5.4 Main components of Centralized Controller System

NO.	Main Components	Requirement & Function
1	Host computer	Operation system: Windows XP SP32 and above, Windows 7
2	Adapter plate	Computer and communication protocol and unit end communication protocol are incompatible with each other, must add communication adapter plate to *make both communicate*. Each ARV system matches 1 adapter plate.
3	RS-232 to RS-485/422	The centralized control system RS485 network signal conversion for RS232 serial signal to achieve the *interconnection of computers* with centralized control system.
4	USB to RS-485/422	The centralized control system RS485 network signal conversion for USB to achieve the interconnection of laptops with centralized control system.
5	RS-485/422 Repeater	*Extend the communication distance* and *increase* the *number* of RS-485 bus network. The repeater is not required, only when there is more than 30 systems or communication distance is more than 800 meters.

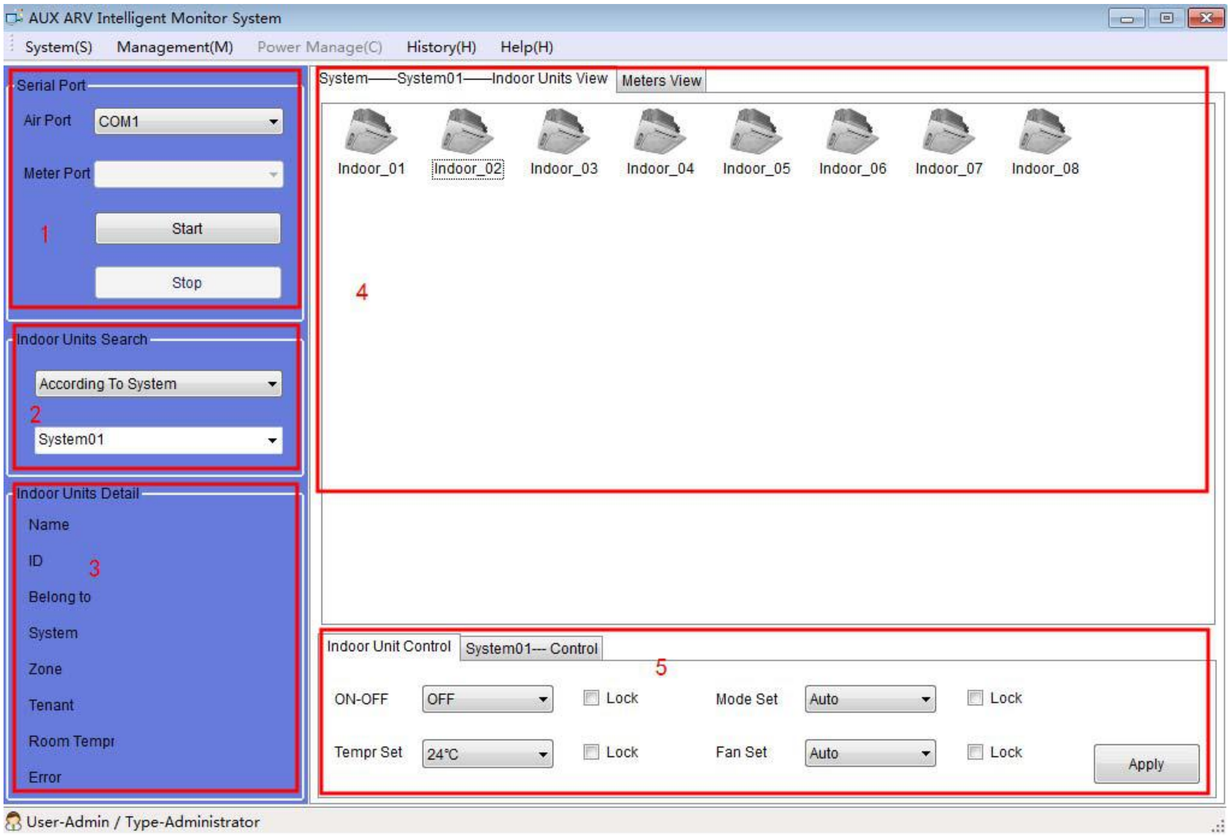
5.5 Software install and uninstall

1. Run setup exe in CD to ***install***;

2. If operation system has not installed Windows Install 3.1 and Windows .NET Framework 3.5**,**the installation program will install the two program first; when programs installation is completed, system installation will be continue, the default installation path is D:\Program Files\Aux Group\AUX_ARV_Setup

3. uninstall: select [Control Panel- Add or Remove Programs -AUX_ARV_Setup]**,**click"Cancel" to uninstall.

