_lock is pulled out or removed it on operating program, Warning message will be displayed like the next picture down.

If approval hard\_lock is inserted within 3 minutes, warning message disappeared and the program is operated normally.

### ▲ Approval hard\_lock Warning Window (While program operating)

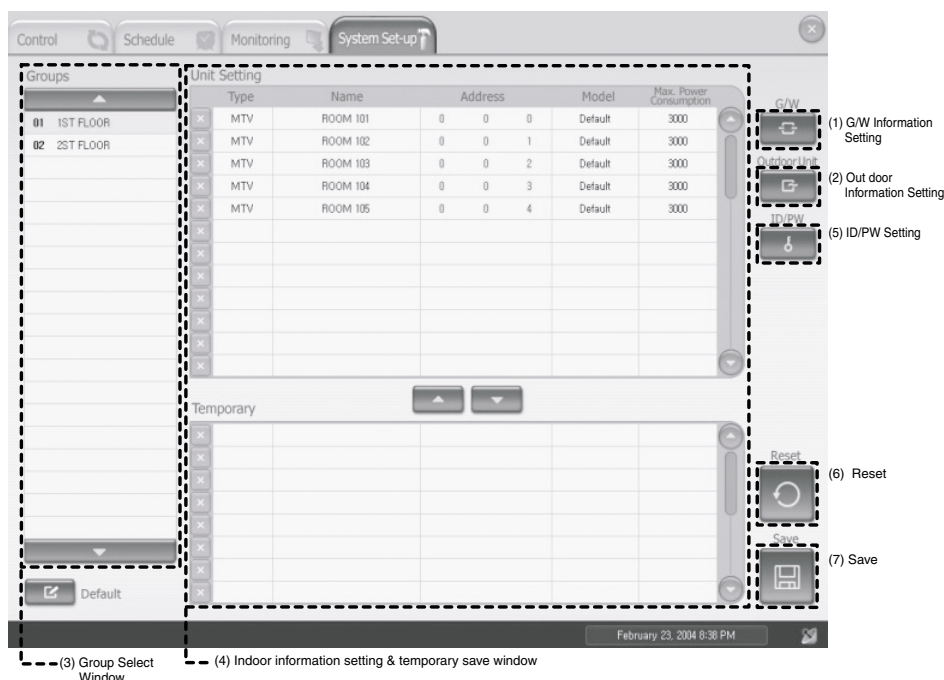


USB Hard\_Lock key  
(52mm\*15mm\*7mm)



## System set-up

The air conditioner's information about the outdoor unit, G/W, ID/PW in the setting group will be seen and input.



### Click on "G/W"



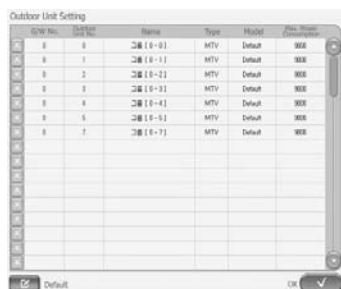
When you click on "default", Default data is set. Enter the name, G/W setting in the G/W Setting field.

In the G/W Info., IP address will be set automatically.

☐ The unnecessary data is deleted automatically.

When all the input data is set, click on "OK"

### Click the Outdoor Unit Setting.



When you click on "default", Default data is set. Enter the G/W No., Outdoor Unit No., Name, Type, Model, Max. power consumption in the Outdoor Unit Setting.

☐ The unnecessary data is deleted automatically.

When all the input data is set, click on "OK"

Click the "Group" and enter the group's name.

When you click on default, Default data is set. All indoor unit's data that is made from presetting G/W and Outdoor unit data is automatically set.

Group name(physical group data) is inherited by the outdoor name.

Click the Group name for which you want to input the indoor unit's data and the unit setting area.

Click on "Indoor Unit".



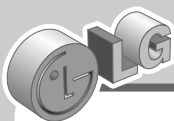
The physical addressing format is (X1. X2. X3) where X1 is Gateway information, X2 is the outdoor information, and X3 is the Indoor unit information for the Multi V Unit .

In the unit for school, The Type is SGL and the Physical address is the indoor unit's IP address.

To set ID and PW , click the ID/PW button and the enter your id and password in the ID/PW Window.

Click the 'Save' after setting all the data.

**When you Click on "Reset". The last saved status is restored.**



## 2.5 AC Smart

### 2.5.1 AC Smart Introduction

Model name : PQCSW320A0E

#### ■ Specification

**Dimensions:**

217 X 124 X 40 mm

**Screen:-**

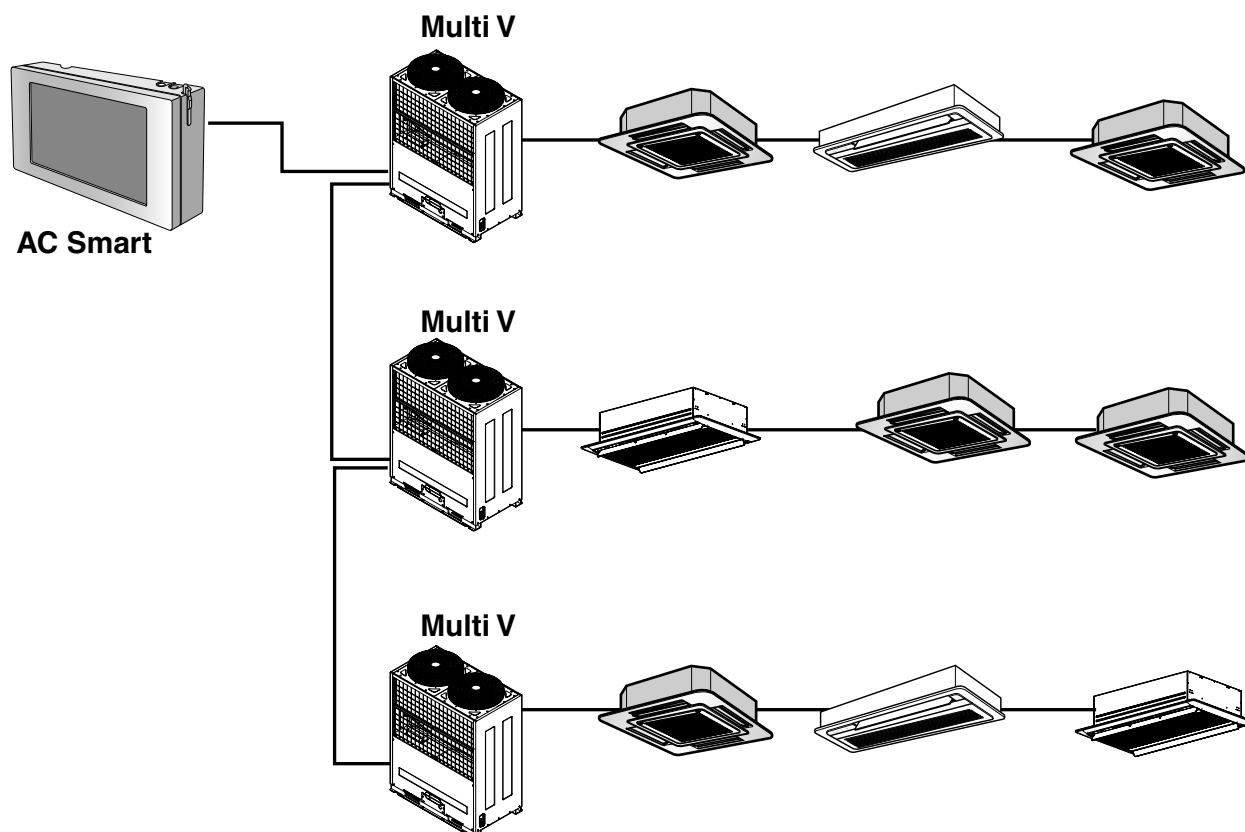
7 Inch Touch Screen

#### ■ Description

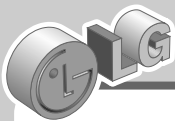
The product specially designed for small and medium building, luxury shops etc. It can control up to 64 indoor units.(A/C & Ventilation)



#### ■ Structure







## ■ Features

1. Mode control, temperature control etc and monitoring of up to 64 unit(A/C & Ventilation) is possible by Zone/Group/Unit
2. You can monitor the operating status by Icon or List View. so you can operate the controller very easily 2.AC Smart is directly connected to PI485 PCB so no need of CNU gateway.
3. Individual indoor Function control locking so that except administrator nobody can change the function. (Temperature, Mode, Fan Speed separately)
4. Temperature Setting Range restriction on individual controller, so management is very powerful and energy saving is possible
5. In schedule setup administrator can schedule the indoor Operating as well as the function locking
6. Operating and error history is saved in AC Smart
7. It has Automatic control function, Auto\_changeover and temperature limit, Auto\_Changeover function is automatically change operating mode cool and heat, so no need of changing the mode in season change period Temperature limit function. Protect the building from freezing and overheat by auto operation and auto stop
8. You can select the AC Smart display's language(English, Italian,Spanish,French,German)
9. It has password for administrator. So only administrator can setup the schedule & Auto function, system change, but normal user can operate basic control & monitoring
10. By using Emergency Stop Interlocking function. You can connect fire detect sensor to AC Smart, when fire happened, all air\_conditioner will be stop automatically
11. Easy upgrade the software by using USB
12. Compatible with Multi V, Multi as well as single unit., also, connect with Simple Central controller





## Icon/list View Monitor

You can monitor the operating status in Icon or list view

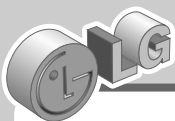
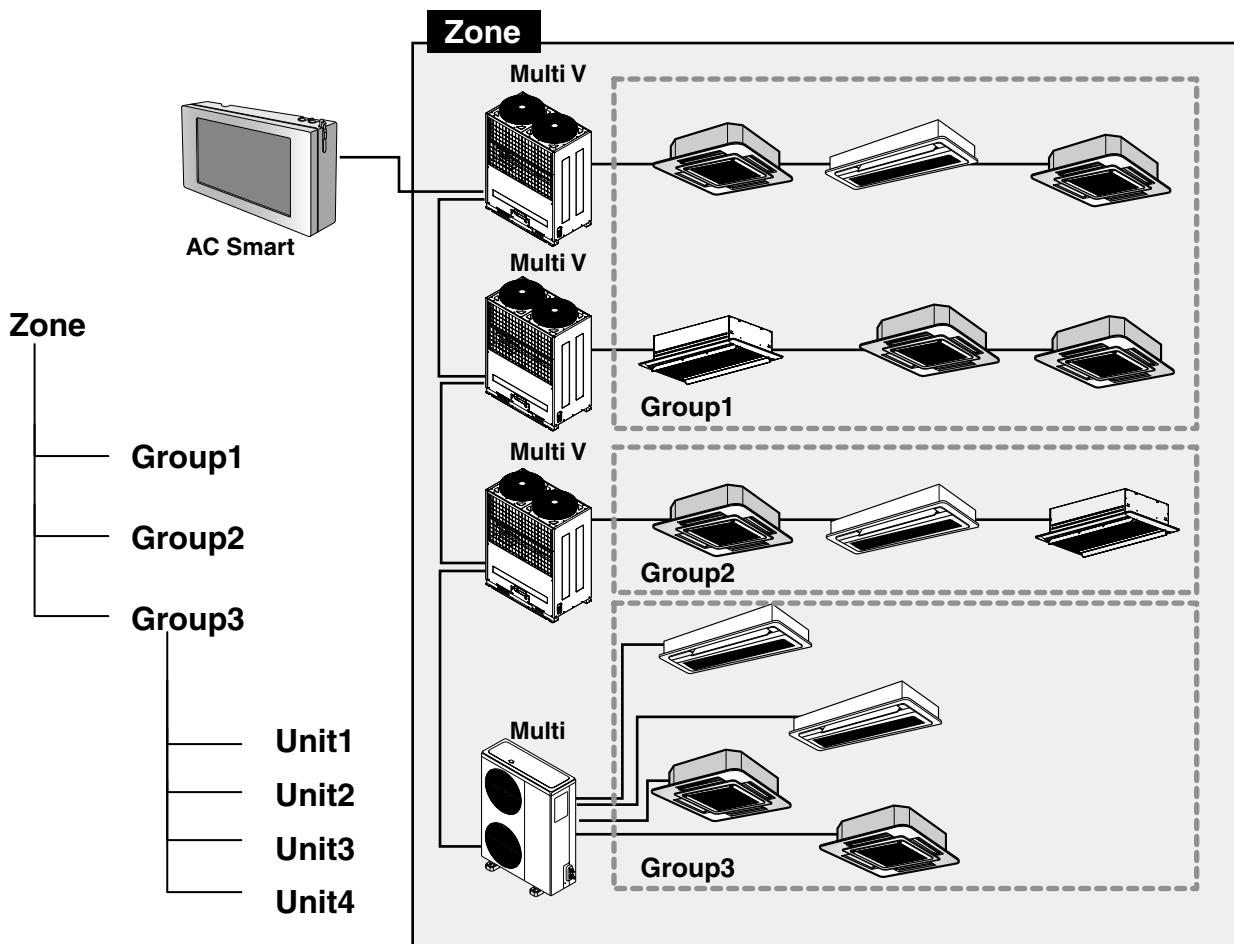
### [Icon View]

The Icon View interface displays a grid of room icons (Room 101 to Room 105) under the 'Basic Control' tab. The 'Room 101' icon is selected. Below the grid, the 'Monitoring' section shows the current mode (COOL), swing status (OFF), and lock status (OFF) for Room 101. The average room temperature is 25 and the average set temperature is 18. The 'Control' section includes buttons for SET TEMP., MODE (COOL, HEAT, AUTO), FAN SPEED (LOW, MED, HIGH), LOCK (ON, OFF), and RUN/STOP. A status bar at the bottom shows a message: 'MESSAGE[ - ] Unit information is saved successfully.' and the date/time: '1993.2.10 (Thursday) 4:12 PM'.

### [List View]

The List View interface displays a table of room status under the 'Basic Control' tab. The 'Advanced List' view is selected. The table lists rooms 101 through 105, showing their type (IDU), mode (Cool), on/off status, error status, swing status, fan speed, room/set temperature, lock status, and M/T/F lock status. Below the table, the 'Monitoring' section shows the current mode (COOL), swing status (OFF), and lock status (OFF) for Room 101. The average room temperature is 25 and the average set temperature is 18. The 'Control' section includes buttons for SET TEMP., MODE (COOL, HEAT, AUTO), FAN SPEED (LOW, MED, HIGH), LOCK (ON, OFF), and RUN/STOP. A status bar at the bottom shows a message: 'MESSAGE[ - ] Unit information is saved successfully.' and the date/time: '1993.2.10 (Thursday) 4:12 PM'.

Name	Type	Mode	On/Off	Error	Swing	Fan Speed	Room/SetTemp	Lock	M/T/F Lock
Room 101	IDU	Cool	On	0	Off	--	25 / 18	Unlock	M:0 T:0 F:0
Room 102	IDU	Cool	On	0	Off	--	25 / 18	Unlock	M:0 T:0 F:0
Room 103	IDU	Cool	On	0	Off	--	25 / 18	Unlock	M:0 T:0 F:0
Room 104	IDU	Cool	On	0	Off	--	25 / 18	Unlock	M:0 T:0 F:0
Room 105	IDU	Cool	On	0	Off	--	25 / 18	Unlock	M:0 T:0 F:0

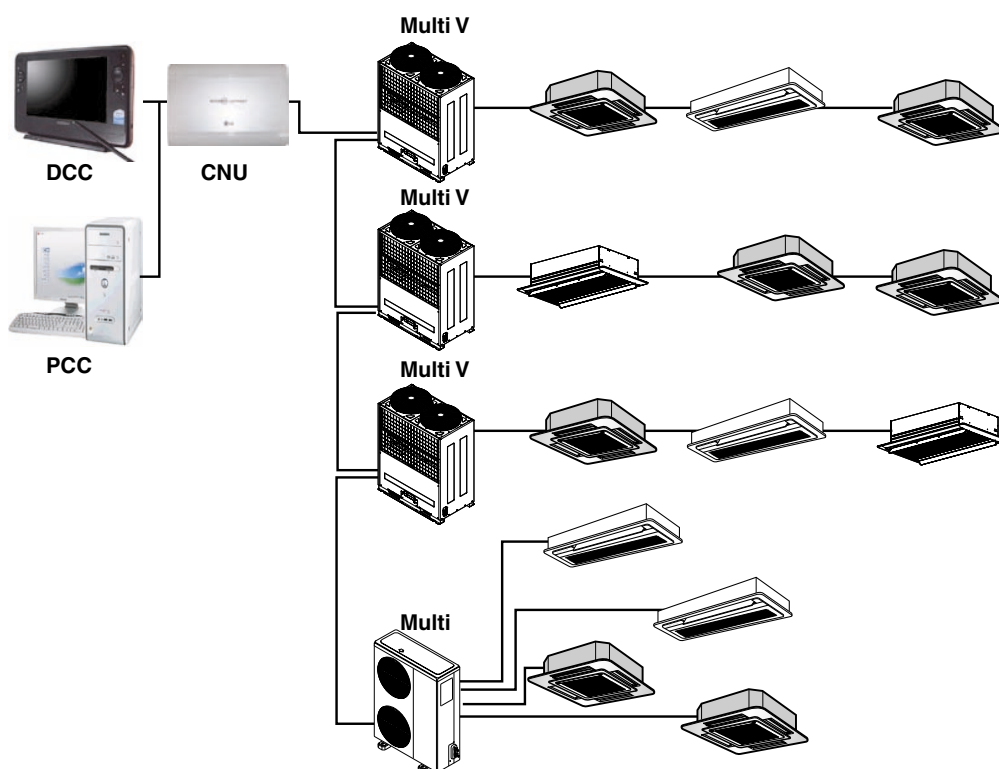
**Zone/Group/Unit Control**

You can Select Zone or Group or Unit  
You can control all to same method by only one click  
Also, several unit select is possible .

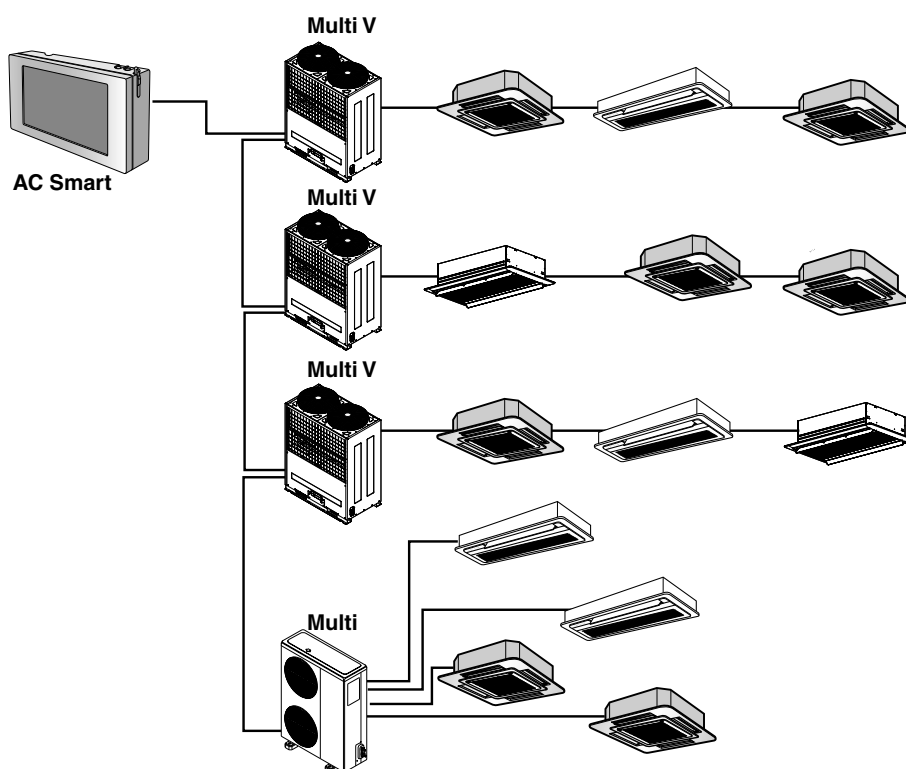


## No Need CNU

### ■ In DCC or PCC System, You need CNU



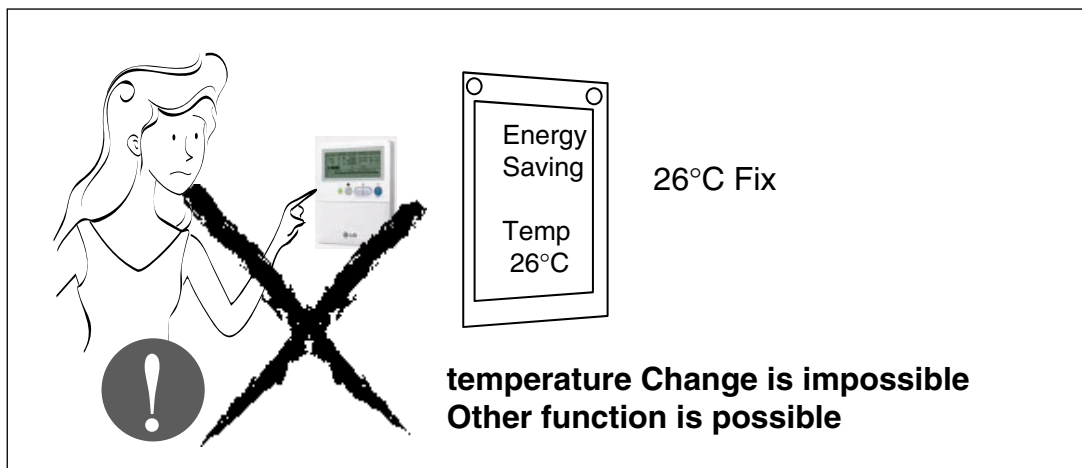
### ■ In AC Smart System, You don't need CNU





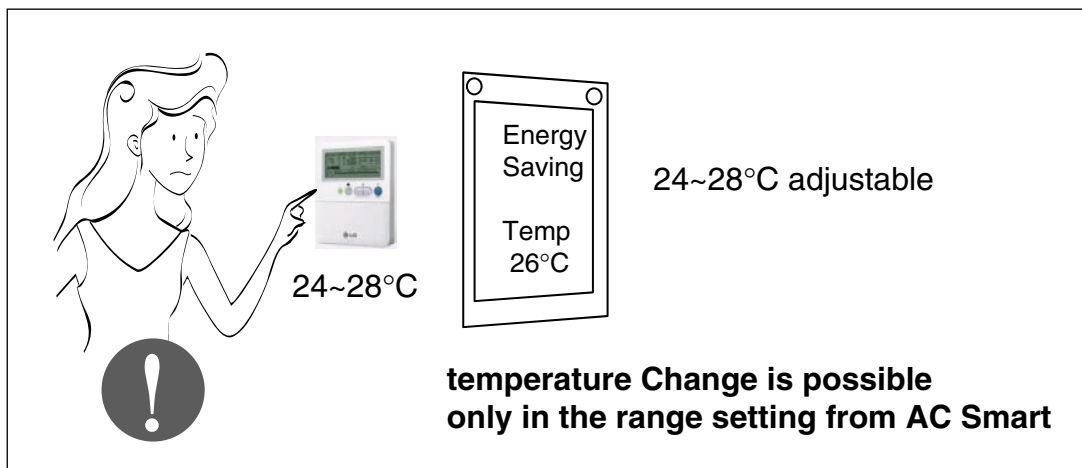
## Individual Lock

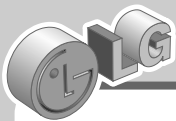
Function Locking in AC Smart, then in the individual remocon, can not change the locking function  
(For example, if Temperature lock in the AC Smart, you can not change the setting temperature in the remocon,



Total, Mode, Temperature, Speed Lock

## Setting Temperature range restriction





## Function Lock Schedule

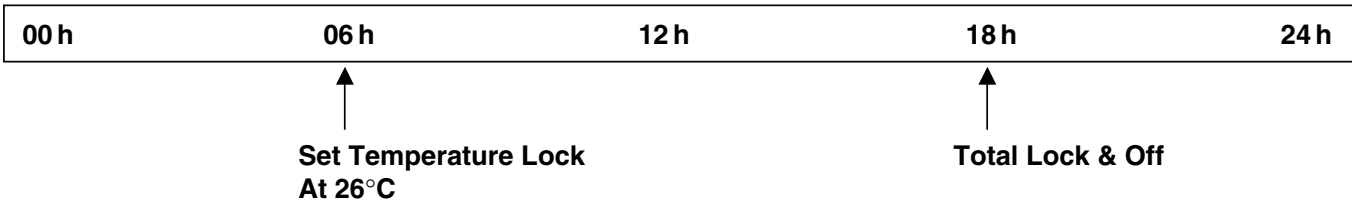
When Schedule mode setting, you can select only changing point, not all mode

For example, if you want to set temperature 26°C, others are same before operating in 9 o'clock PM

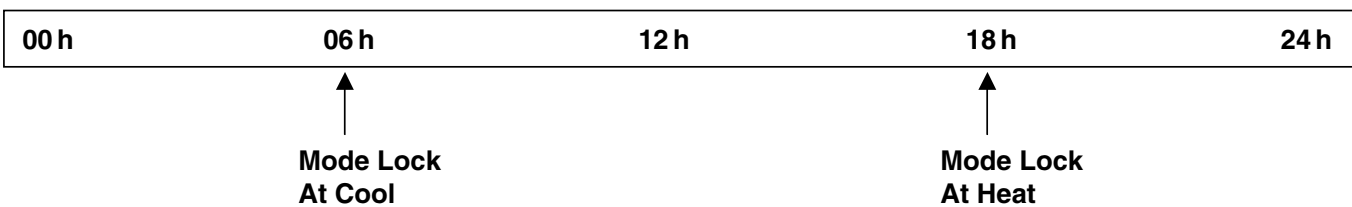
You can select only set temperature.