5.6 Software introduction Main interface


AUX ARV Intelligent Monitor System
System(S)
Management(M)
Power Manage(C)
History(H)
Help(H)
Serial Port
Start
Stop
1
Indoor Units Search
2
Indoor Units Detail
Name
ID
3
Belong to
System
Zone
Tenant
Room Tempr
Error
System——System01——Indoor Units View
Meters View
Indoor_01
Indoor_02
Indoor_03
Indoor_04
Indoor_05
Indoor_06
Indoor_07
Indoor_08
4
Indoor Unit Control
System01— Control
5
☐ Lock
☐ Lock
☐ Lock
☐ Lock
Apply
User-Admin / Type-Administrator

Air Port: COM1

Meter Port:

According To System

System01

ON-OFF: OFF

Tempr Set: 24°C

Mode Set: Auto

Fan Set: Auto

Area 1--Serial ***setting*** area, choose the serial and press "Start Working button**,** system will in operation**,** press "Stop Working" button**,** system will stop working;

Area 2--The ***inquire*** area for air conditioner unit, it can be divided into the system inquire and user-defined group inquire**,** the inquired unit will be displayed in area 4.

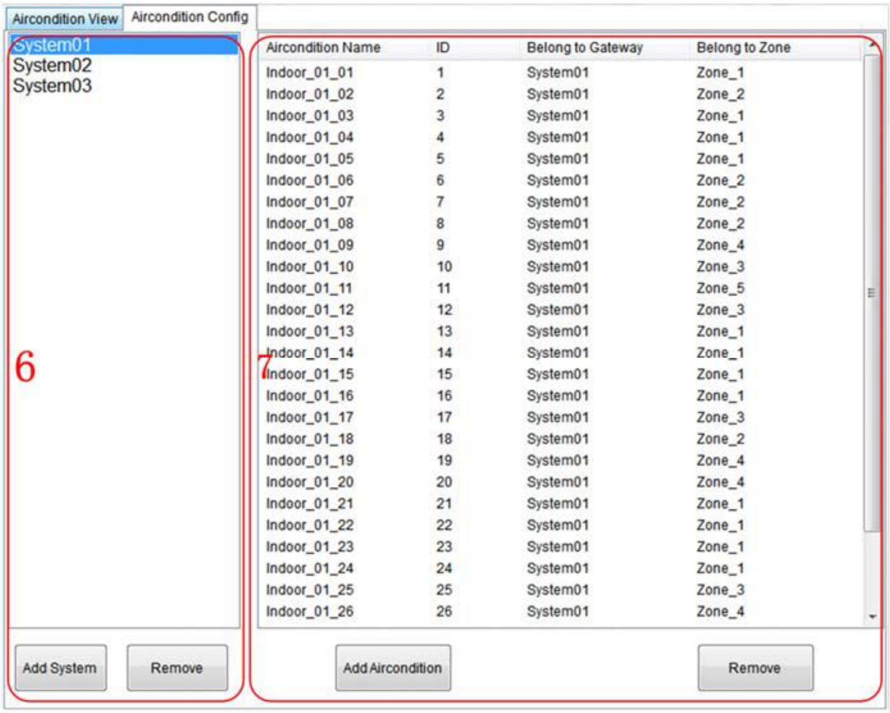
Area 3--Display area of single air conditioner ***indoor unit***, select one of indoor units in area 4, then the area will display the name, ID (address of indoor unit) , system belonged ,group belonged, current condition, the room temperature of indoor unit , failure etc.

Area 4--Display area of air conditioner ***group***, as shown in above picture, it displayed all the indoor unit in the group System01.

Area 5--***Control*** area of air conditioner, it can control one single air conditioner and some air conditioner group, this will be described in detail later.

5.6 System initial setting

Click “***Air condition Config*** ” in area 4**,**it will enter the interface of system initial setting. Initial setting is divided into 3 parts: added/removed outdoor unit system, added/modified/removed air conditioner, add/changed user-defined group.



Aircondition Name	ID	Belong to Gateway	Belong to Zone
Indoor_01_01	1	System01	Zone_1
Indoor_01_02	2	System01	Zone_2
Indoor_01_03	3	System01	Zone_1
Indoor_01_04	4	System01	Zone_1
Indoor_01_05	5	System01	Zone_1
Indoor_01_06	6	System01	Zone_2
Indoor_01_07	7	System01	Zone_2
Indoor_01_08	8	System01	Zone_2
Indoor_01_09	9	System01	Zone_4
Indoor_01_10	10	System01	Zone_3
Indoor_01_11	11	System01	Zone_5
Indoor_01_12	12	System01	Zone_3
Indoor_01_13	13	System01	Zone_1
Indoor_01_14	14	System01	Zone_1
Indoor_01_15	15	System01	Zone_1
Indoor_01_16	16	System01	Zone_1
Indoor_01_17	17	System01	Zone_3
Indoor_01_18	18	System01	Zone_2
Indoor_01_19	19	System01	Zone_4
Indoor_01_20	20	System01	Zone_4
Indoor_01_21	21	System01	Zone_1
Indoor_01_22	22	System01	Zone_1
Indoor_01_23	23	System01	Zone_1
Indoor_01_24	24	System01	Zone_1
Indoor_01_25	25	System01	Zone_3
Indoor_01_26	26	System01	Zone_4

Added/removed outdoor unit system

Area 6 shown in the ***figure*** above is the operation area of added/removed outdoor unit system. The ***quantity*** of outdoor unit system of the whole project must match with the added one in figure 6, and the centralized control ***address*** (the address displayed on communication adapter plate)of every system must correspond with the system serial number.

Note:

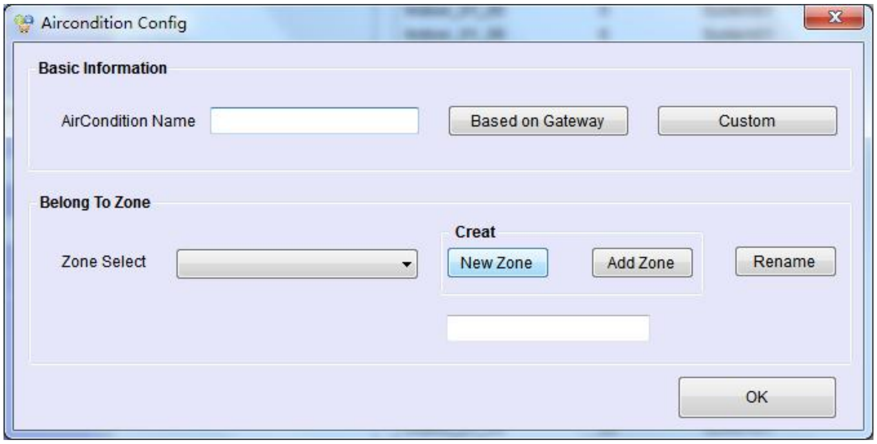
If the outdoor unit system deleted, the indoor unit belonged in it will also be delete! Please handle with care.

Added/deleted indoor unit

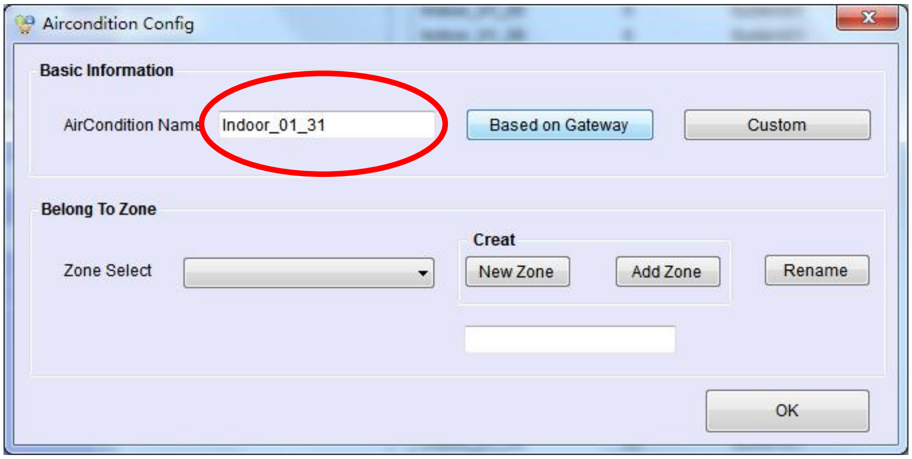
Area 7 shown in the figure above is the operation area of added/deleted indoor unit. Before added, user need to select one option in area 6 shows that he would add indoor unit in that outdoor system(the added quantity of indoor unit system must match with the actual quantity in the outdoor system).