In the same way, if you want to set temperature lock in 8 o'clock PM, you can select only the set temperature lock

### Example1)



### Example2)



## History

AC Smart Control & Error History will be display and Saved in the AC Smart

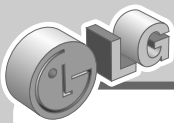
The data count is maximum 3,000 items, data saving period is maximum 30 days

Basic Control    Schedule <b>History</b> Auto Control    System    Setup					
					Set Option    Refresh
No.	DATE	TIME	CODE	UNIT	MESSAGE
1	2007-07-28	17:51:16	E	Admin. Office	[Code 242] Error Message
2	2007-07-28	17:49:06	E	Room 301	[Code 242] Error Message
3	2007-07-28	17:48:33	E	Principal's Office	[Code 242] Error Message
4	2007-07-28	17:46:00	E	Room 205	[Code 242] Error Message
5	2007-07-28	17:45:59	M	-	[Schedule] Save schedule
6	2007-07-28	17:41:11	E	Infirmery	[Code 242] Error Message
7	2007-07-28	17:40:50	E	Principal's Office	[Code 242] Error Message
8	2007-07-28	17:38:09	E	Teacher's Room	[Code 242] Error Message
9	2007-07-28	17:33:28	E	Principal's Office	[Code 242] Error Message
10	2007-07-28	17:31:53	M	-	[Schedule] Save schedule
11	2007-07-28	17:31:23	M	-	[Schedule] Save daily pattern
12	2007-07-28	17:26:53	E	Principal's Office	[Code 242] Error Message
13	2007-07-28	17:22:04	E	Principal's Office	[Code 242] Error Message
14	2007-07-28	17:15:58	E	Principal's Office	[Code 242] Error Message
15	2007-07-28	17:14:36	M	-	[Schedule] Save daily pattern
16	2007-07-28	17:10:39	M	-	[Schedule] Delete daily pattern
17	2007-07-28	17:10:36	M	-	[Schedule] Delete daily pattern

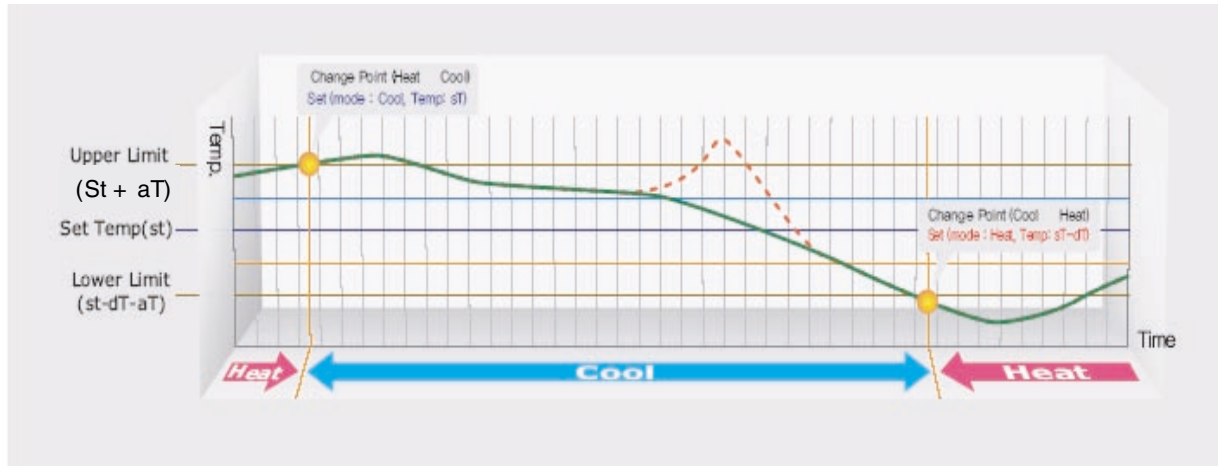
MESSAGE [Room 105] [Code 242] Error Message

2007.7.28 () 9:56 PM

LOG OFF



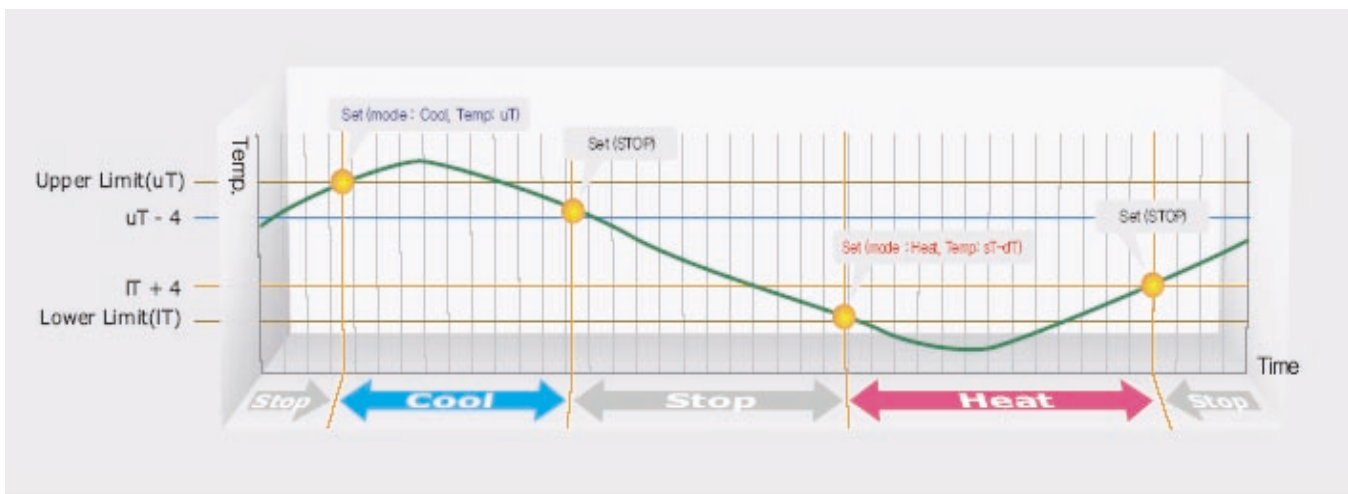
## Auto Changeover



- (sT : Set Temp.) : 18~30°C
- dT (Difference Temp.) : 1~7°C
- aT (Alpha Temp.) : 2°C
- Upper Limit (sT+dT+aT) : Change Point(Heat → Cool)
- Lower Limit (sT-dT-aT) : Change Point(Heat → Cool)

## Temperature Limit Control

(For Anti-Freeze, Overheat of building)



- Upper Limit (uT : Upper Temp.) : 35~45°C
- Lower Limit (IT : Lower Temp.) : 1~12°C
- uT - 4°C : after Auto COOL, off condition
- IT + 4°C : after Auto Heat, off condition





## Multi Language

Setting the language, all GUI will be changed to the selected language  
[English, French, Spanish, Italian, German]

### [English]

The English interface features a top navigation bar with tabs: Basic Control, Schedule, History, Auto Control, System, and Setup. Below this is a control area for 'Zone 1' with 'Up', 'Down', and 'Total Stop' buttons. The main display shows five IDU units (IDU1 to IDU5) and five VENT2 units, each with a corresponding icon. A 'Monitoring' section displays 'MODE' (COOL), 'SWING' (OFF), and 'LOCK' (OFF) with a fan speed bar graph. A 'Control' section shows 'SET TEMP.' at 18°C, 'MODE' (COOL), 'FAN SPEED' (LOW), and 'LOCK' (ON). At the bottom, there is a 'MESSAGE' field, a timestamp '2007.12.25. Sat. p.m 10:36', and a 'Log-off' button.

### [French]

The French interface features a top navigation bar with tabs: Commande, Programmation, Historique, Automatique, Système, and Réglage. Below this is a control area for 'Zone 1' with 'Amont', 'Aval', and 'Arrêt total' buttons. The main display shows five IDU units (IDU1 to IDU5) and five VENT2 units, each with a corresponding icon. A 'Contrôle' section displays 'MODE' (FR), 'VOLET' (INACTIF), and 'INACTIF' (INACTIF) with a fan speed bar graph. A 'Réglage' section shows 'RÉG. TPT.' at 18°C, 'MODE' (FR), 'VITESSE' (PV), and 'INACTIF' (ACTIF). At the bottom, there is a 'MESSAGE' field, a timestamp '2007.12.25. Sat. p.m 10:36', and a 'Quitter' button.



## Password for Administrator

AC Smart has administrator's mode & User's mode,  
If password login, then administrator's mode can be operated,  
If not password login, then user's mode can be operated

- administrator's mode : Full Function user possible
- user's mode : Just basic control is possible





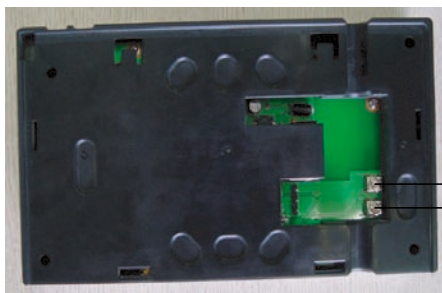


## Emergency Stop

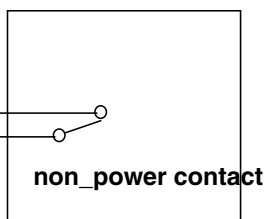
Connection with fire alarm in non\_voltage contact.

When detecting, all connected air\_conditioner will be stop

### Back of the AC Smart



### Fire Alarm Sensor





## Easy Upgrade

### System Data Backup & Upload is Possible

1. Save the target program to USB
2. Connect "mini USB to Standard USB Jack(Get from communication equipment market)" to AC Smart and connect USB



USB

3. Select the menu Setup → Software Upgrade



It will take about 10 minutes.

After complete upgrade, automatically restart the AC Smart Program, then get out the USB



## 2.6 ACP & AC Manager

### 2.6.1 ACP & AC Manager Introduction

[ Model name ]

**ACP : PQCPA11A0E(Without IO)**

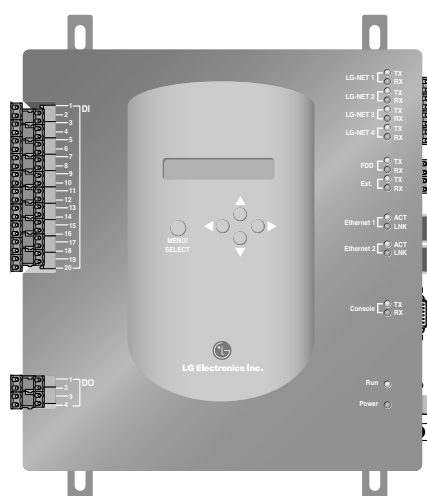
**PQCPB11A0E(With IO)**

**AC Manager : PQCSS520A0E**

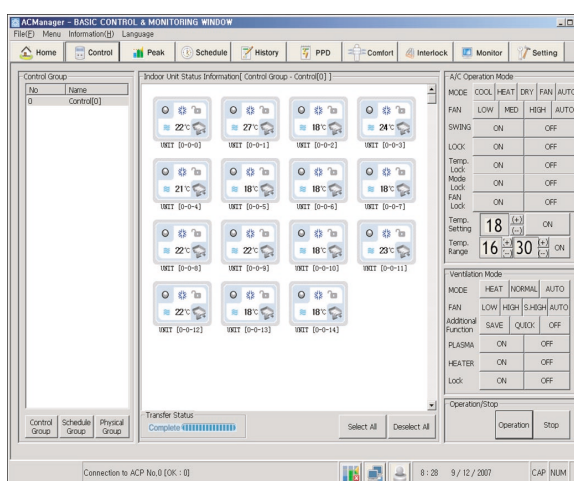
**(for EU)**

**PQCSS520A0C**

**(for China)**



[ACP]



[AC Manager]

### ■ ACP Specification

**ACP Dimensions:**

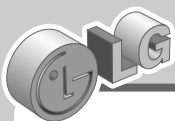
237 X 250 X 55 mm

**AC Manager :**

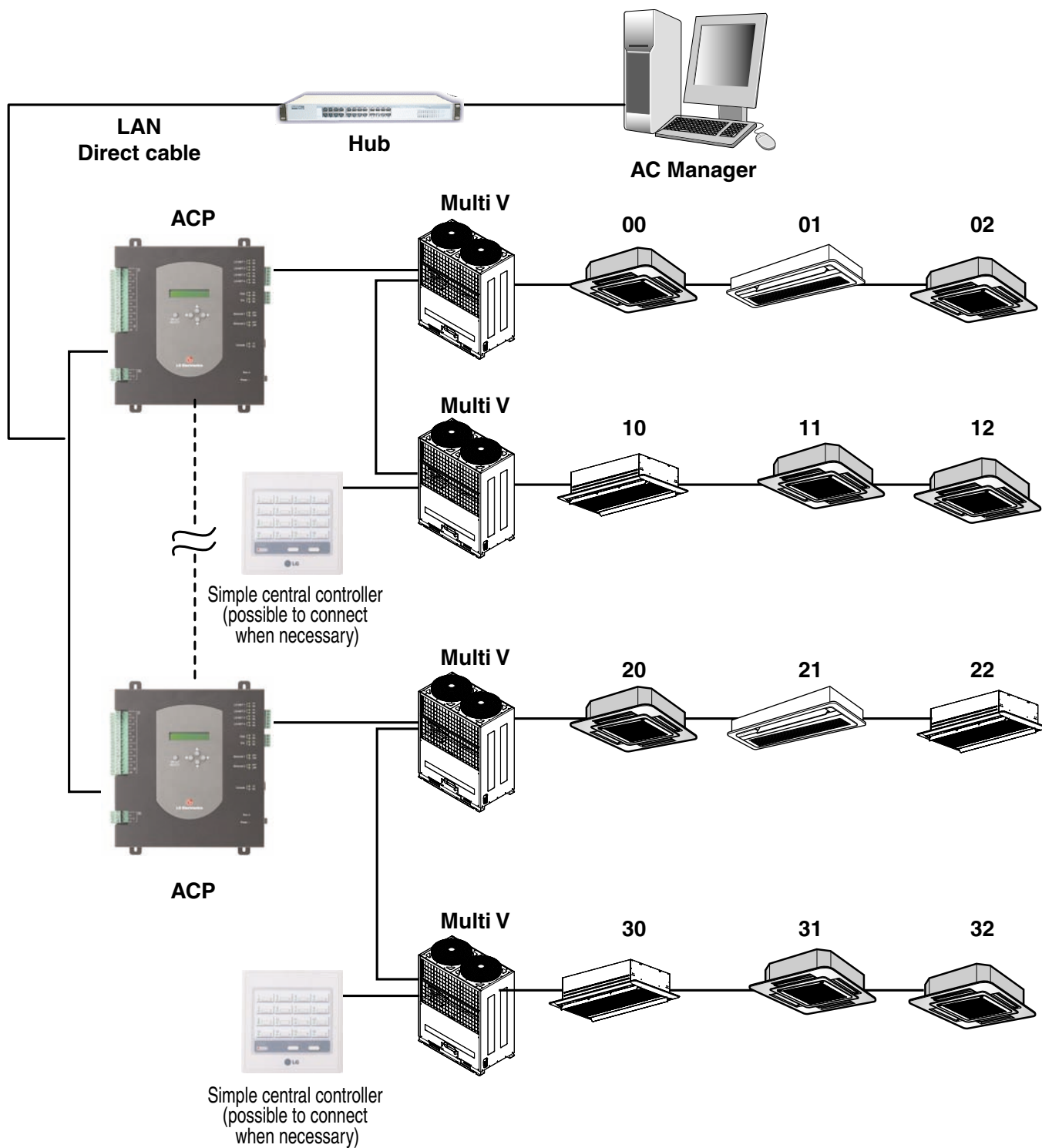
S/W CD & Hard\_Lock Key

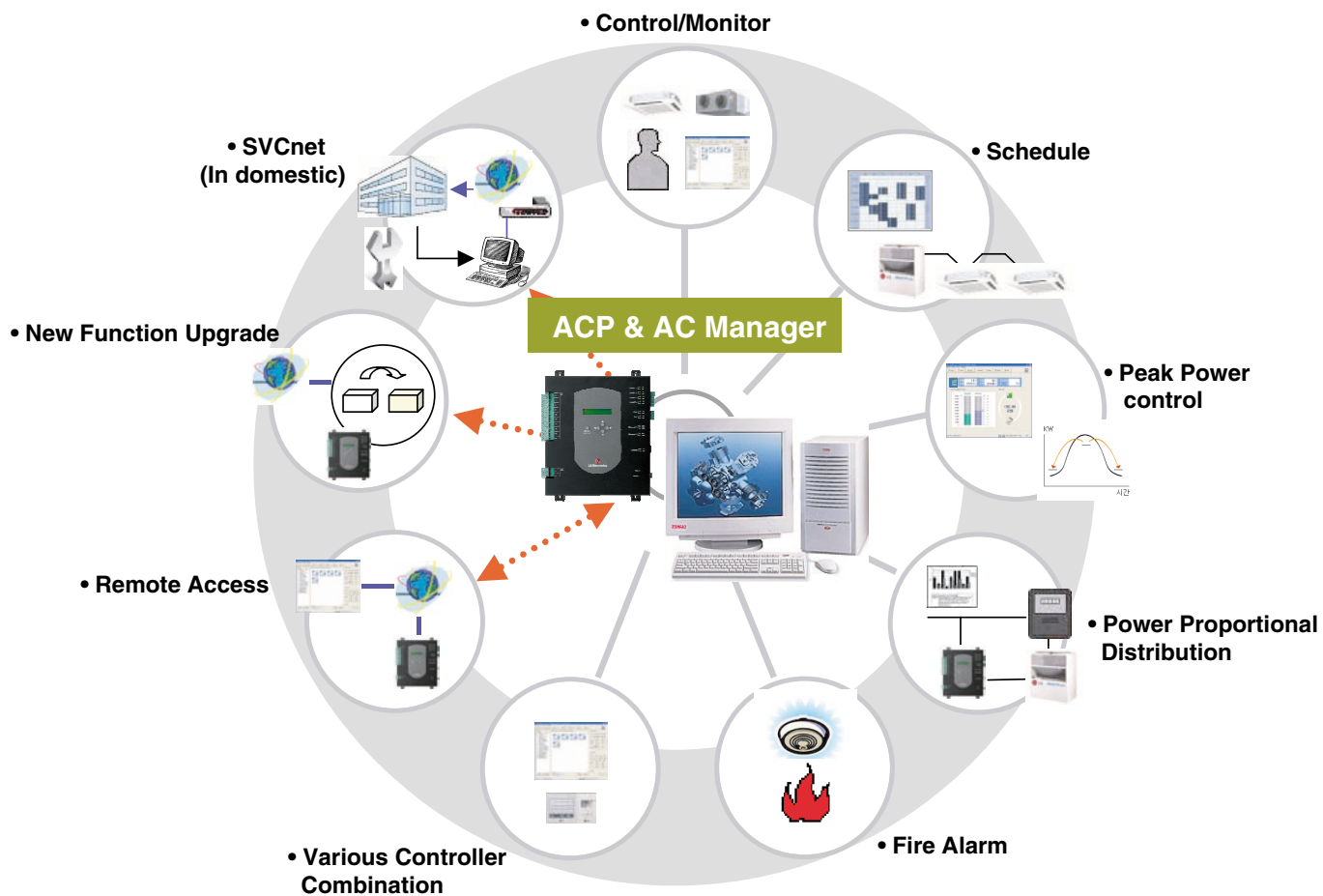
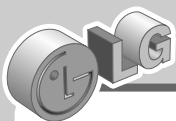
### ■ Description