5.7 Concrete operation

Click “***Add air condition***” button**,** the fallowing dialog box will pop up


Aircondition Config
Basic Information
AirCondition Name
Based on Gateway
Custom
Belong To Zone
Zone Select
Creat
New Zone
Add Zone
Rename
OK

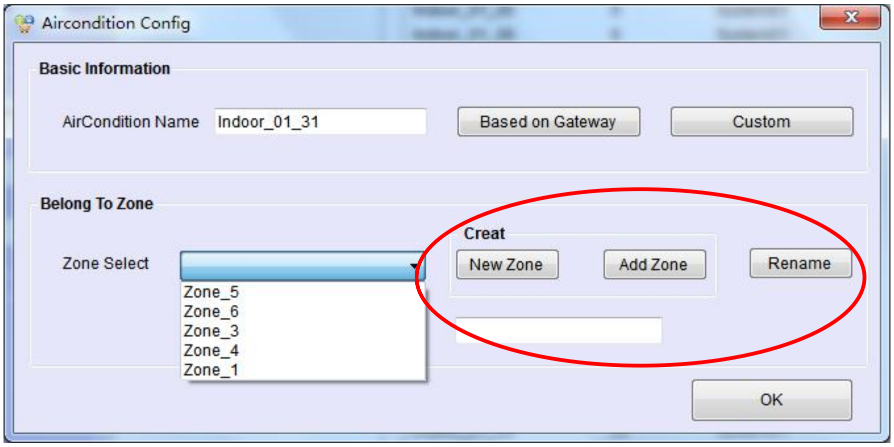
Click Based On Gateway button**,** there will ***generate*** a ***name*** (the red circle part in the figure below) according to indoor unit address and the system it belongs; click Custom button, user need to set a name by himself.


Aircondition Config
Basic Information
Based on Gateway
Custom
Belong To Zone
Zone Select
Creat
New Zone
Add Zone
Rename
OK

AirCondition Name: Indoor_01_31

Then is to ***choose*** the ***group*** the air conditioners belong. User can choose a group defined by himself in Area Select. If there has not user-defined group, user can establish a user-defined group in Create nodule, detail explanation in Added/changed user-defined group. Click "***OK***" to complete new group addition after the completion of the new group added.

5.8 Added/changed user-defined group



AirCondition Name Indoor_01_31

Aircondition Config
Basic Information
Based on Gateway
Custom
Belong To Zone
Zone Select
Zone_5
Zone_6
Zone_3
Zone_4
Zone_1
Creat
New Zone
Add Zone
Rename
OK

The red circle part in the figure above is the added and changed operation area.

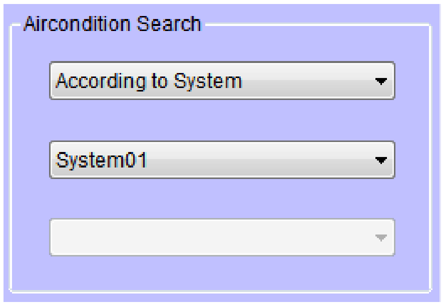
If user need to ***add new group***, first, click New Zone button and input the name of user-defined group, then click Add Zone button, here will show the name inputted just now , establishment complete;

If user need to ***modify the name*** of ***group***, select the group in Zone Select , input the new name, then click the Rename button, modification complete when the new name show in Zone Select

Note: Group deletion does not support now, be ***careful*** when ***adding***.

5.9 System query operation

System query operation includes system query and user-defined group query. Query ways can be chosen as the figure below:



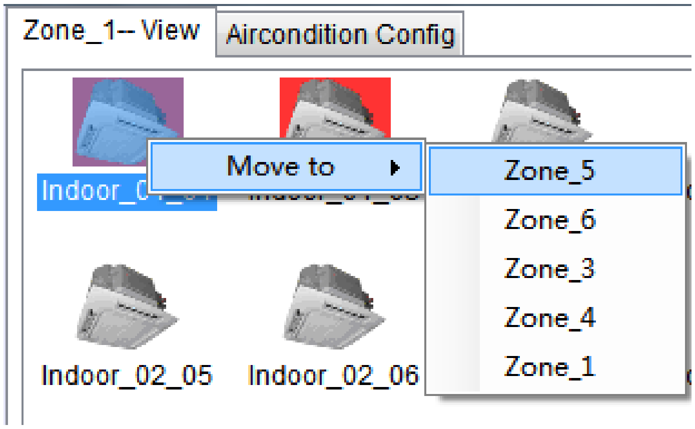
According to System

System01

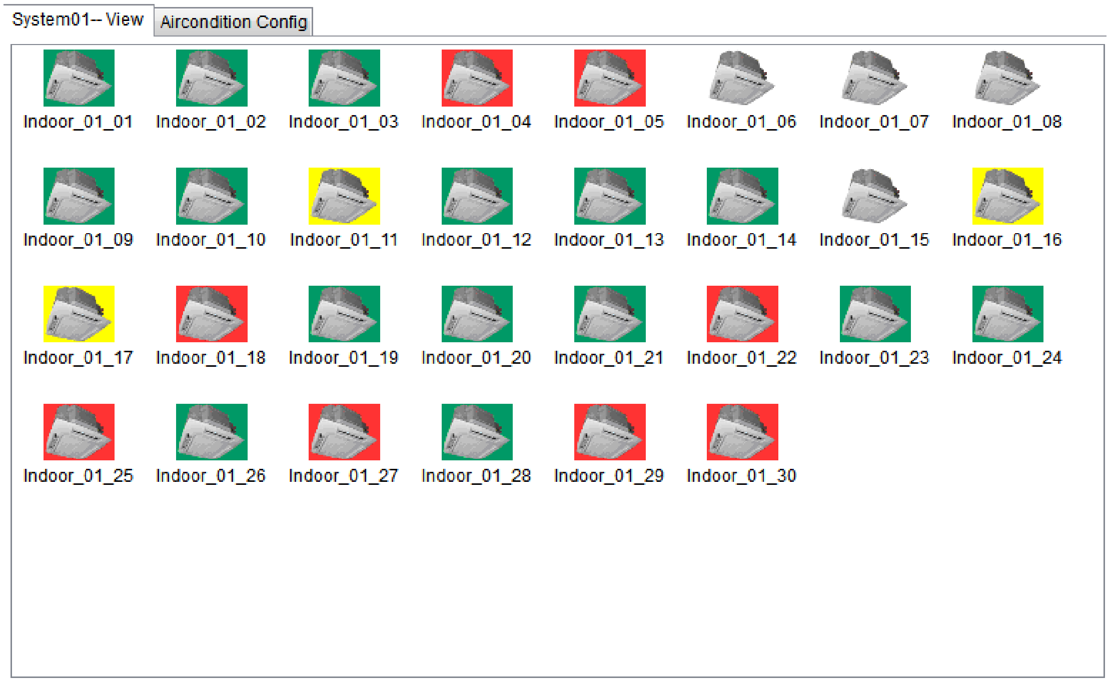
Aircondition Search

◇ If the chosen group is in According to System, then all the unit condition of the group will be displayed in area 4(area 4 will display the condition of all the indoor unit in System01 as the above picture shows).