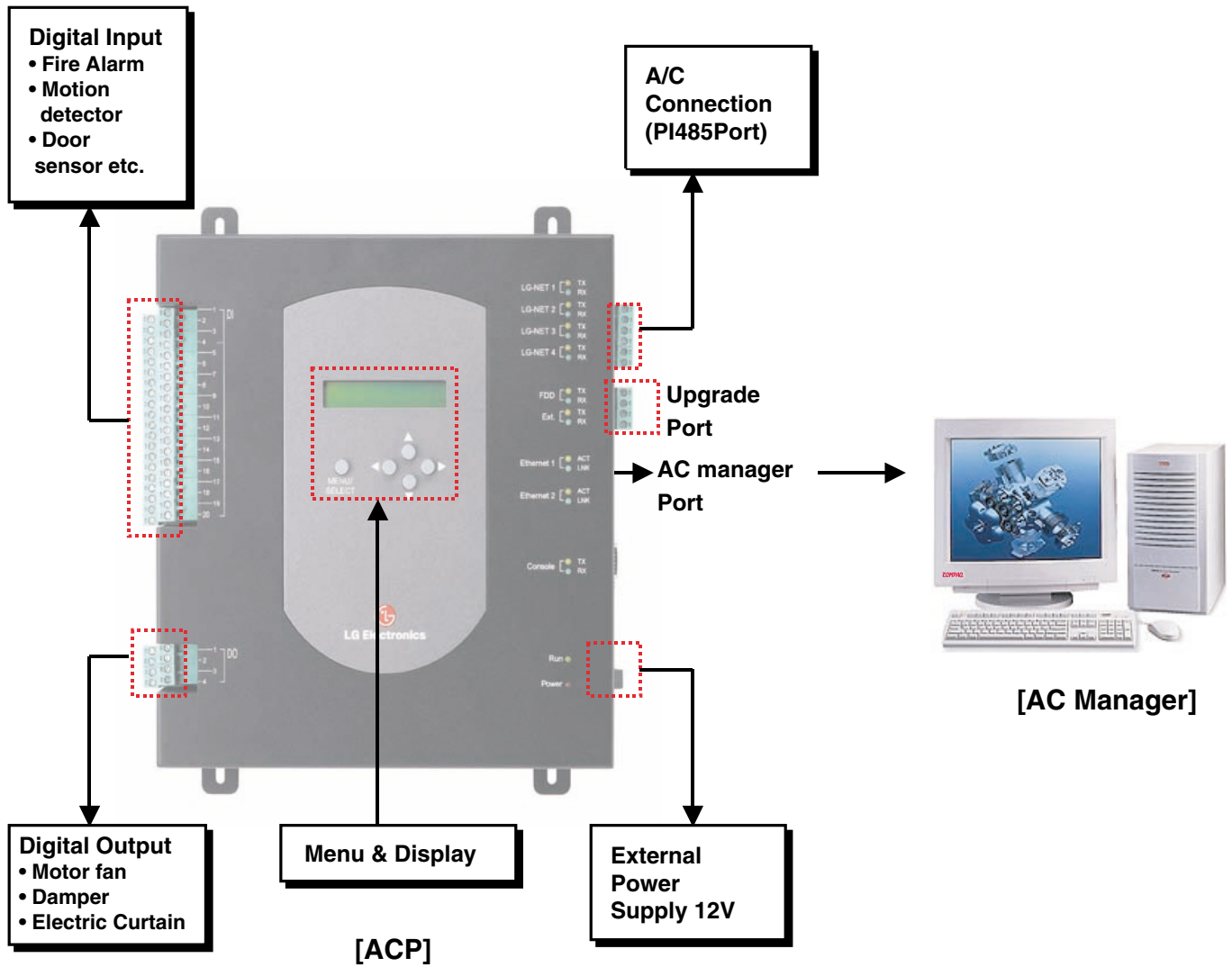
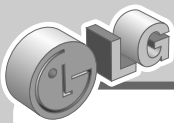
The product specially designed for large buildings. It can sense the external sensor inputs and can control the air conditioner as well as external devices depending upon the input conditions.



## ■ Structure









## ■ Features

### ACP

Through embedded web control function in ACP one can access the air conditioner(Max. 256 Indoors)

- Web Control Function

1. Basic Control & Monitoring
2. Schedule Function. It can store all the schedule of air conditioner in its internal memory.
3. ACP is directly connected to PI485 PCB so no need of CNU gateway.
4. Individual indoor Temperature control locking so that except administrator nobody can change the set temperature
5. After setting from Web, Without PC, only ACP can manage site in stable(Schedule, Peak Power control, Fire Detection..)
6. Peak Power Control is possible, manage the air\_conditioner operating ratio, so one can save total power consumption
7. Operating and error history is saved in ACP
8. PDI connection is possible, so one can see the each indoor's power consumption in daily and selected interval

### AC Manager

Connection with MAX. 16 ACP, More upgrade function and manage function can be supplied from AC Manager.

1. Basic Control & Monitoring, from Simple Icon/Detail list view, one can monitor all air\_conditioner's status in one screen
2. Individual indoor Function control locking so that except administrator nobody can change the function. (Temperature, Mode, Fan Speed separately)
3. Temperature Setting Range restriction on individual controller, so management is very powerful and energy saving is possible
4. In schedule setup administrator can schedule the indoor Operating as well as the function locking
5. One can set the interlocking of DI input state & Indoor's operation, for example, fire sensor, door sensor, motion sensor...
6. Peak Power Control is possible, manage the air\_conditioner operating ratio, so one can save total power consumption
7. Operating and error history is saved in AC Manager
8. PDI connection is possible, so one can see the each indoor's power consumption in daily and selected interval
9. one can print the system setting information, PDI data, Monitoring data.....by one click.
10. You can select the AC Manager display's language(English, Italian, Spanish, French, German)
11. It has Automatic control function, Auto\_changeover and temperature limit, Auto\_Changeover function is automatically change operating mode cool and heat, so no need of changing the mode in season change period Temperature limit function. Protect the building from freezing and overheat by auto operation and auto stop



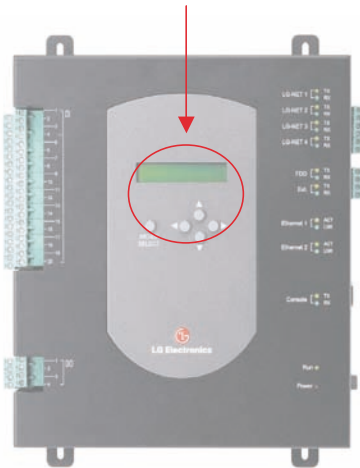
## 2.6.2 ACP & AC Manager Introduction \_ ACP

### Web Access

By open Internet Explorer, connect to ACP IP address.

Then Automatically open PC Central controller program (no need Especial other Program)

LCD Display(BACK Light) and Key : easy IP setting



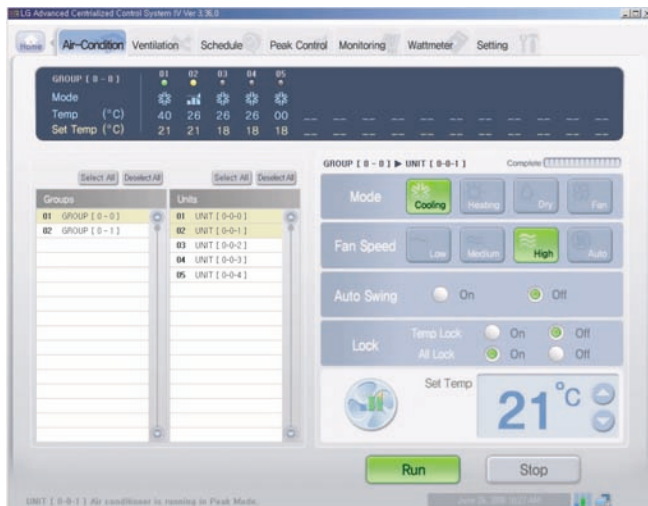




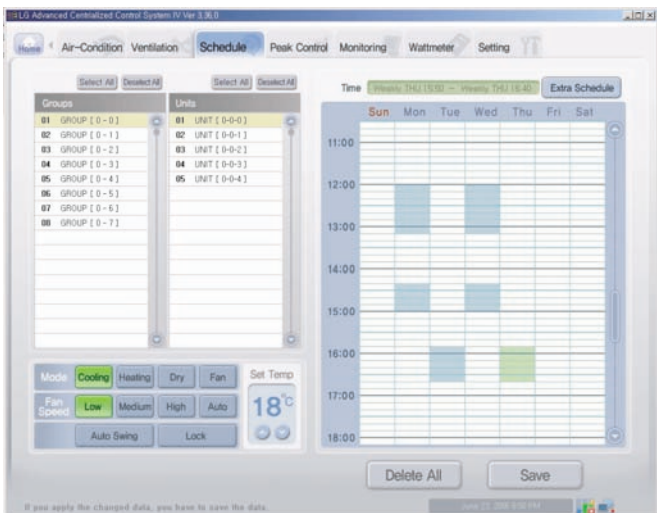
## Basic Control & Schedule

By Web access, you can control air\_conditioner & ventilation  
One can schedule by web similar to PC Central Controller Method

### [Basic Control]



### [Schedule]



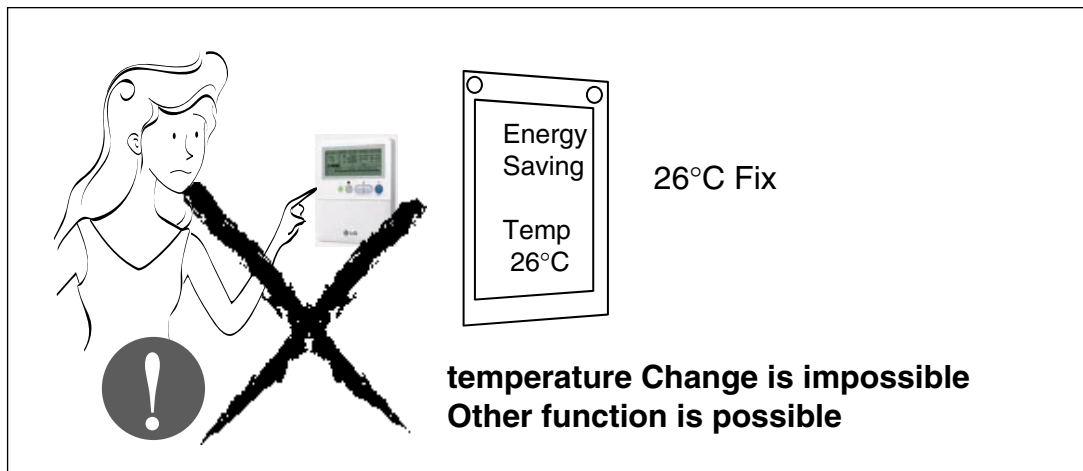
## No need CNU





## Setting Temperature Locking

temperature Locking in ACP, then in the individual remocon, can not change the Setting Temperature



## Stand Alone

From Web access, after setting schedule, Peak setting, when PC off, ACP executing all function in stable

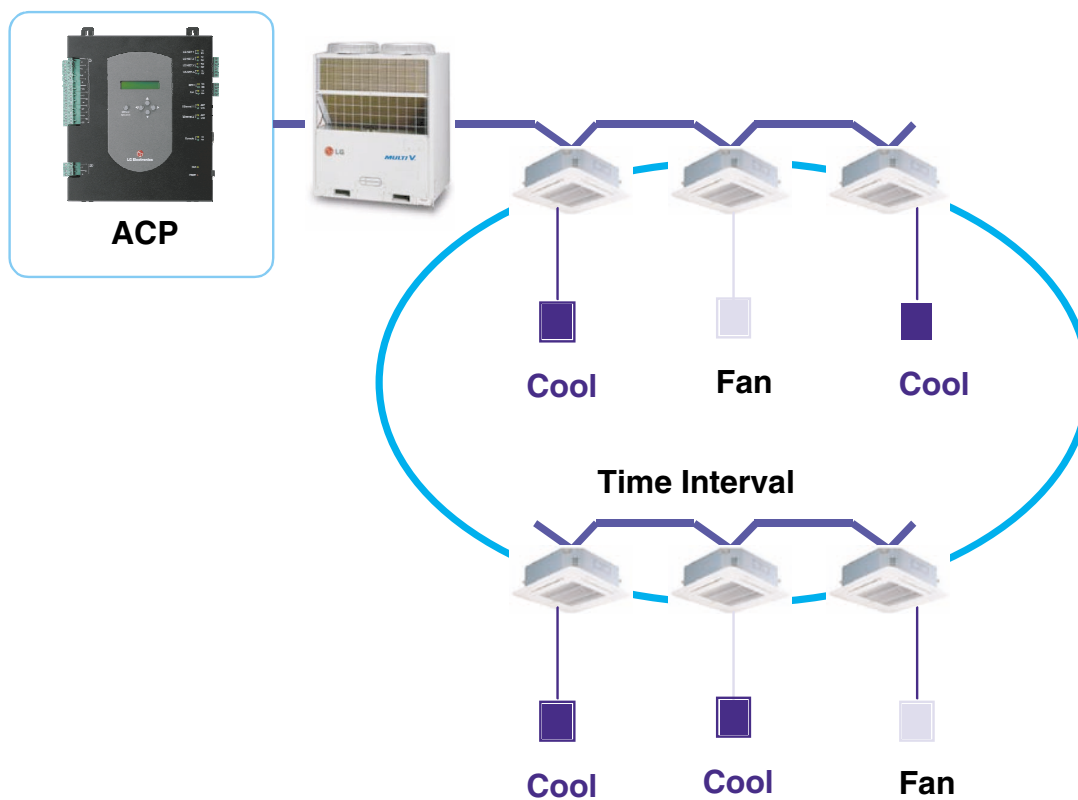
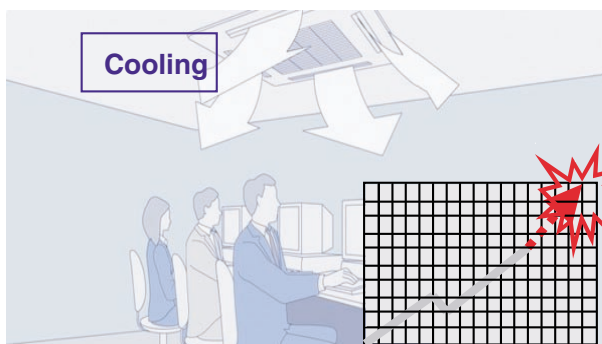




## Peak Power Control

Monitor and manage the site's air\_conditioner operating ratio under the setting value

When Peak\_over, cooling or heating(cycle on mode) air\_conditioner is changed to peak mode(fan or off)



[illegible]



## PDI Data Monitoring

- ACP and PDI connection, remote PDI data monitor
- PDI Data save and Print

### Web Access



AC Manager



Internet

LAN

### Digital Watt Meter

R S T N



Pulse

3Ø 380V

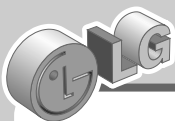


### Dormitory



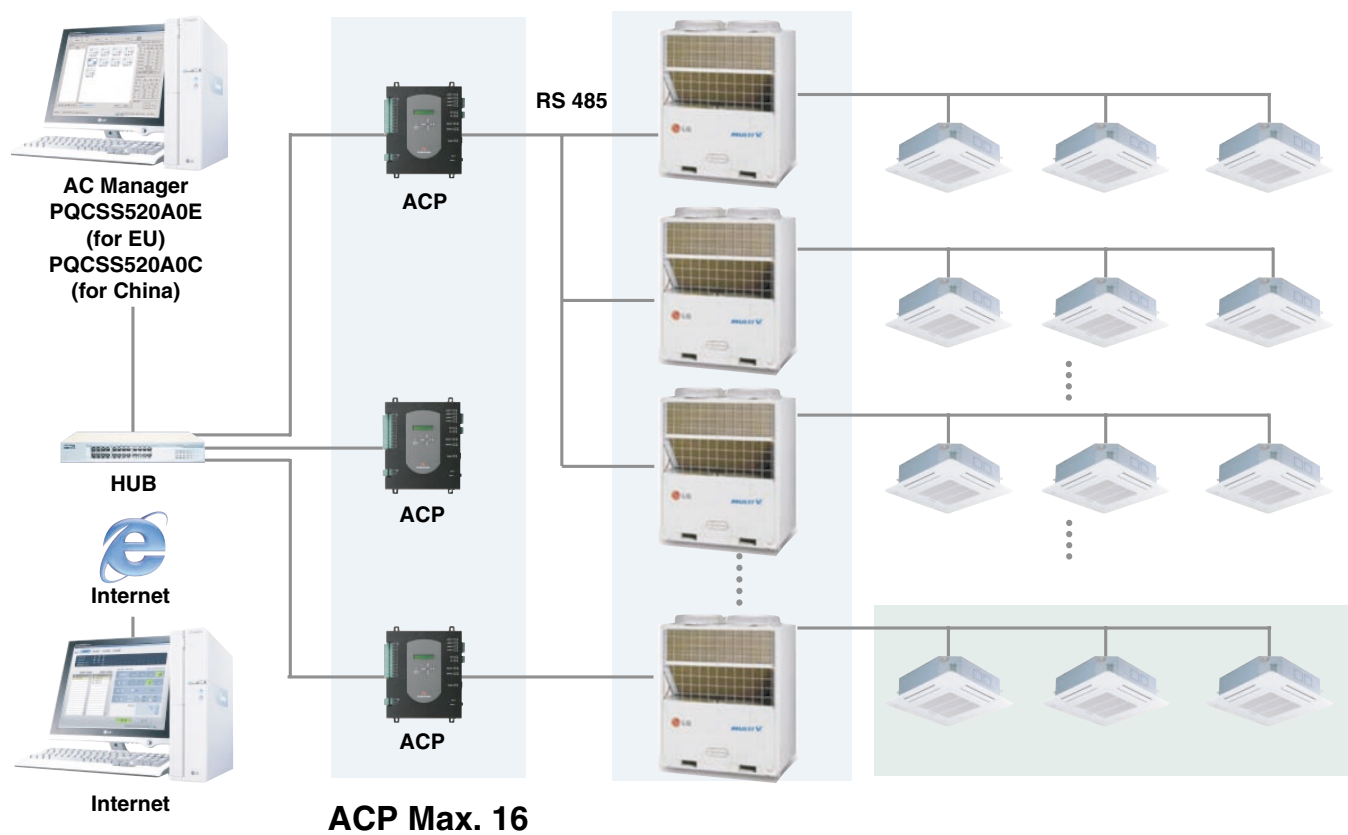
### Dormitory month accumulated power

Room 101	23kW/h
Room 102	33kW/h
Room 103	37kW/h
Room 201	24kW/h
Room 202	24kW/h
Room 203	39kW/h



### 2.6.3 ACP & AC Manager Introduction \_ AC Manager

AC Manager can connect Max. 16 ACP, 4,096 Indoors



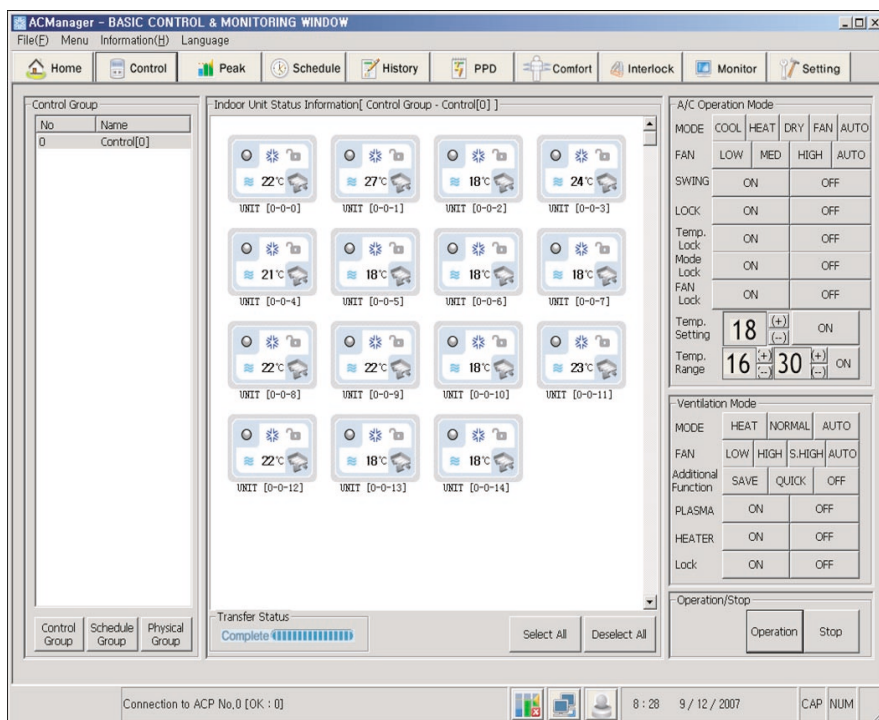




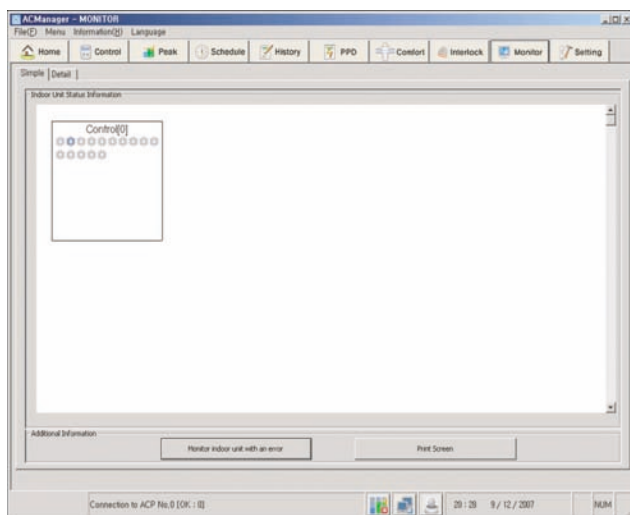
## Normal View, Simple Icon/List View Monitor

You can monitor the operating status in Icon or list view

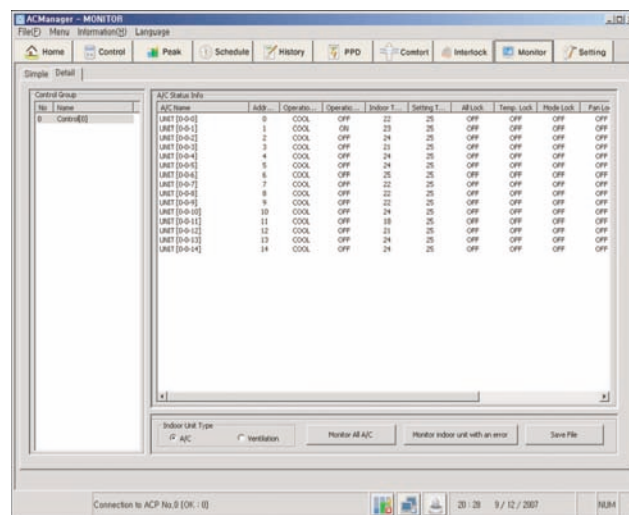
### [Normal]



### [Simple Icon]



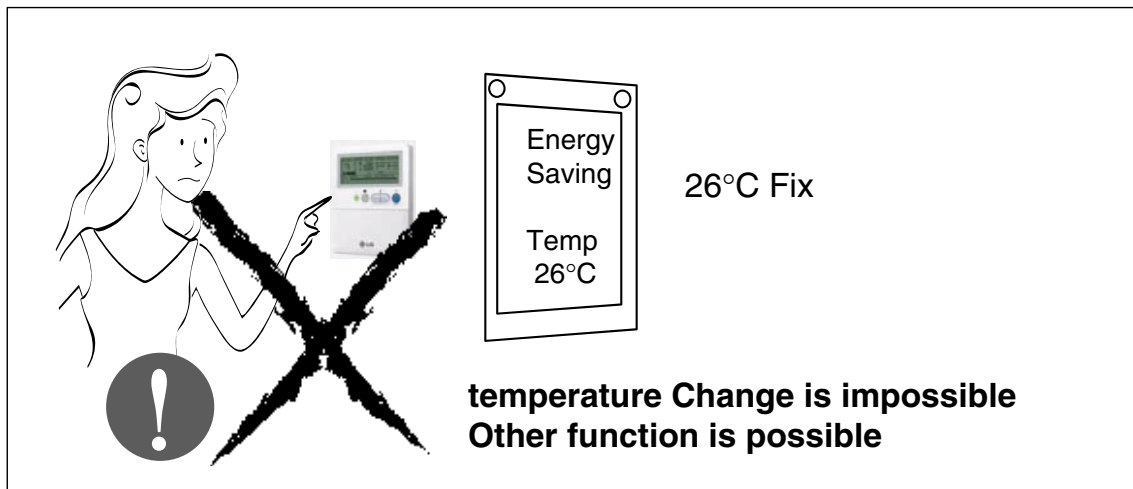
### [Detail List]





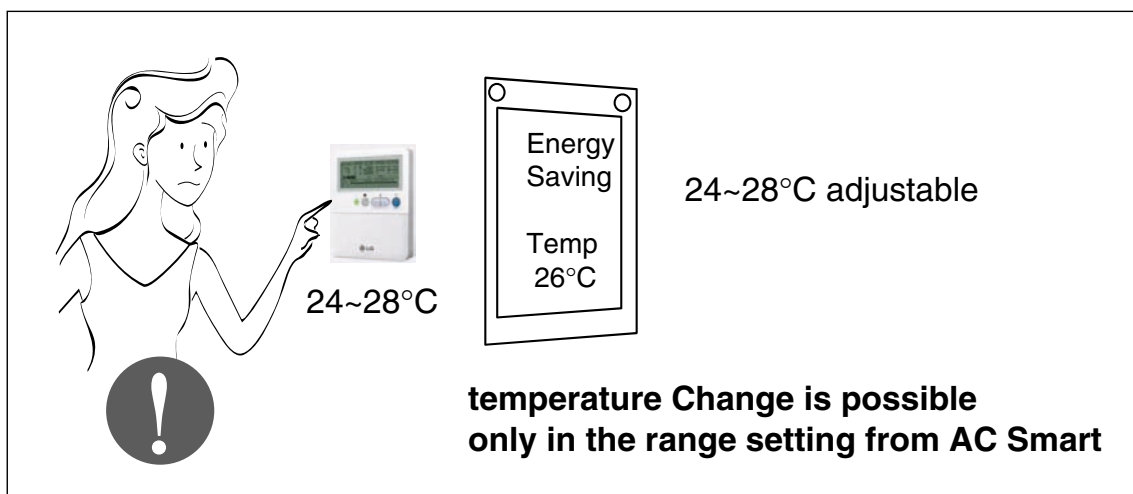
## Individual Function Control Locking

Function Locking in AC Smart, then in the individual remocon, can not change the locking function  
(For example, if Temperature lock in the AC Smart, you can not change the setting temperature in the remocon,



Total, Mode, Temperature, Speed Lock

## Setting Temperature range restriction







## Function Lock Schedule

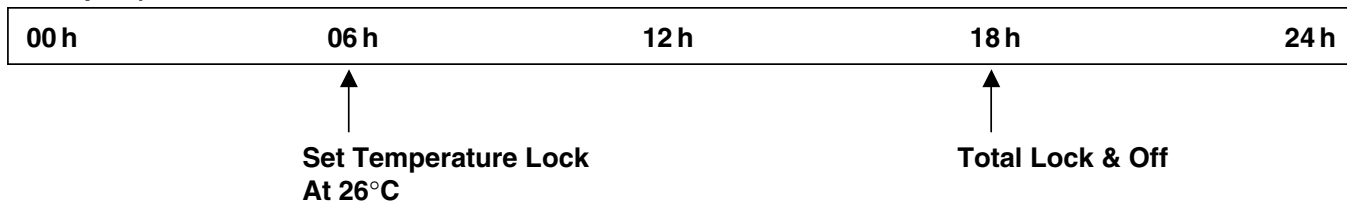
When Schedule mode setting, you can select only changing point, not all mode

For example, if you want to set temperature 26°..., others are same before operating in 9 o'clock PM

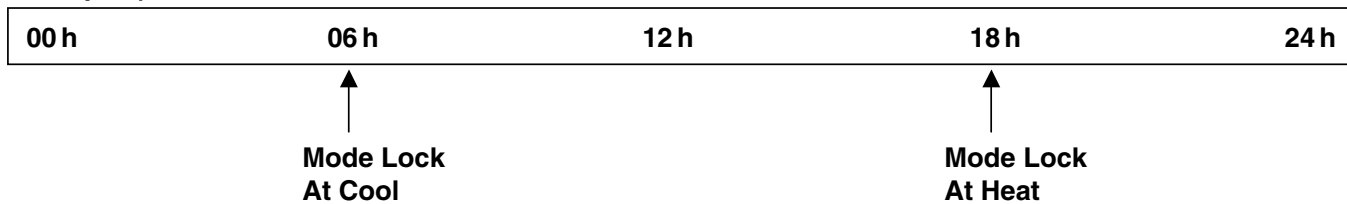
You can select only set temperature.

In the same way, if you want to set temperature lock in 8 o'clock PM, you can select only the set temperature lock

### Example1)



### Example2)





## DI Setting

Connection with DI Port in non\_voltage contact.

When detecting, air\_conditioner link and start\_stop setting is possible

DI Port : 20ea

Fire Sensor



Motion Detectot



Light Sensor

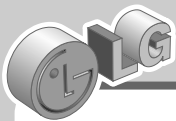


Timer



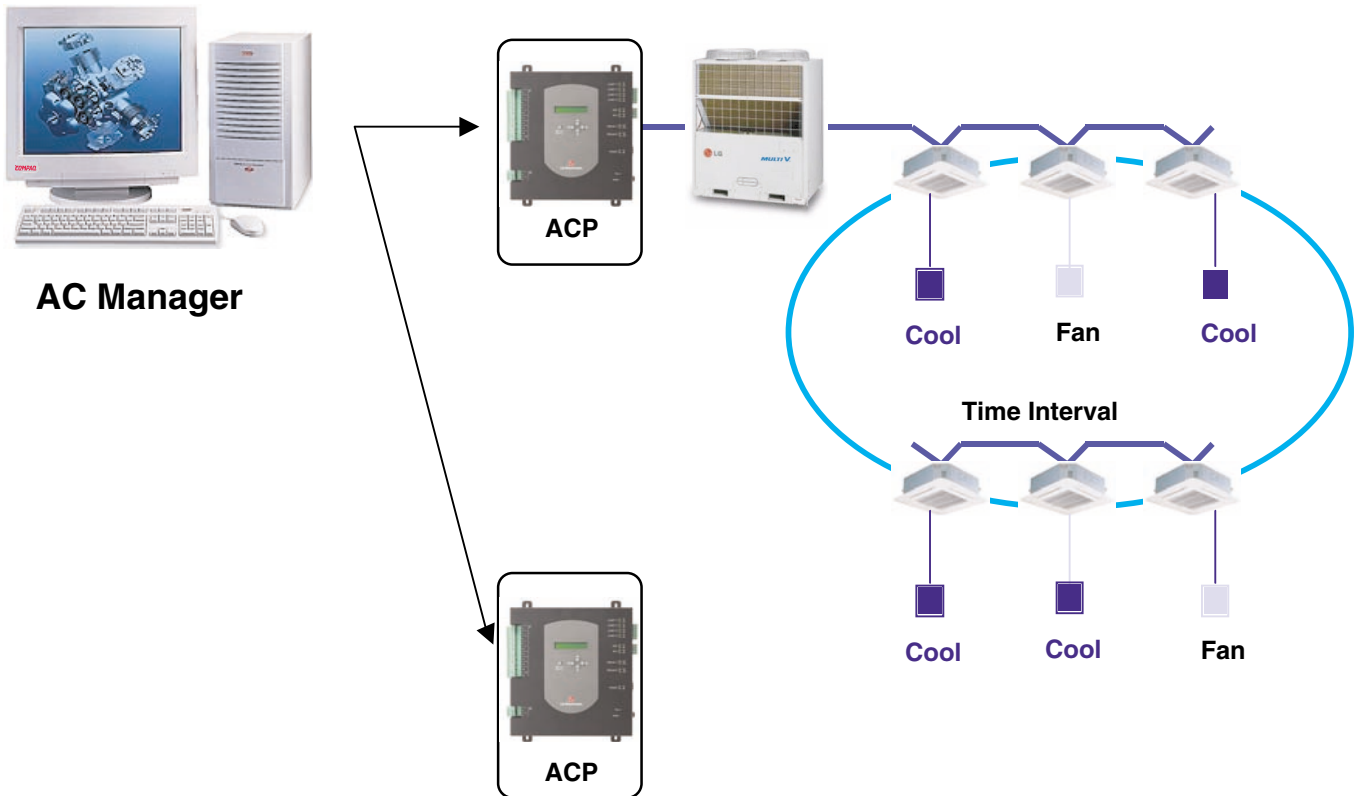
Interlock Setting  
Only PQCPB11A0E  
(PQCPB11A0C)





## Peak Power Control

Monitor and manage the site's air\_conditioner operating ratio under the setting value  
When Peak\_over, cooling or heating(cycle on mode) air\_conditioner is changed to peak mode(fan or off)





## History

AC Manager Control & Error History will be display and Saved in the ACP Memories.  
The data count is maximum 3,000 items, data saving period is maximum 30 days

ACManager - HISTORY

File(F) Menu Information(H) Language

Home Control Peak Schedule History PPD Comfort Interlock Monitor Setting

AC VENT ETC

Date	Time	Name	Mode	Fan	Swing	Lock	Temp.	Oper...	Error	Owner
2007/09/12	08:15	Not Defined Name	COOL	LLOW	OFF	OFF	18	ON	0	NONE
2007/09/12	08:22	Not Defined Name	COOL	HIGH	OFF	OFF	27	ON	0	NONE
2007/09/12	08:32	Not Defined Name	COOL	HIGH	OFF	OFF	24	ON	0	NONE
2007/09/12	08:37	UNIT [0-0-0]	COOL	HIGH	OFF	OFF	22	ON	0	USER
2007/09/12	08:37	UNIT [0-0-1]	COOL	HIGH	OFF	OFF	27	ON	0	USER
2007/09/12	08:37	UNIT [0-0-2]	COOL	HIGH	OFF	OFF	18	ON	0	USER
2007/09/12	08:37	UNIT [0-0-3]	COOL	HIGH	OFF	OFF	24	ON	0	USER
2007/09/12	08:37	UNIT [0-0-4]	COOL	HIGH	OFF	OFF	21	ON	0	USER
2007/09/12	08:37	UNIT [0-0-5]	COOL	HIGH	OFF	OFF	18	ON	0	USER
2007/09/12	08:37	UNIT [0-0-6]	COOL	HIGH	OFF	OFF	18	ON	0	USER
2007/09/12	08:37	UNIT [0-0-7]	COOL	HIGH	OFF	OFF	18	ON	0	USER
2007/09/12	08:40	UNIT [0-0-4]	COOL	HIGH	OFF	OFF	21	OFF	0	USER
2007/09/12	08:40	UNIT [0-0-5]	COOL	HIGH	OFF	OFF	18	OFF	0	USER
2007/09/12	08:40	UNIT [0-0-6]	COOL	HIGH	OFF	OFF	18	OFF	0	USER
2007/09/12	08:40	UNIT [0-0-7]	COOL	HIGH	OFF	OFF	18	OFF	0	USER
2007/09/12	09:52	UNIT [0-0-0]	COOL	HIGH	OFF	OFF	22	OFF	0	USER
2007/09/12	09:52	UNIT [0-0-1]	COOL	HIGH	OFF	OFF	27	OFF	0	USER
2007/09/12	09:52	UNIT [0-0-2]	COOL	HIGH	OFF	OFF	18	OFF	0	USER
2007/09/12	09:52	UNIT [0-0-3]	COOL	HIGH	OFF	OFF	24	OFF	0	USER

History Period

☒ Present

☐ Select the period

2007-09-12 00 Hou

2007-09-12 24 Hou

Select History Unit

☒ All devices

☐ Select a device

Select

History Data

☒ Status Information

☒ Error Information

Usage Info.

Print

Update

A/C Operation Control Sent, [OFF]

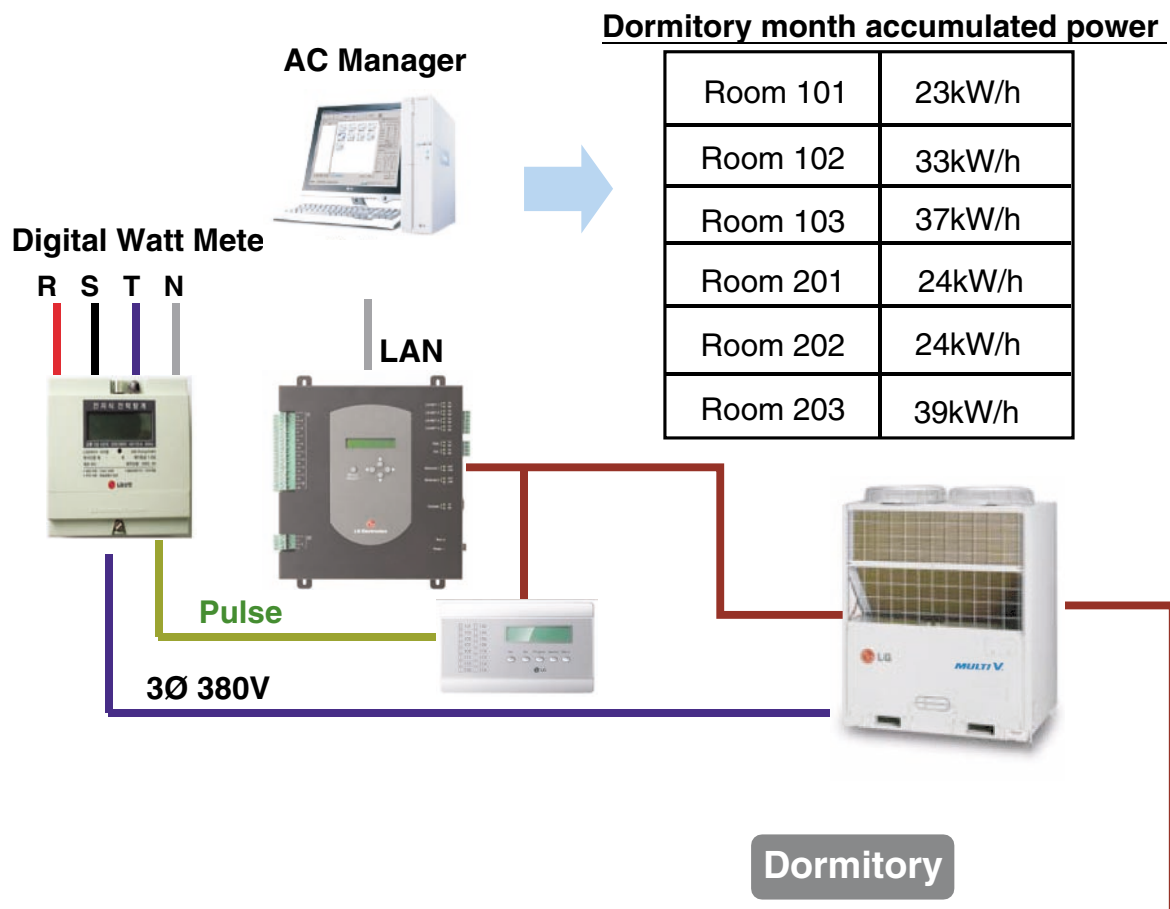
9 : 52 9 / 12 / 2007

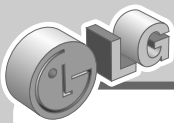
NUM



## PDI Data Monitoring

- ACP and PDI connection, remote PDI data monitor
- PDI Data save and Print





## Data Print & Save

- Print

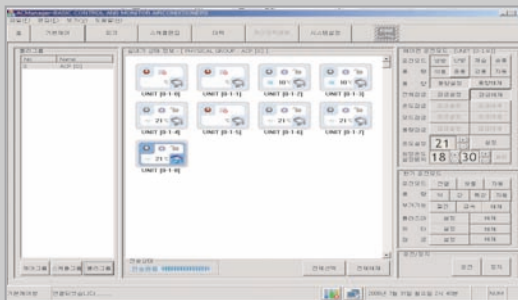
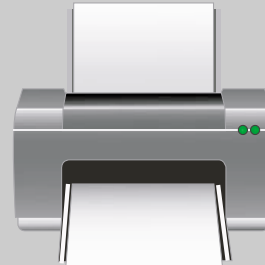
- ➡ System setting, history, PDI,.....  
direct print button

- Save

- ➡ History Data Back-Up

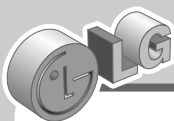


Print



Save

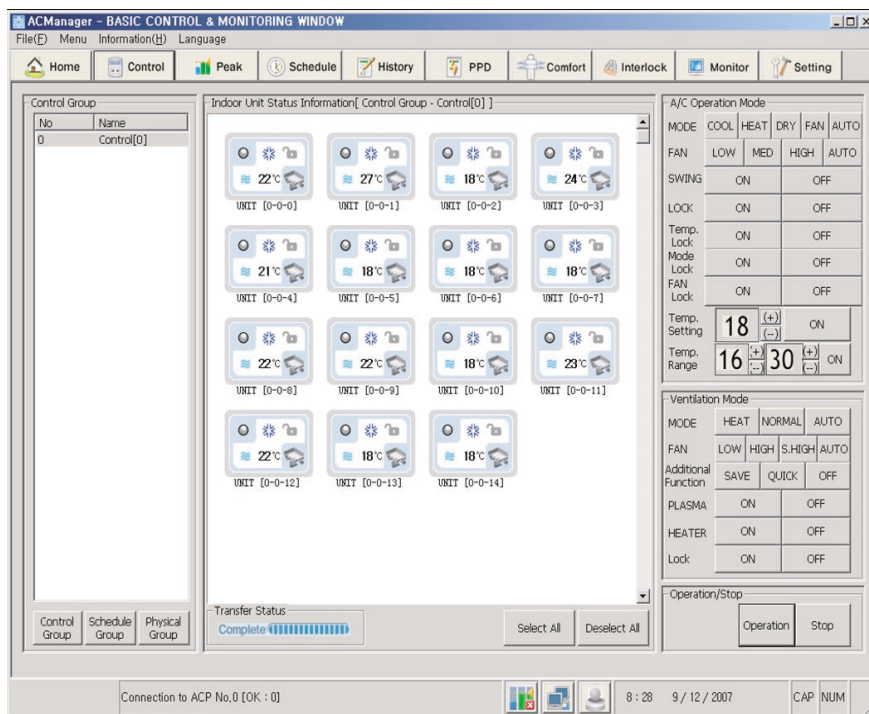




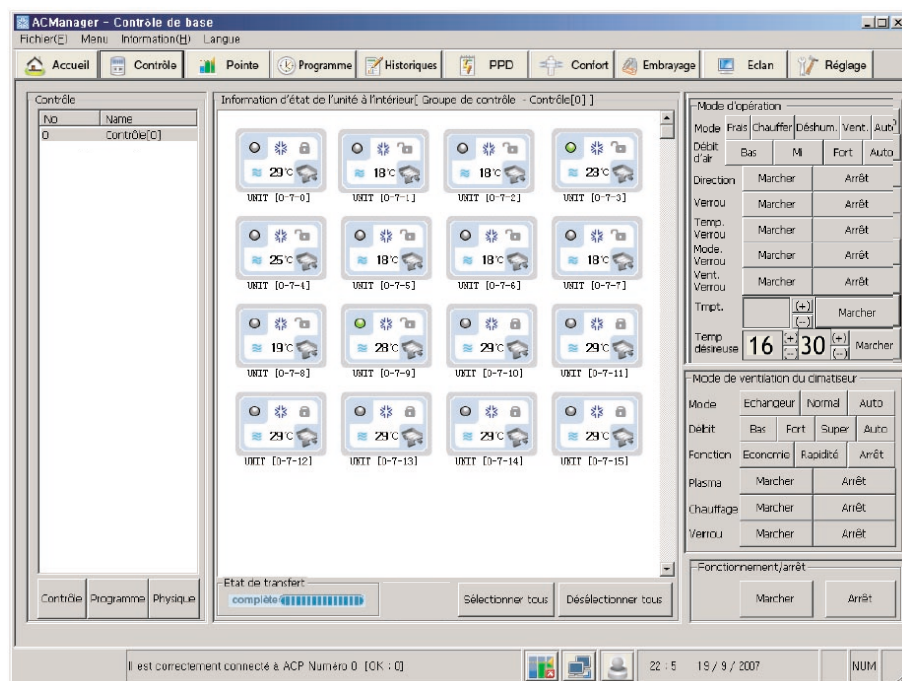
## Multi Language

Setting the language, all GUI will be changed to the selected language  
[English, French, Spanish, Italian, German]

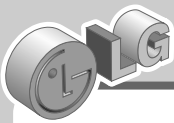
### [English]



### [French]







## Automatic Control Function

### - Auto Changeover



- (sT : Set Temp.) : 18~30°C
- dT (Difference Temp.) : 1~7°C
- aT (Alpha Temp.) : 2°C
- Upper Limit (sT+dT+aT) : Change Point(Heat → Cool)
- Lower Limit (sT-dT-aT) : Change Point(Heat → Cool)

### - Temperature Limit (For Anti-Freeze, Overheat of building)



- Upper Limit (uT : Upper Temp.) : 35~45°C
- Lower Limit (IT : Lower Temp.) : 1~12°C
- uT - 4°C : after Auto COOL, off condition
- IT + 4°C : after Auto Heat, off condition

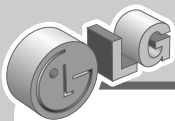




## AC Manager System

### AC Manager System





## 2.6.4 Next Version Function Introduction

### ■ Next Function(2008)

#### ACP

1. Web access Function upgrade(ACP)  
temperature range setting  
mode lock,  
Auto changeover,  
Temperature limit control

#### AC Manager

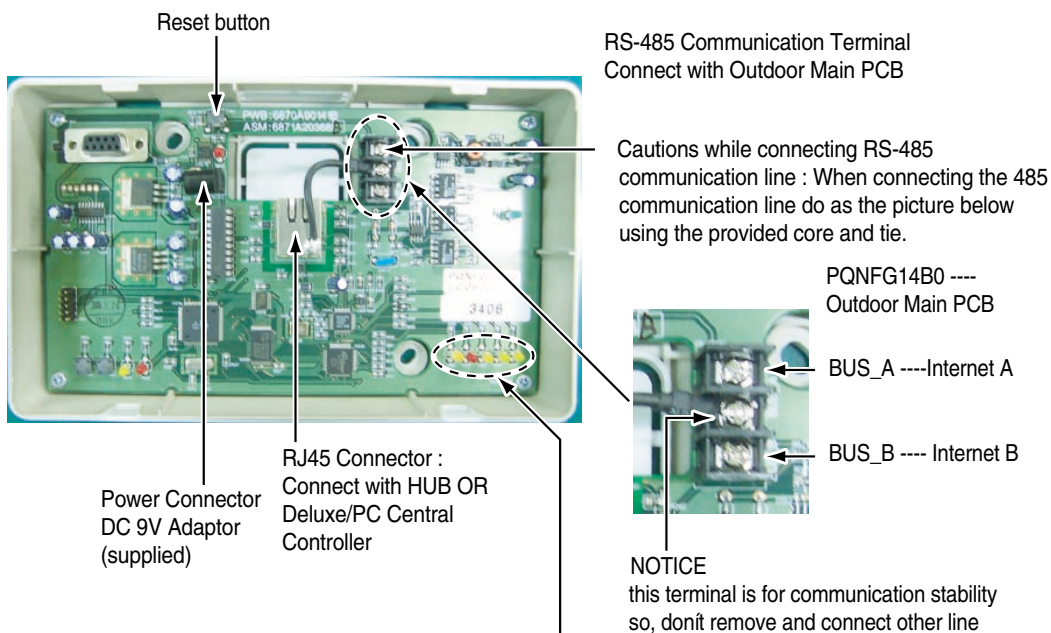
1. Sliding Temperature(From Outdoor Temperature, setting the indoor temperature)
  2. Timer Extension(on holiday, someone operate the air\_conditioner,  
It is automatically off after 2 hours(adjustable)
  3. Interlocking Function  
(A/C, & Ventilation each other, Input condition, output execution setting available)
- If Schedule&Specification is changed, I will inform to you by SE2 Gr.



## 3. Interface Devices

### 3.1 CNU(PQNFG14B0)

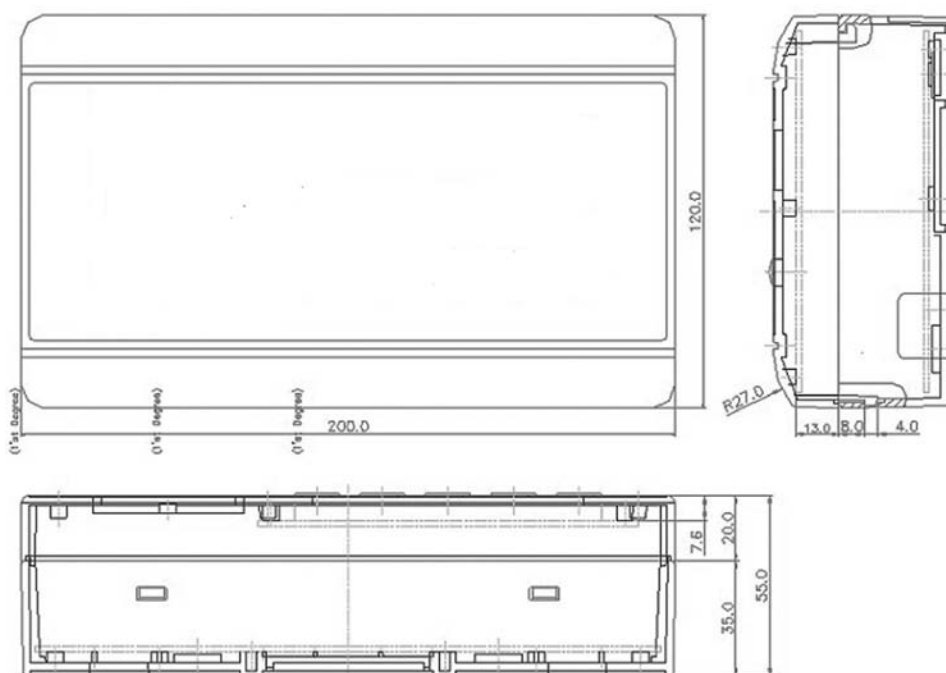
#### 3.1.1 CNU connection



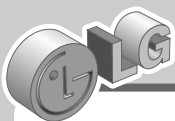
- L06D: Connection of LAN H/W (LINK LED)
- L07D: Connection of LAN H/W LED(DUPLEX)
- L08D: 10MEGA BASE Communication LED  
(when CNU II is connected with Deluxe central controller)
- L09D: 100MEGA BASE Communication LED  
(when CNU II is connected with PC central controller)
- L10D: COLLISION DETECTOR LED

※ **NOTICE** : RS-485 is one of the international interface standards for serial communication.

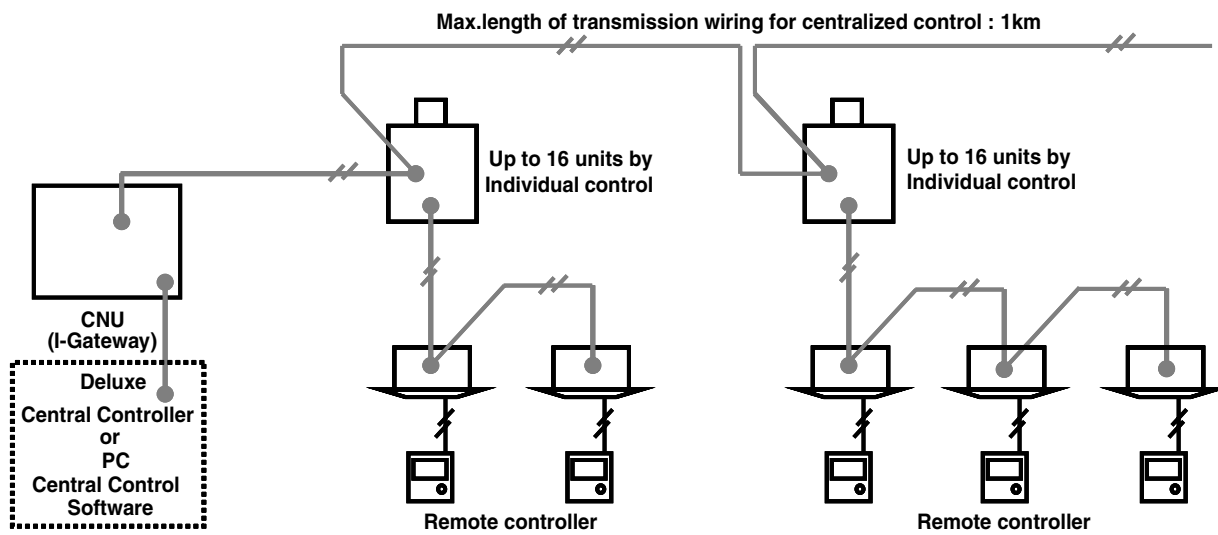
■ **Separate power line must be provided by itself.**



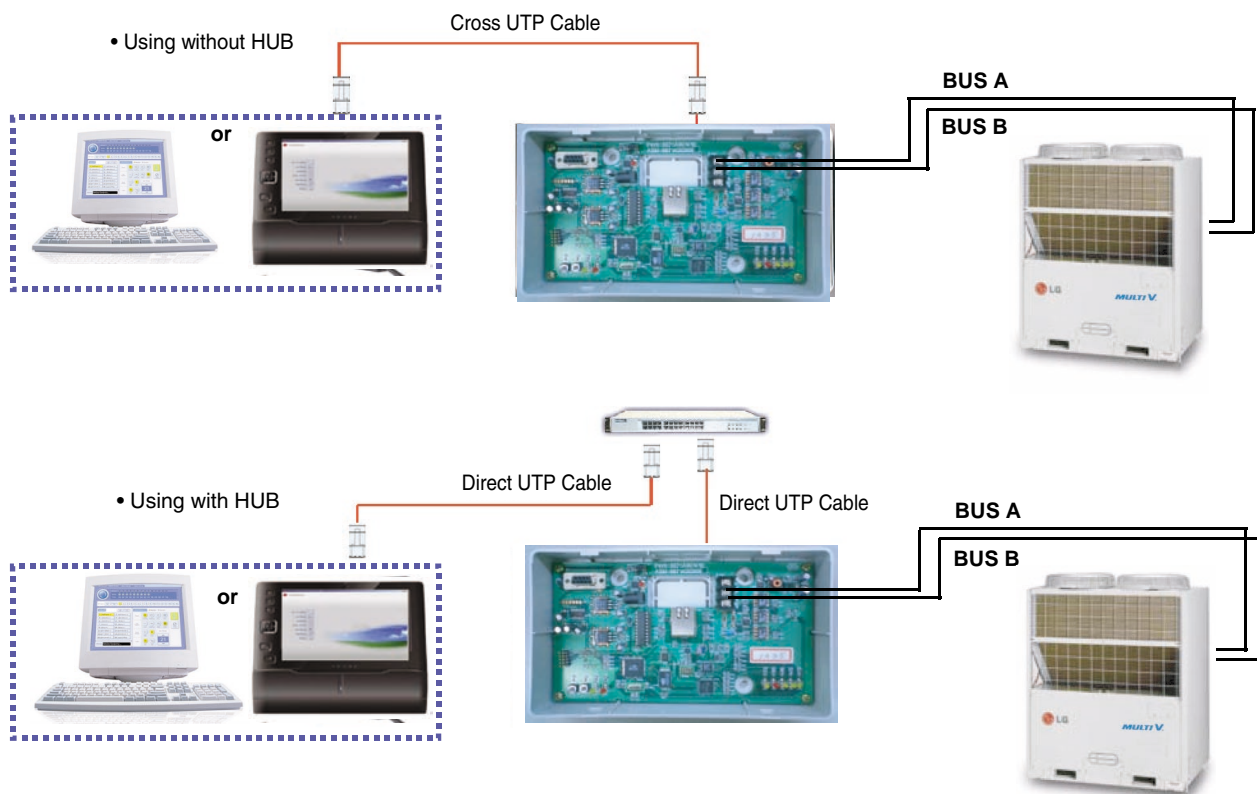


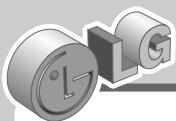


### 3.1.2 System Connection



### 3.1.3 Electrical wiring

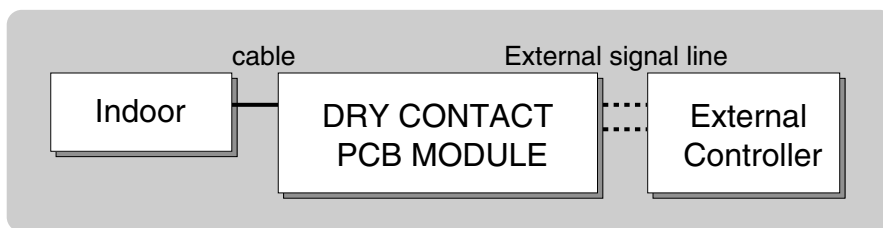




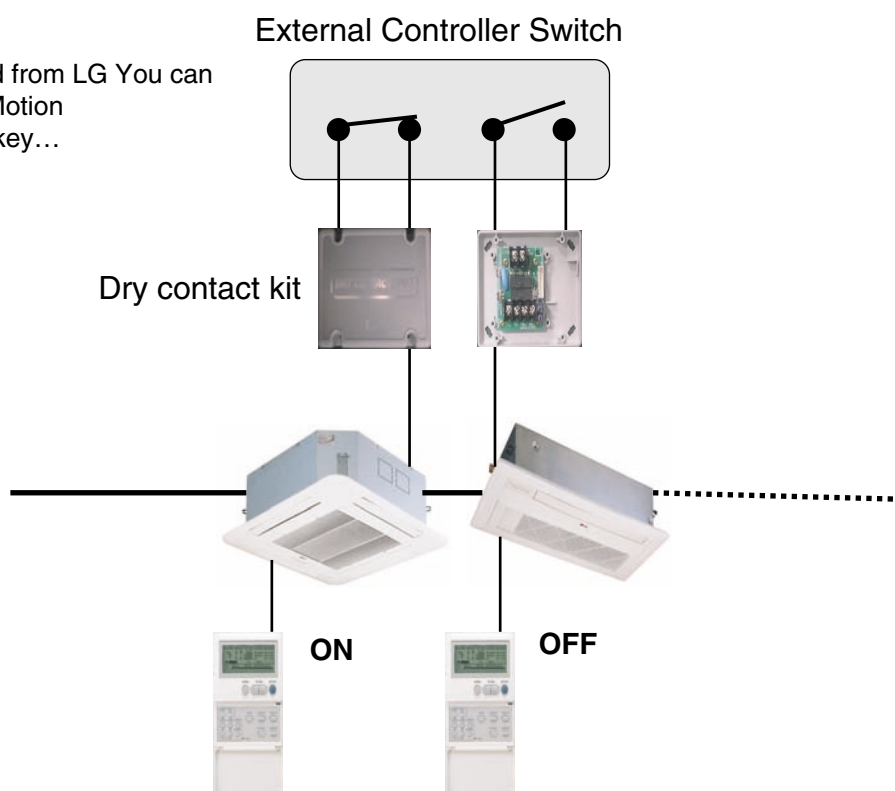
## 3.2 Dry Contact(PQDSB)

### ■ Overview

- It is possible to do on/off control of indoor units with The External Forced on/off Switch or Simple BMS on/off signal



Controller is not provided from LG You can connect any controller, Motion detect/Timer/Hotel card key...



#### <Check point>

Only on/off control is possible



## ■ Function

It toggles into On/OFF of Automatic Operation when pressing the Reservation Cancel button of the Wireless Remote Controller in a series of 3 times within 3 minutes, with it facing the main body.

At first, the Automatic Operation is not set.

### 1. When it is on the Automatic Operation,

- It(Air-conditioner) operates when the contact of controller is ON during its stop.

At this time, it is possible to stop/operate it by using controller.

- It stops when the contact of controller is OFF during its operation.

At this time, it is not possible to control with the controller as it stops and at once converts into the Lock mode.

- RY1 is turned OFF when not in the 'Automatic Operation' mode.

(However, RY1 can repeat its ON/OFF when generating error, depending on the model.)

- RY2 becomes ON when generating error and RY2 becomes OFF in case of no error.

### 2. When it is not on the Automatic Operation,

- It(Air-conditioner) is possible to operate when the contact of controller is ON during its stop.

At this time, it is possible to stop/operate it by using controller.

- It stops when the contact of controller is OFF during its operation.

At this time, it is not possible to control with the controller as it stops and at once converts into the Lock mode.

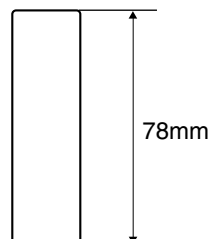
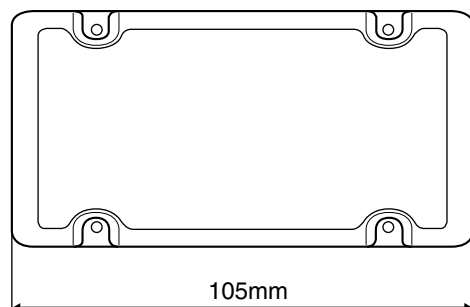
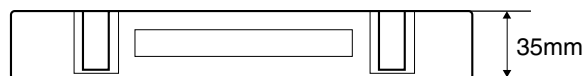
- RY1 becomes ON during the operation and RY1 becomes OFF during the stop.

(However, RY1 can repeat its ON/OFF when generating error, depending on the model.)

- RY2 becomes ON when generating error and RY2 becomes OFF in case of no error.

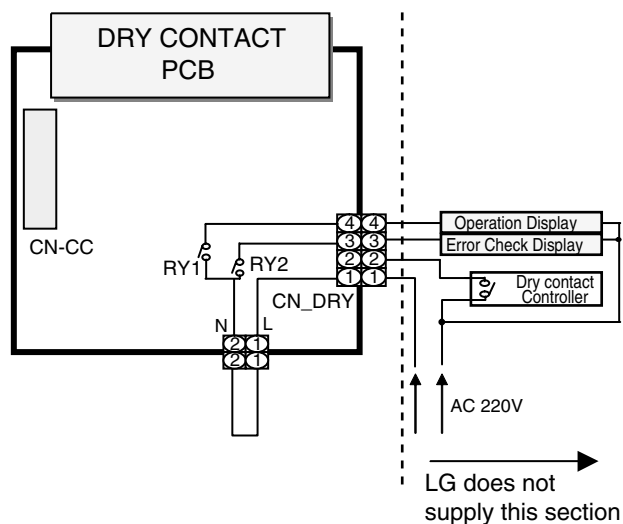
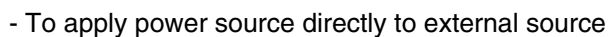
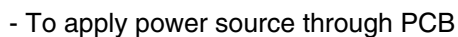
## ■ Dimension

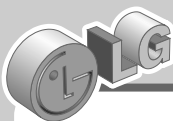
### PQDSB (Drycontact)





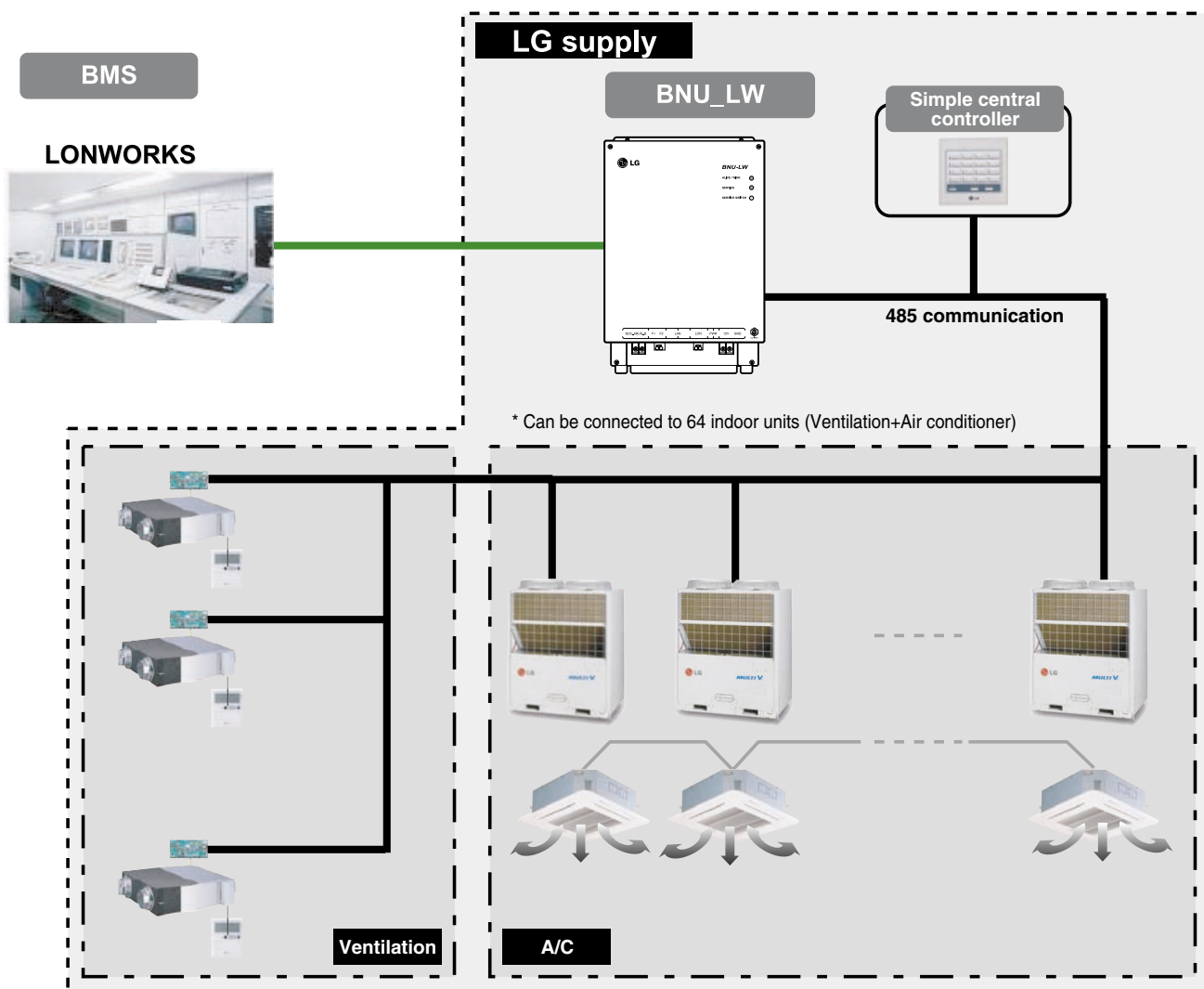
- Connection of Dry contact only





### 3.3 Lonworks Gateway(PQNFB16A1)

#### 3.3.1 Overall system diagram

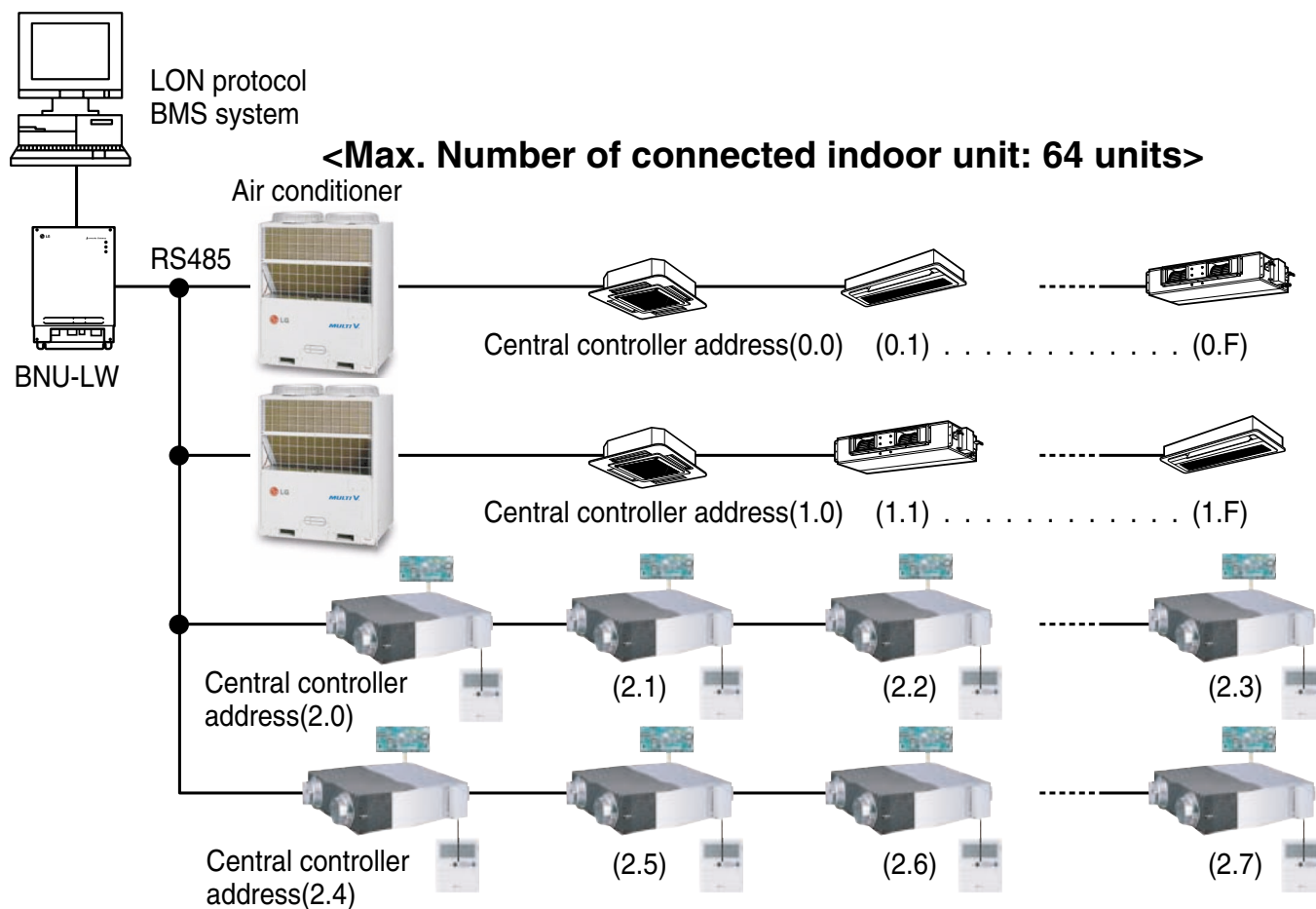


\* PNF-B16A1 (Lon Gateway) can be used in connection with the simple central controller.

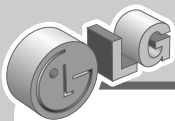




### 3.3.2 External wiring diagram



- When the address of the indoor unit of the air conditioner is duplicated with that of the ventilation unit, it will not operate normally.
- Maximum of 64 units of the indoor unit (Air conditioner+Ventilation) can be connected to the BNU-LW.
- Ventilation products cannot be interfaced with the simple central controller.



## ■ Communication line specification

1. RS-485 communication line specification: 0.75mm<sup>2</sup> or above 2C shield, product to product: 200m, total length: 1km
2. FT-10 communication line: Refer to the following table.

Cable Type	Line thickness (AWG)	Diameter
TIA 568A Category 5 cable	24	0.5mm
Belden 88471 (PVC jacket) or equivalent cable	16	1.3mm
Belden 85102(Tefzel jacket) or equal cable	16	1.3mm
Level IV cable	22	0.65mm
JY(st)Y 2x2x0.8	20.4	0.8mm

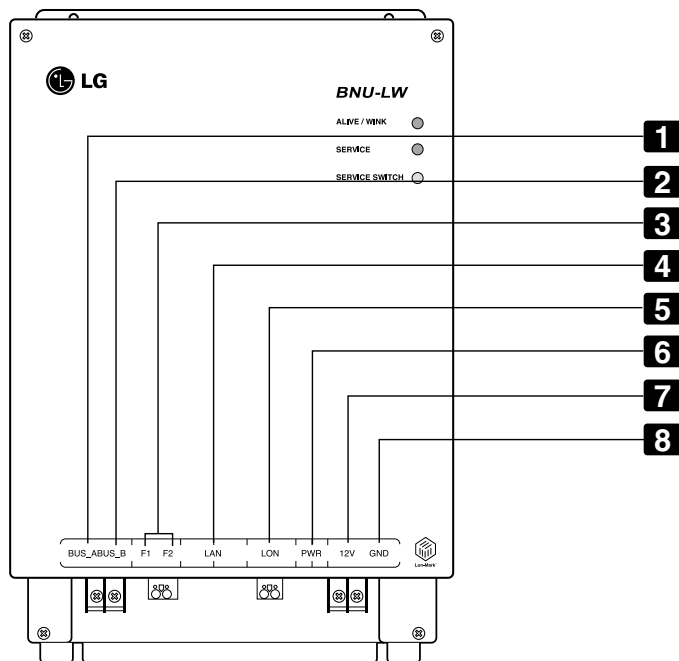
\* Nod to node distance (max): 250m, maximum distance: 450m

\* AWG: American Wire Gauge



### 3.3.3 Name of each part

#### ■ LONWORKS GATEWAY



- 1** BUS\_A: 485 communication line A (+)
- 2** BUS\_B: 485 communication line B (-)
- 3** F1, F2: Fire detection function (external device) contact point connection
- 4** LAN: LAN port necessary for web function
- 5** LON: TP/FT-10 communication line (Lonworks system communication line) non-polarity
- 6** PWR: Connection to DC 12V power adapter
- 7** 12V: Connection when not using DC 12V power adapter
- 8** GND: Connection when not using GNS adapter

ALIVE/WINK: It flashes every 1 second when it is normal

It flashes 5 times when receiving WINK command from Lonworks system (Green)

SERVICE: It is turned off when it is normal and flashes when it is not connected to the Lonworks system. It is turned on when the service switch is pressed.

SERVICE SWITCH: When you press the switch the Neuron ID is transmitted to the Lonworks system, and the service LED is turned on.



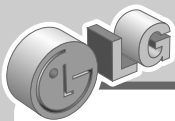
BNU-LW (PNF-B16A1) product is a product certified of LON-MARK, an international standard. (Lon Mark Version 3.3)

### ⚠ WARNING

No. 6 and No. 7,8 are all for power supply. Therefore, only one of two combinations should be used.

When DC 12V is used for the power, Connect No. 6 to the power (not necessary to use No. 7,8.)

When DC 12V is NOT used for the power, Connect No. 7, 8 to the power (not necessary to use No. 6.)



### 3.3.4 Installation order

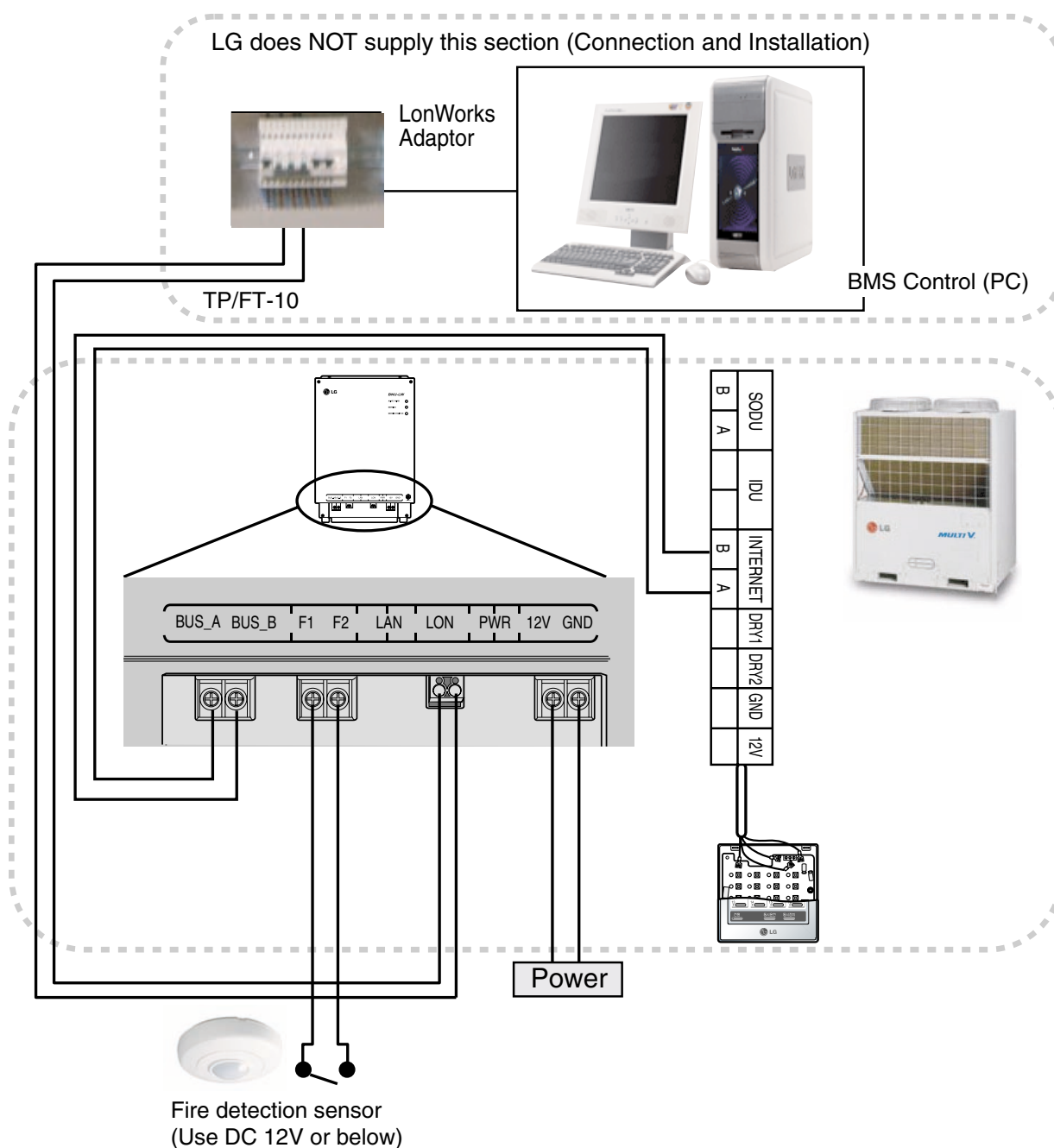
1. Install the product according to the setting of the central controller address of the indoor unit.
2. Connect BUS\_A and BUS\_B (485 communication line) while paying attention to the connecting polarity. (Refer to the next page.)
3. LON (TP/FT-10 line ➡ Lonworks Gateway communication line connection) TP/FT-10 communication line does not have polarity. Connect the 2 communication lines to BMS.
4. PWR (Power supply)  
You can select either one of the two for the power supply.
  - ① Use DC 12V power adapter  
Connect to No. 6 in name of each part.
  - ② When separate DC12 can be supplied  
Connect 12V and GND to No. 7 and 8 terminals.
5. When you press the service switch after connecting to the Lonworks system, the service LED is turned on and the neuron ID is automatically transmitted to the Lonworks system.
6. Check whether the service LED is in normal condition (OFF condition) within 10 minutes. If the service LED is in normal condition, the installation has been done normally.
7. When using the fire detection port, connect the two terminals of the fire detection sensor to F1 and F2. (Fire detection sensor must be used for DC output of 12V or below.)
8. After the installation, connect the LAN cable between the PCs to use the web server so that you can check whether the LG product has been installed normally. – Refer to the remote diagnosis function part for details.

### ⚠ CAUTION

When connecting the signal line to the terminal of Lonworks Gateway, always use a manual driver. (Careful attention is required not to damage the terminal block and PCB.)

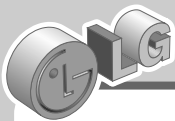


### 3.3.5 BNU-LW wiring order



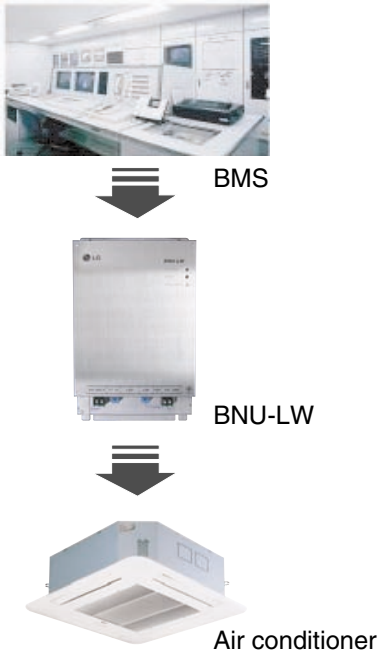

#### [Wiring sequence]

1. Connect 485 communication line
  - Pay attention to BUS A and BUS B polarity
2. Connect the Lonworks communication line (TP/FT-10)
  - No polarity.
3. Power supply (Select one from No. 1 or 2)
  - ① Use DC 12V adapter
    - Connect to No. 6 jack from name of each part.
  - ② Supply DC 12V to installation site
    - Connect 12V and GND to No. 7 and 8 terminals.
4. Interface with simple central controller
  - Set the DIP S/W No. 2 of the simple central controller to ON and configure the setting according to the rotary S/W address. (Refer to setting part when connection to simple central controller for details.)
5. Connect fire detection sensor
  - When the signal of DC 12 or below is transmitted in case of a fire, the indoor unit and ventilation product that is connected to BNU-LW will all be turned off.



### 3.3.6 Air conditioner/ventilation function table

#### ■ Air conditioner indoor unit function











Classification	Control	Monitoring
Function		
Indoor unit individual control	O	O
Operating Mode Change	O	O
Fan level change	O	O
Temperature adjustment function	O	O
Lock Function	O	O
Automatic fan direction	O	O
Indoor unit temperature check	X	O
Error check	X	O
Simultaneous operation/stop	O	X

Binding (connection) function: Binding function refers to the case when the output of a unit has been bound to the input of another unit and the process of input change from the output change. The binding function is possible with Lon unit of other manufacturer.

**Ex)** When the ON/OFF output of the indoor unit No. 1 is bound to ON/OFF input of indoor unit of No. 2 and when the indoor unit No. 1 is turned on, the indoor unit No. 2 also gets turned on from receiving the signal.



## ■ Ventilation indoor unit function

Classification	Control	Monitoring
Function	     Ventilation	 Ventilation   BNU-LW   BMS
Indoor unit individual control	O	O
Operating Mode Change	O	O
Fan level change	O	O
User operation mode (Quick ventilation, power save, heating)	O	O
Lock Function	O	O
Error check	X	O
Simultaneous operation/stop	O	X

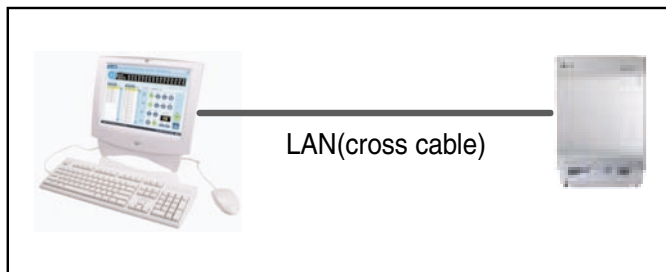
Binding (connection) function: Binding function refers to the case when the output of a unit has been bound to the input of another unit and the process of input change from the output change. The binding function is possible with Lon unit of other manufacturer.

**Ex)** When the ON/OFF output of the indoor unit No. 1 is bound to ON/OFF input of indoor unit of No. 2 and when the indoor unit No. 1 is turned on, the indoor unit No. 2 also gets turned on from receiving the signal.

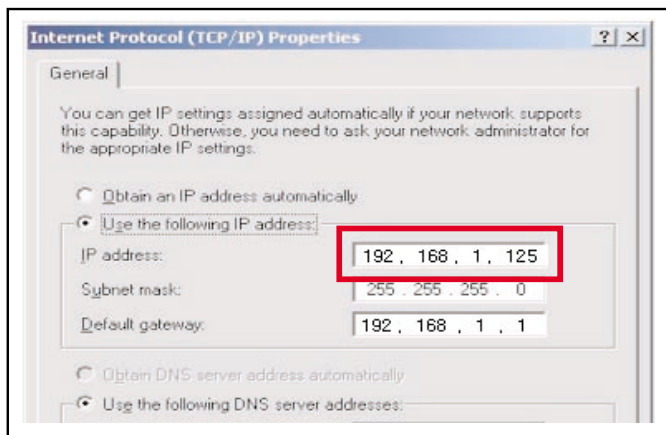


### 3.3.7 BNU-LW remote diagnosis function

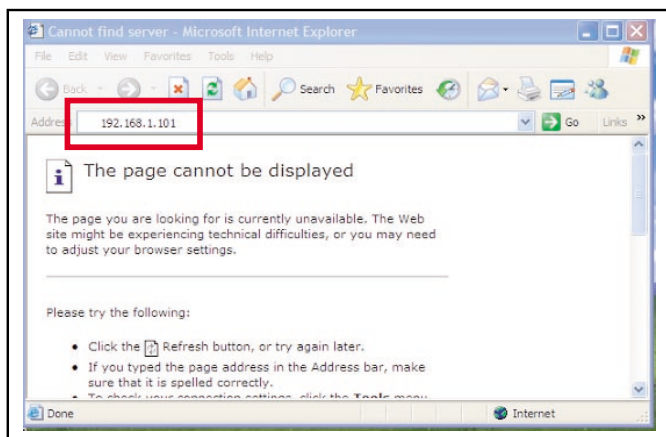
#### ■ Setting method



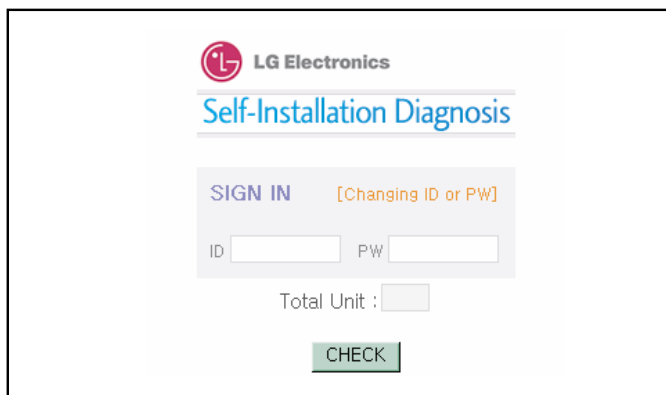
1. Connect the LAN line between the PC and the LAN port of the BNU-LW.



2. Set the network IP of the used PC to 192.168.1.xxx (except 101).



3. Enter 192.168.1.101 in the Internet Explorer.



4. The above picture is shown when connected normally.

- Initial ID: lonwork
- Initial password: lonwork
- Enter the total number of connected indoor units in the Total Unit block.





## ■ Configuration

LG Electronics  
Self-Installation Diagnosis

**"A"**

**The Status of Connection** [Set up Network place]

Total : 22/22 (connected/total) EA  
Connected : Indoor 16 EA - vent 06 EA  
under constructing 00 EA

① INDOOR ② Addr. : ALL ③ ON ④ COOL ⑤ Check ⑥ Reload

**"B"**

Indoor Address [Running Status : err]	Vent Address [Running Status : err]
No.01 @-00 [ OFF - COOL : 000 ]	No.01 @-00 [ OFF - AUTO : 000 ]
No.02 @-01 [ OFF - COOL : 000 ]	No.02 @-01 [ OFF - AUTO : 000 ]
No.03 @-02 [ OFF - COOL : 000 ]	No.03 @-02 [ OFF - AUTO : 000 ]
No.04 @-03 [ OFF - COOL : 000 ]	No.04 @-03 [ OFF - AUTO : 000 ]
No.05 @-04 [ OFF - COOL : 000 ]	No.05 @-04 [ OFF - AUTO : 000 ]
No.06 @-05 [ OFF - COOL : 000 ]	No.06 @-05 [ OFF - AUTO : 000 ]
No.07 @-06 [ OFF - COOL : 000 ]	
No.08 @-07 [ OFF - COOL : 000 ]	
No.09 @-08 [ OFF - COOL : 000 ]	
No.10 @-09 [ OFF - COOL : 000 ]	
No.11 @-10 [ OFF - COOL : 000 ]	
No.12 @-11 [ OFF - COOL : 000 ]	
No.13 @-12 [ OFF - COOL : 000 ]	
No.14 @-13 [ OFF - COOL : 000 ]	
No.15 @-14 [ OFF - COOL : 000 ]	
No.16 @-15 [ OFF - COOL : 000 ]	

- After entering the ID and password, the air condition and ventilation products currently connected are displays as shown in the picture.
- "A" part displays the number of air condition and ventilation products are currently connected.
- When you would like to control a product ① Select the product – ② Set the address – ③ Command ON/OFF – ④ Select the mode – ⑤ Click on check to control the product.
- When you would like to check the current status ⑥ Click on Reload and you will be able to check the current indoor unit status in the "B" part.
- When you would like to change the IP, click on [Set up Network place] to change the IP.

**A****Information of the setting up**

- ① Network place      IP address : 192.168.1.100  
Gateway : 192.168.1.1  
Subnet mask : 255.255.255.0
- ② SVCnet Server      IP address : 192.168.2.100 (port 80 )  
Time between transfers [sec] : 3600  
Site code : M00D00S0A0  
Site name : test\_site
- ③ MAC address      0.8.DC.C.0.1      [BNU-LW No. 0]
- ④ Version      hardware : 1.0 // firmware : 1.1

**B****Network place**

IP address       .  .  .

Gateway       .  .  .

Subnet mask       .  .  .

**C****Connection of SVCnet**

IP address //port       .  .  .  //

Time between transfers       :  :  (HH:MM:SS)

Site code     

Site name     

BNU-LW No.     

**D**

Password           

**A:** ① It displays the current IP, Gateway, Subnet mask information.

② When you would like to use the SVCnet Server, it displays the SVCnet Server information.

③ It displays the MAC address information.

④ It displays the current version information of the BNU-LW.

**B:** When you would like to change the IP and Gateway, Subnet mask information, press the Edit button next to the information you would like to change.

**C:** This is the space to enter the SVCnet Server information to connect.

SVCnet Server is the service that monitors the air conditioner status connected to BNU-LW through the LAN in the future by the LG Electronics Service Center to provide early notification in case of a problem.

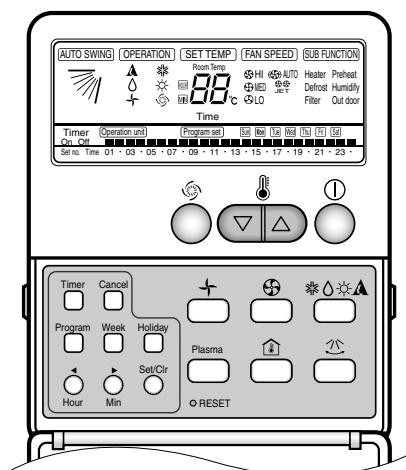
**D:** In order to prevent the network or arbitrary change, a security function has been applied for you to enter the initial login password to change the network setting.



### 3.3.8 Setting the indoor unit address

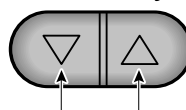
#### ■ Setting the indoor unit address

##### When using the wired remote controller

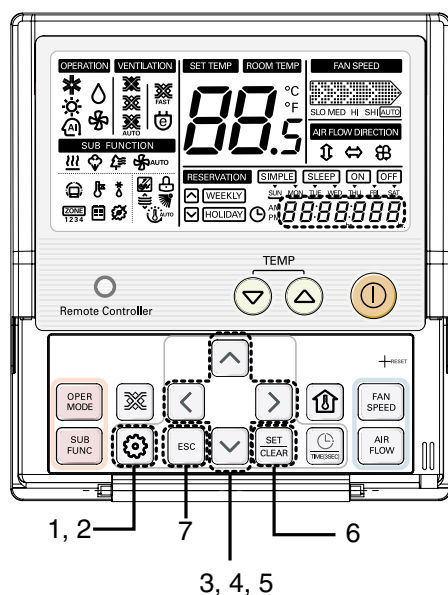


1. Press the week day and reservation set/cancel buttons simultaneously for 3 seconds.
2. By using the temperature adjustment button, set the indoor unit address.  
Setting range: 00~FF
3. When you press the week day and reservation set/cancel buttons simultaneously for 3 seconds, the address setting is completed.

#### Temperature adjustment



Group No. Indoor unit No.



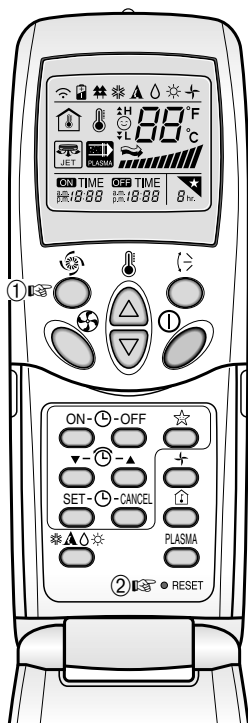
1. Press the Function Setting button for 4 seconds to enter the installer setting mode until clock segment display "01:01".
2. Repeat pressing Function Setting key to select Function code 02

Function Code 02 : 01  
Gr. No Indoor No

3. Set Group No. by pressing Up/Down button.
4. Move to Indoor No. setting option by pressing Right key
5. Set Indoor No. by pressing Up/Down button
6. Press Set/ Clear button to save or release
7. Press ESC button to exit or system will automatically exit after 25 sec without any input.



## When using the wireless remote controller



### Address setting mode

1. ① Press the top left button for more than 3 seconds. ② While the top left button pressed, press the Reset button .  
 ※ The wireless remote controllers have different shapes according to the model.
2. By using the temperature adjustment button, set the indoor unit address.  
 Setting range: 00~FF
3. After setting the address, press the ON/OFF button toward the indoor unit 1 time.
4. The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
5. Reset the remote controller to use the general operation mode.

### Temperature adjustment



Group No.

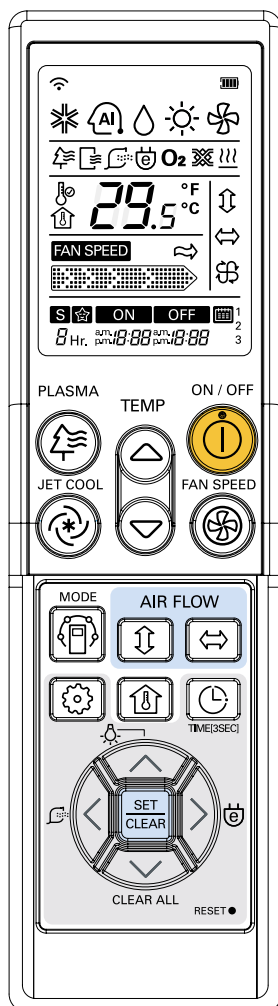
Indoor unit No.

### Address check mode

1. With the top right button pressed, press the Reset button. (Press the left button for more than 3 seconds.)
2. Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
3. Reset the remote controller to use the general operation mode.

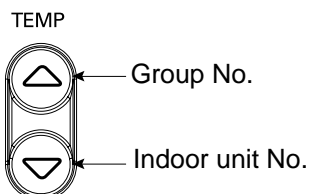
※ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.

It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.



## Address setting mode

1. While the MODE button pressed, press the Reset button .
2. By using the temperature adjustment button, set the indoor unit address.  
Setting range: 00~FF



3. After setting the address, press the ON/OFF button toward the indoor unit 1 time.
4. The indoor unit will display the set address to complete the address setting. (The address display time and method can differ by the indoor unit type.)
5. Reset the remote controller to use the general operation mode.

## Address check mode

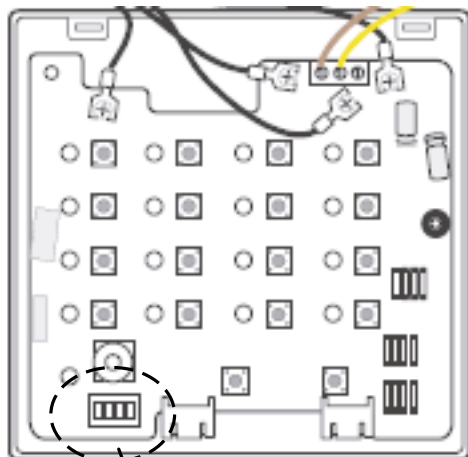
1. With the PLASMA button pressed, press the Reset button.
2. Press the ON/OFF button toward the indoor unit 1 time, and the indoor unit will display the set address in the display window. (The address display time and method can differ by the indoor unit type.)
3. Reset the remote controller to use the general operation mode.

※ The above function might not work for some remote controllers depending on the manufactured date of the wired/wireless remote controller.

It is not relevant for the consumer use and you can set the address with a remote controller that has the address setting functionality during the installation.

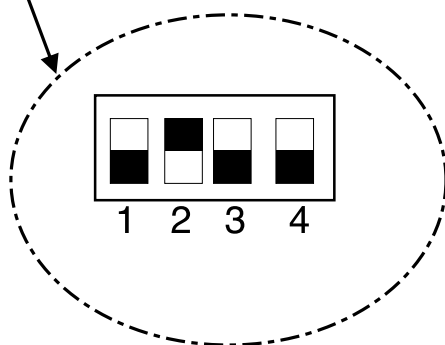


### 3.3.9 Interfacing with simple central controller



#### How to interface with simple central controller

- When interfacing with simple central controller, turn the DIP S/W No. 2 of the simple central controller ON.
- Set the rotary S/W to the group address of the indoor unit you would like to control.

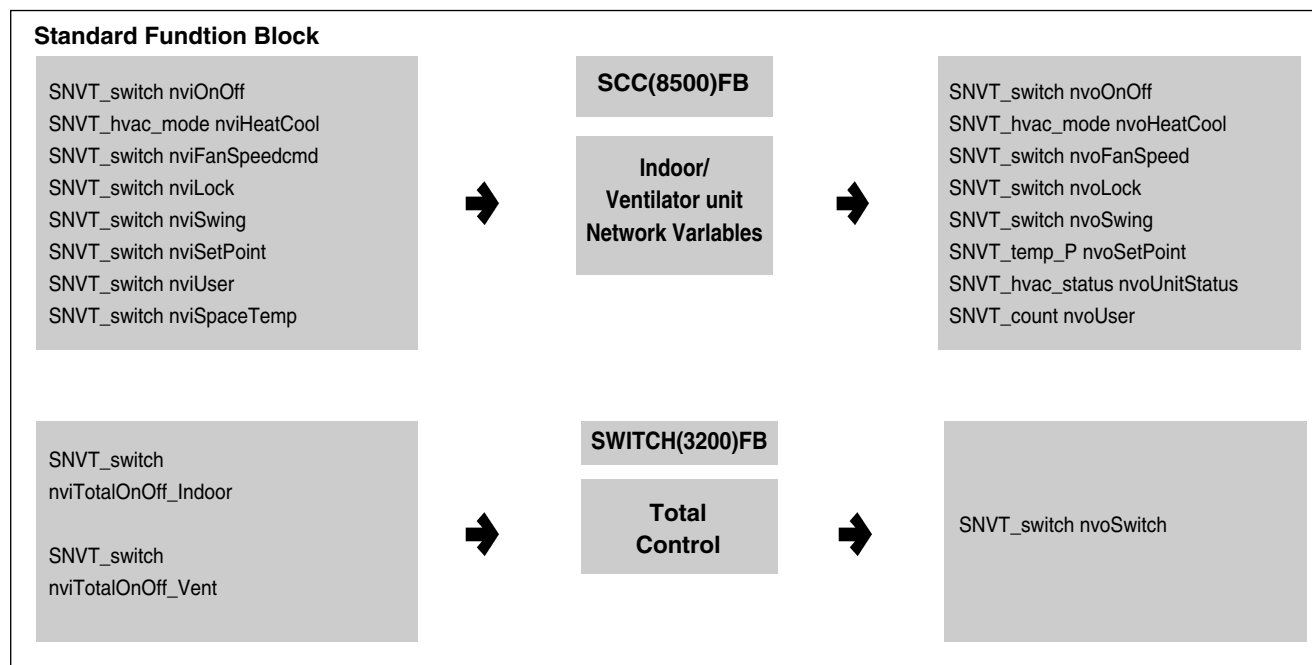




### 3.3.10 Appendix

- The appendix carries information necessary for interfacing with BMS and not necessary for actual installation.

#### ■ A/C Objects



Control	Monitoring
On/Off command	On/Off status monitoring
Mode selection command	Mode status monitoring
Fan level selection command	Fan level status monitoring
Indoor unit lock command	Lock status monitoring
Fan direction command	Fan direction status monitoring
Temperature setting command	Temperature setting status monitoring
Ventilation additional function command (Only applies for ventilation product)	Current temperature monitoring
Air conditioner total On/Off control	Error display
Ventilation total On/Off control	Ventilation additional function status monitoring (Only applies for ventilation product)

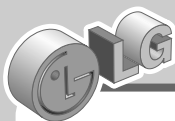
- You can enable control and monitoring as shown in the figure for one air conditioner/ventilation unit.
- The network variable can differ from the actual.  
(Refer to the XIF file for correct network variable.)



## ■ Air conditioner control/monitoring point

Point No.	Name	Object Name (nn: Air conditioner and ventilation group/indoor unit address)	Object Type	Unit						
				code 0	code 1	code 2	code 3	code 4	code 5	code 9
1	ON/OFF (setting)	SNVT_switch nviOnOff_nn	input	Stop	Operation					
2	ON/OFF (status)	SNVT_switch nvoOnOff_nn	output	Stop	Operation					
3	Lock (setting)	SNVT_switch nviLock_nn	input	Cancel	Setting					
4	Lock (status)	SNVT_switch nvoLock_nn	output	Cancel	Setting					
5	Operation Mode (setting)	SNVT_hvac_modenviHeatCool_nn	input	Auto	Heating		Cooling		Dehumidifying	Fan
6	Operation Mode (status)	SNVT_hvac_mode nviHeatCool_nn	output	Auto	Heating		Cooling		Dehumidifying	Fan
7	Swing(setting)	SNVT_switch nviSwing_nn	input	Cancel	Setting					
8	Swing(status)	SNVT_switch nvoSwing_nn	output	Cancel	Setting					
9	Fan speed(setting)	SNVT_switch nviFanSpeedCmd_nn	input		Low	Med	High		Auto	Super Low
10	Fan speed(status)	SNVT_switch nvoFanSpeed_nn	output		Low	Med	High		Auto	Super Low
11	Set Room Temperature	SNVT_temp_p nviSetPointCmd_nn	input	°C						
12	Set Room Temperature	SNVT_temp_p nvoSetPoint_nn	output	°C						
13	Room Temperature	SNVT_temp_p nvoSpaceTemp_nn	output	°C						
14	Error Code	SNVT_hvac_status nvoUnitStatus_nn	output	no errorRefer to the LG Air Conditioner Error Code.						





## ■ Ventilation control/monitoring point

Point No.	Name	Object Name (nn: Air conditioner and ventilation group/indoor unit address)	Object Type	Unit				
				code 0	code 1	code 2	code 3	code 5 code 9
1	ON/OFF (setting)	SNVT_switch nviOnOff_nn	input	Stop	Operation			
2	ON/OFF (status)	SNVT_switch nvoOnOff_nn	output	Stop	Operation			
3	Lock (setting)	SNVT_switch nviLock_nn	input	Cancel	Setting			
4	Lock (status)	SNVT_switch nvoLock_nn	output	Cancel	Setting			
5	Operation Mode (setting)	SNVT_hvac_modenviHeatCool_nn	input	Auto	Heat exchange			Normal
6	Operation Mode (status)	SNVT_hvac_mode nviHeatCool_nn	output	Auto	Heat exchange			Normal
7	Fan speed(setting)	SNVT_switch nviFanSpeedCmd_nn	input		Low	High	Very high	
8	Fan speed(status)	SNVT_switch nvoFanSpeed_nn	output		Low	High	Very high	
9	Error Code	SNVT_hvac_status nvoUnitStatus_nn	output	Refer to the LG Air Conditioner Error Code.				
10	User Mode(setting)	SNVT_count nviUser_nn	output		Quick	Power save	heat	
11	User Mode(status)	SNVT_count nvoUser_nn	output		Quick	Power save	heat	



## ■ Network variables

### 1) Individual operation/stop input/output (Air conditioner/ventilation)

Input	Function	Operation/stop input
	Using NV	Network input variable : SNVT_switch nviOnOff_n
	Operation	It controls the operation/stop of each product (air conditioner/ventilation)
Output	Function	Operation/stop status display
	Using NV	Network output variable : SNVT_switch nvoOnOff_n
	Operation	It monitors the operating status of each product (air conditioner/ventilation)

#### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 95 )	value	not used (set in 0% usually)
	state	0 = Air conditioner/ventilation product OFF
		1 = Air conditioner/ventilation product ON
	Default Value	

### 2) Operating mode input/output (Air conditioner/ventilation)

Input	Function	Operating mode command input
	Using NV	Network input variable : SNVT_hvac_mode nviHeatCool_n
	Operation	It controls the operating mode of each air conditioner/ventilation product.
Output	Function	Operating mode status display
	Using NV	Network output variable : SNVT_hvac_mode nvoHeatCool_n
	Operation	It monitors the operating status of each air conditioner/ventilation product.

#### Valid Range

NV	Operation
SNVT_hvac_mode ( Index : 108 )	HVAC_AUTO : 0 = AUTO mode(air conditional), Auto (ventilation)
	HVAC_HEAT : 1 = Heat mode(air conditional), heat exchange(ventilation)
	HVAC_COOL: 3 = Cool mode (cool)
	HVAC_PRE_COOL: 5 = Dry mode (dehumidification)
	HVAC_FAN_ONLY: 9 = Fan mode (fan) normal ventilation
	Default Value



### 3) Fan level command input/output (Air conditioner/ventilation)

Input	Function	Fan level command input
	Using NV	Network input variable : SNVT_switc nviFanSpeedCmd_n
	Operation	It controls the fan level of each indoor unit.
Output	Function	Fan level status display
	Using NV	Network output variable : SNVT_switch nvoFanSpeed_n
	Operation	It monitors the fan level of each product (air conditioner/ventilation)

#### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 95 )	value	1: Air conditioner, ventilation low fan
		2: Air condition med fan, ventilation high fan
		3: Air condition high fan, ventilation very high fan
		4: Air condition, ventilation auto fan
		5. Air conditioner super low fan
	state	0: Product not applied, 1: Product applied
	Default Value	

### 4) Lock input/output (Air conditioner/ventilation)

Input	Function	Lock setting command input
	Using NV	Network input variable : SNVT_switch nviLock_n
	Operation	It controls the lock status of each product (air conditioner/ventilation)
Output	Function	Lock status display
	Using NV	Network output variable : SNVT_switch nvoLock_n
	Operation	It monitors the lock status of each product (air conditioner/ventilation)

#### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 95 )	value	not used (set in 0% usually)
	state	0 = Air conditioner/ventilation product lock OFF
		1 = Air conditioner/ventilation product lock ON
	Default Value	



### 5) Fan direction auto input/output (Only applies to air conditioner)

Input	Function	Fan direction auto command input
	Using NV	Network input variable : SNVT_switch nviSwing_n
	Operation	It controls the fan direction of each product (air conditioner/ventilation)
Output	Function	Fan direction auto status display
	Using NV	Network output variable : SNVT_switch nvoSwing_n
	Operation	It monitors the fan direction of each product (air conditioner/ventilation)

#### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 95 )	value	not used (set in 0% usually)
	state	0 = Fan direction fixed for air conditioner product
		1 = Fan direction auto for air conditioner product
	Default Value	

### 6) Temperature setting input/output (Only applies to air conditioner)

Input	Function	Set temperature range input
	Using NV	Network input variable : SNVT_switch nviSetPoint_n
	Operation	It controls the temperature setting of each product (air conditioner/ventilation)
Output	Function	Set temperature range status display
	Using NV	Network output variable : SNVT_switch nvoSetPoint_n
	Operation	It monitors the set temperature of each product (air conditioner/ventilation)

#### Valid Range

NV	Operation
SNVT_switch ( Index : 95 )	At Cool mode : 18 ~ 30°C
	At Heat mode : 18 ~ 30°C
	At Dry mode and Fan mode : Not available
	Default Value



## 7) Indoor temperature status display (Only applies to air conditioner)

Output	Function	Indoor temperature status display
	Using NV	Network output variable : SNVT_switch nvoSpaceTemp_n
	Operation	It monitors the indoor temperature.

### Valid Range

NV	Operation	
SNVT_switch ( Index : 95 )		At Cool mode : 10 ~ 40°C
		At Heat mode : 10 ~ 40°C
		At Dry, Fan mode : Not available
	Default Value	

## 8) Error output (Air conditioner/ventilation)

Output	Function	Error status display
	Using NV	Network input variable : SNVT_hvac_Status nvoUnitStatus_n
	Operation	It monitors the error status of each product (air conditioner/ventilation)

### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 112 )	Mode	Currently operating mode display
	Heat_output_primary	Not used
	Heat_output_Secondary	Not used
	Cool_output	Not used
	Cool_output	Not used
	Econ_output	Not used
	fan_output	Not used
	In_alarm	Error code display

\* Refer to the Error Code table of the product manual for the error code.



### 9) Ventilation function command (Only applies to ventilation product)

Input	Function	Ventilation user operating mode input
	Using NV	Network input variable : SNVT_count nviUser_n
	Operation	It controls the product function of each ventilation product.
Output	Function	Ventilation user operating mode status
	Using NV	Network output variable : SNVT_count nvoUser_n
	Operation	It monitors the function status of each ventilation product.

#### Valid Range

NV	Filed	Operation
SNVT_count ( Index : 8 )	value	0 = Not used
		1 = Quick mode
		2 = Power save mode
		3 = Heat

### 10) Total operation/stop air conditioner indoor unit

Input	Function	Total stop command input
	Using NV	Network input variable : SNVT_switch nviTotalONOFF_indoor
	Operation	It turns ON or OFF all the indoor units.

### 11) Total operation/stop ventilation indoor unit

Input	Function	Total stop command input
	Using NV	Network input variable : SNVT_switch nviTotalONOFF_indoor
	Operation	It turns ON or OFF all the ventilation units.

#### Valid Range

NV	Filed	Operation
SNVT_switch ( Index : 95 )	value	not used
	state	1 = All ON indoor/Vent unit
		0 = All OFF indoor/Vent unit
	Default Value	



### 3.4 PDI(Power Distribution Indicator)(PQNUD1S00)

#### ■ Overview

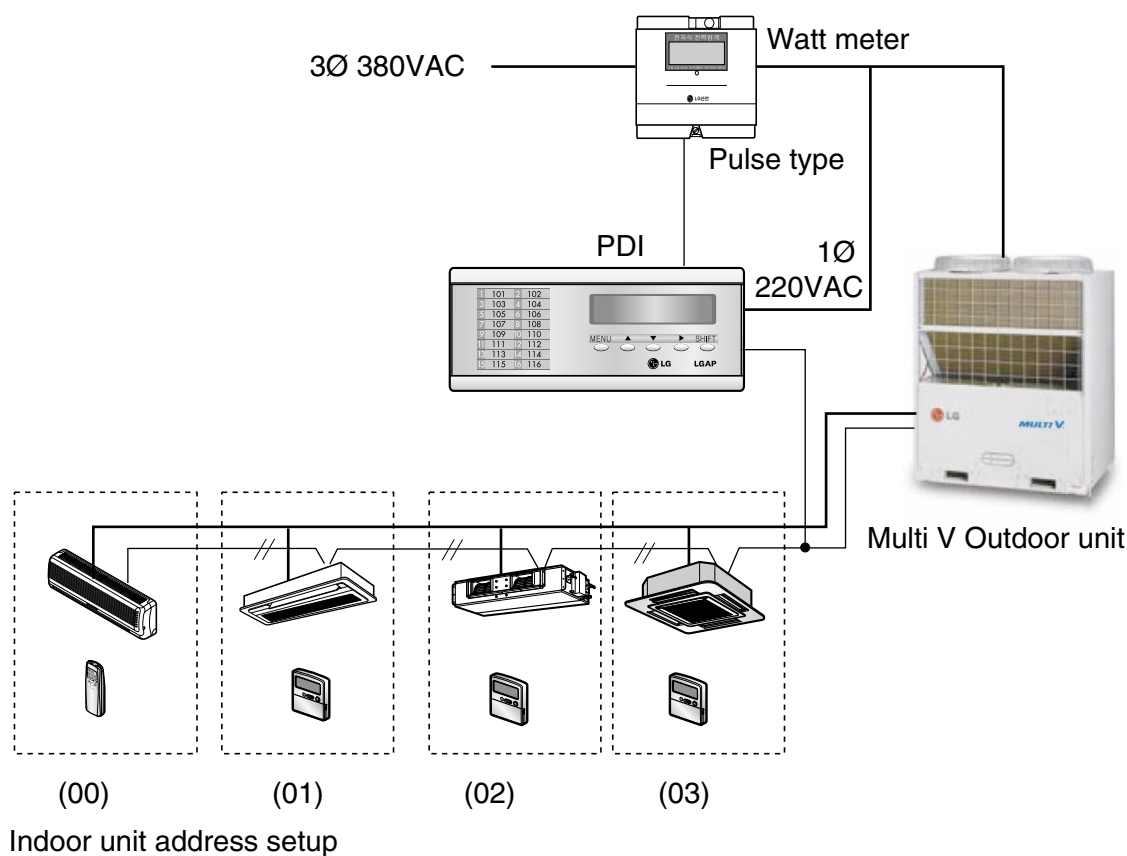
It's for power consumption of the multi type air-conditioner used for common power line

- Indicating power consumption of every indoor unit
- Accumulated Total Power Consumption
- Accumulated / Current Power Consumption of each indoor unit
- Data back-up even if power turns off
- Period Consumption(user after check distribution, can restart accumulate date)

#### ■ Independent operation of PDI

- Connect the product as shown in the below connection diagram

(16 indoor units MAX.)





## ■ Functions

- Accumulated Total Power Consumption
- Accumulated / Current Power Consumption of each indoor unit
- Period Consumption(user after check distribution, can restart accumulate date)
- MAX 48 Indoor Units

## ■ Spec.

- Power Supply: 210~250V AC 50/60HZ
- Dimension: W(200mm) x L(120mm) x H(55mm)
- Connectable units: 1 outdoor unit per electric power distribution
- Operation range: -20°C ~ 60°C

## Count Method for Electric Power Distribution

### ■ Power consumption of each indoor unit =

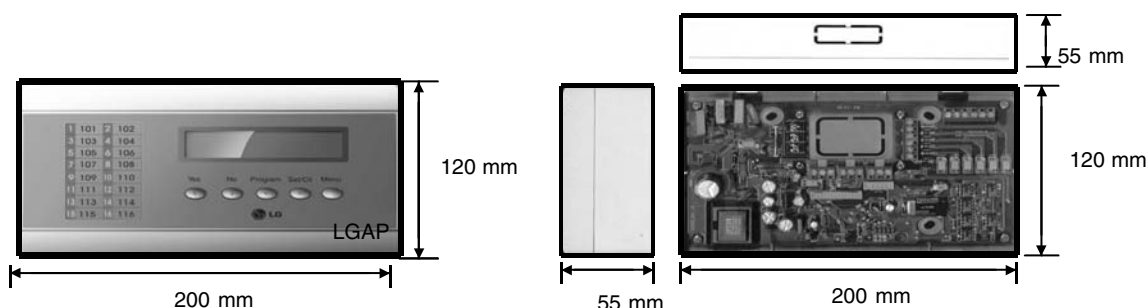
Power consumption of outdoor unit x [ Weighting power of each indoor unit / Weighting power of total indoor units]

### ■ Weighting power of each indoor unit =

Operation (On/Off) X [ Capacity of indoor unit X EEV open rate X Fan step of indoor unit ]

## ■ Dimension

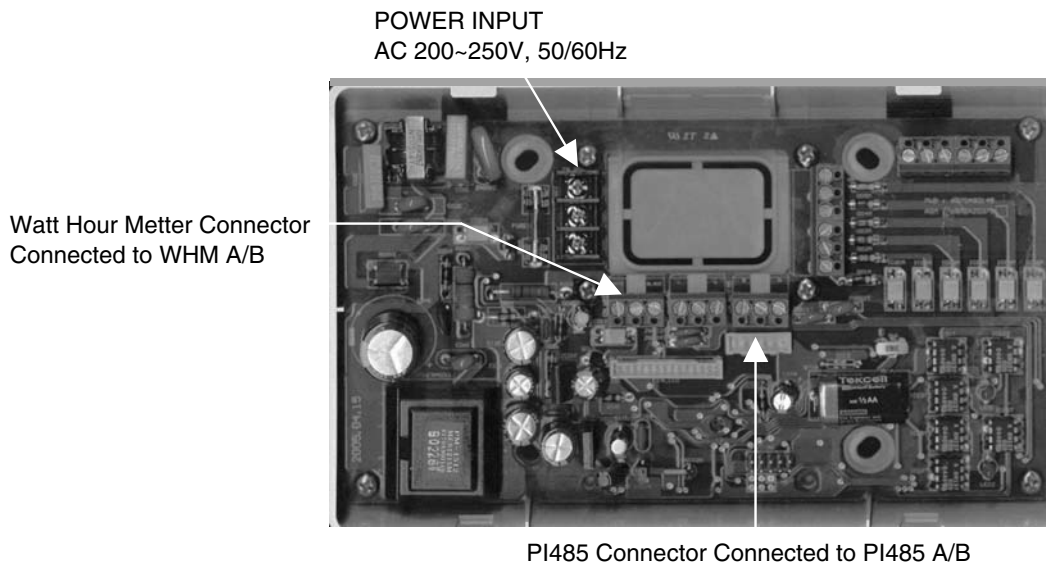
PDI(Power Distribution Indicator)  
Model Name : Not Confirmed







## ■ Part Description

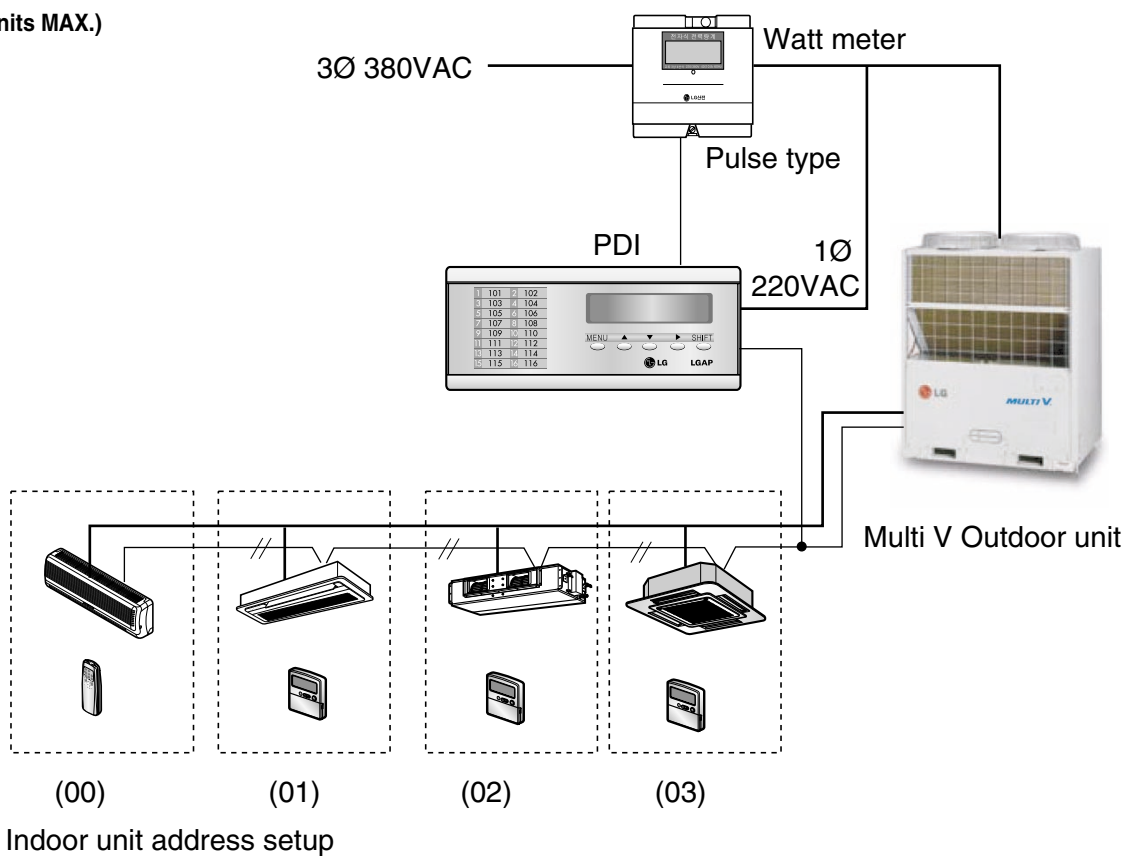


## ■ System Structure

### Independent operation of PDI

- Connect the product as shown in the below connection diagram

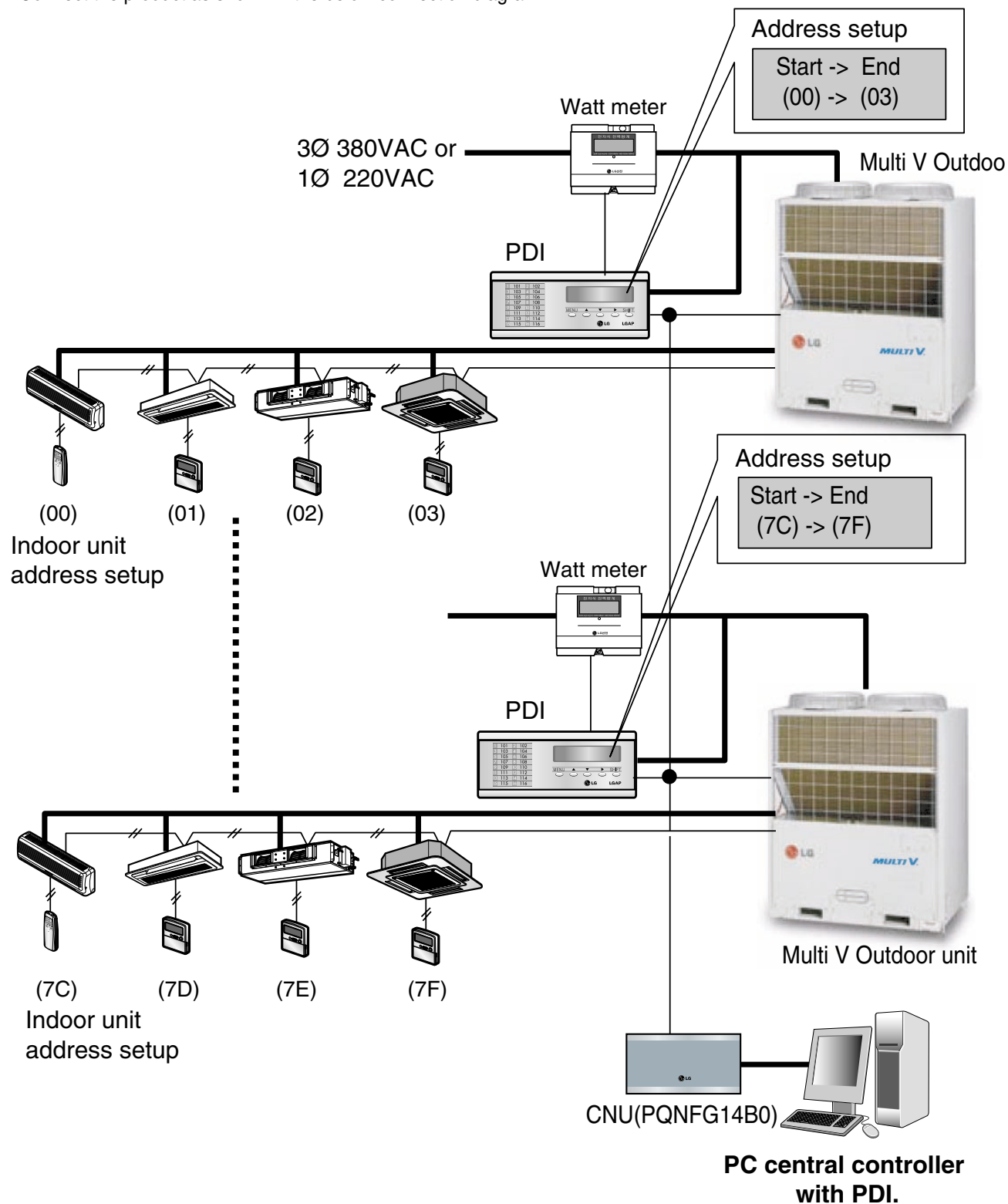
(16 indoor units MAX.)





## ■ Operation with PC Central controller

- Connect the product as shown in the below connection diagram.

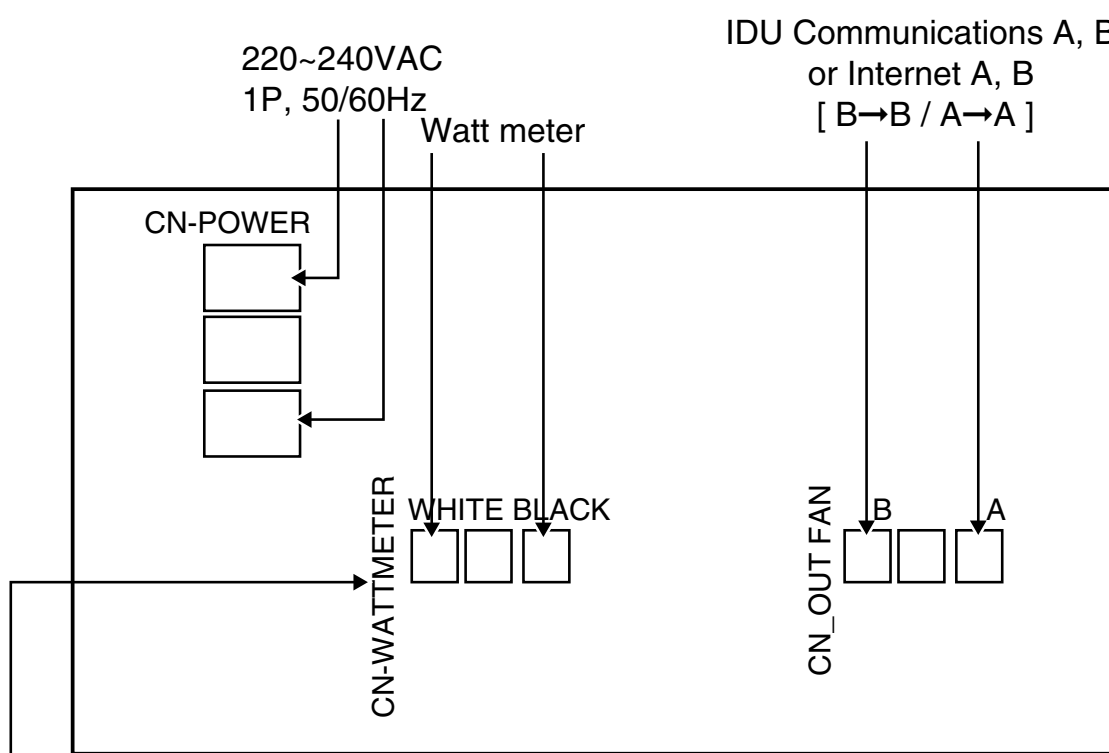
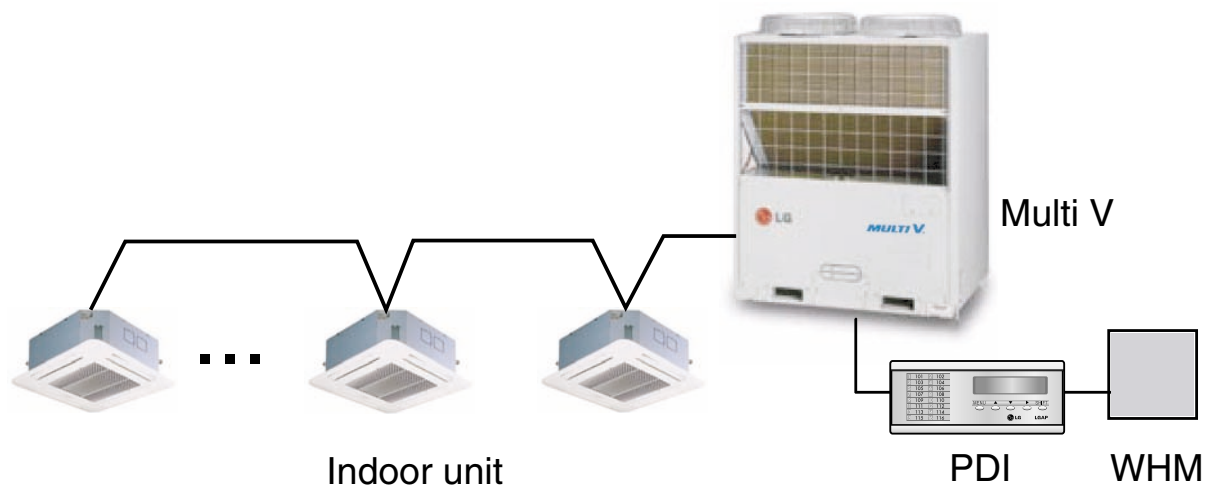


### ⚠ CAUTION

When CNU power off or out of order with PC central controller, the PDI can not distribute the power consumption.

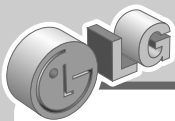


■ Install the product as per the following wiring diagram



The color and polarity of the communications line can differ from what's indicated on the PCB depending on the manufacturer of watt meter. [ Black -> (+), white -> (-) ]

- Turn on the power after connecting the product.



### 3.5 BACnet Gateway(PQNFB17B0)



#### ■ Description

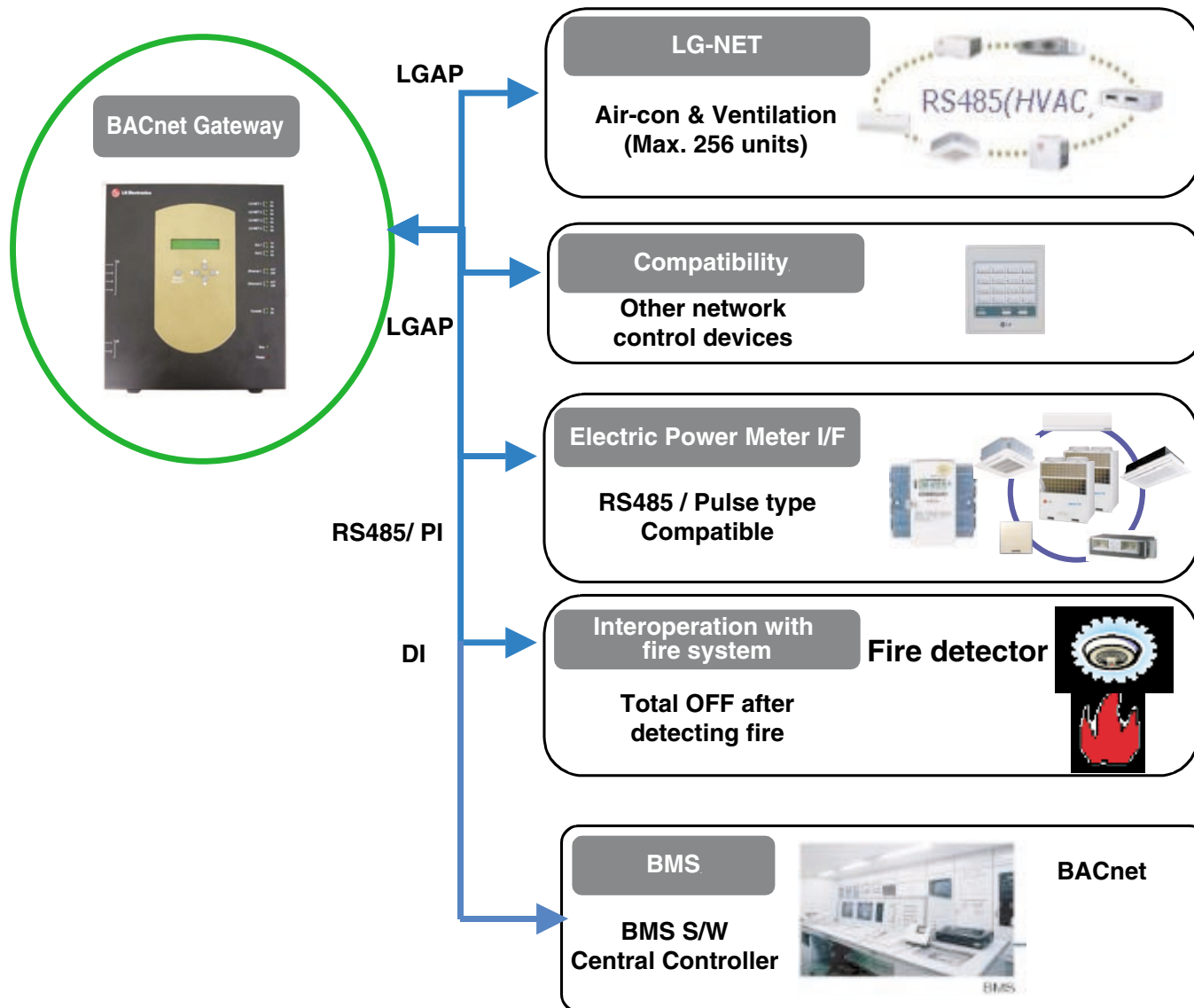
The product specially designed for BMS market using the BAC net protocol.

#### ■ Features

1. Through embedded web control function in BACnet one can access the air-conditioner and external devices through internet.
2. It can control 256 indoor units.
3. It is compatible with simple central controller.
4. External devices such as fire alarm, motion detector can be connected to gateway and their function can be interlinked with air-conditioner operation.
5. Compatible with Multi-V, Multi and single system.



## System Architecture





P/No.: 3828A24007Z



**Air Conditioner**

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Yeouido P.O.Box 335 Seoul,  
150-721, Korea.  
<http://www.lgeaircon.com>

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File No.: A8974  
Volume:1



Certificate No.:  
E00626/1

The air conditioners manufactured by LG  
have received ISO9001 certificate for  
quality assurance and ISO14001  
certificate for environmental  
management system.