◇ If user chooses one of the group in According to Zone, area 4 will display the condition of all the units in it. In addition, user can move the indoor unit to other groups arbitrarily under the state of user-defined group query, its operation as follow figure:


Zone_1-- View
Aircondition Config
Indoor_01_01
Indoor_01_03
Move to
Zone_5
Zone_6
Zone_3
Zone_4
Zone_1
Indoor_02_05
Indoor_02_06

When system is working(click Start Working in area 1), area 4 will display all the working condition if Indoor unit, as shown in the following figure


System01-- View
Aircondition Config
Indoor_01_01
Indoor_01_02
Indoor_01_03
Indoor_01_04
Indoor_01_05
Indoor_01_06
Indoor_01_07
Indoor_01_08
Indoor_01_09
Indoor_01_10
Indoor_01_11
Indoor_01_12
Indoor_01_13
Indoor_01_14
Indoor_01_15
Indoor_01_16
Indoor_01_17
Indoor_01_18
Indoor_01_19
Indoor_01_20
Indoor_01_21
Indoor_01_22
Indoor_01_23
Indoor_01_24
Indoor_01_25
Indoor_01_26
Indoor_01_27
Indoor_01_28
Indoor_01_29
Indoor_01_30

◇ *No* background is turned *off*;

◇ *Green* background is turned *on*;

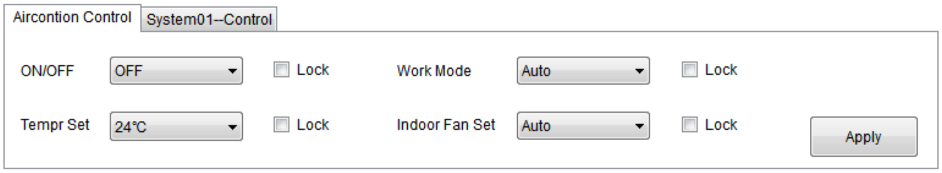
◇ *Red* background is system *failure*;

◇ *Yellow* background is *communication failure* or *electrical failure*.

5.10 System control operation

System control can be divided into single unit control; group control and weekly group timing control 3 parts. Single unit control achieves the controlling of one indoor unit; group control achieves the controlling of System group and Zone group; weekly group timing control achieves the weekly timing control of Zone group (user-defined group).

1) Single unit control



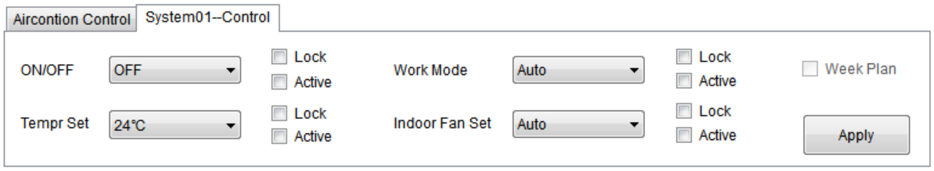
ON/OFF: OFF ☐ Lock
Work Mode: Auto ☐ Lock
Tempr Set: 24℃ ☐ Lock
Indoor Fan Set: Auto ☐ Lock

Besides on/off, ***temperature*** setting, ***mode*** setting, ***indoor speed*** setting, single unit control ***added*** the ***lock*** function (lock the 4 function above). If one function is locked, user cannot use it. For example, if ON/OFF is lock(choose Lock in ON/OFF), user cannot turn on/off the locked unit by remote or wired controller.

Indoor unit will executive command when click Apply after setting completed.

2) Group control

Group control achieves the unified control of one group, setting interface is shown as following figure:



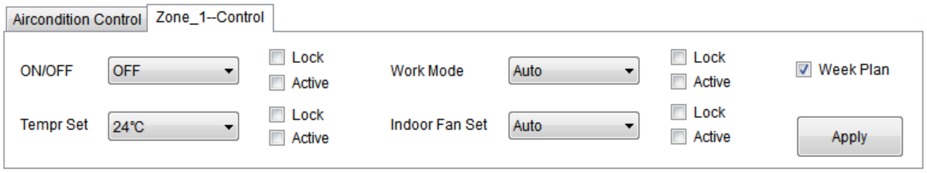
ON/OFF: OFF ☐ Lock ☐ Active
Work Mode: Auto ☐ Lock ☐ Active
☐ Week Plan
Tempr Set: 24℃ ☐ Lock ☐ Active
Indoor Fan Set: Auto ☐ Lock ☐ Active

Besides the ***general control*** and ***locking control*** of single unit control, group control is added the Active function. The matching state of indoor unit will change only when choose Apply function, unselected ones stay unchanged. For example, choose ON and Active, all the indoor units will be turned on, but the temperature, mode, speed will not be changed like the setting of group.

Indoor unit will executive command when click Apply after setting completed.

3) Weekly group timing control

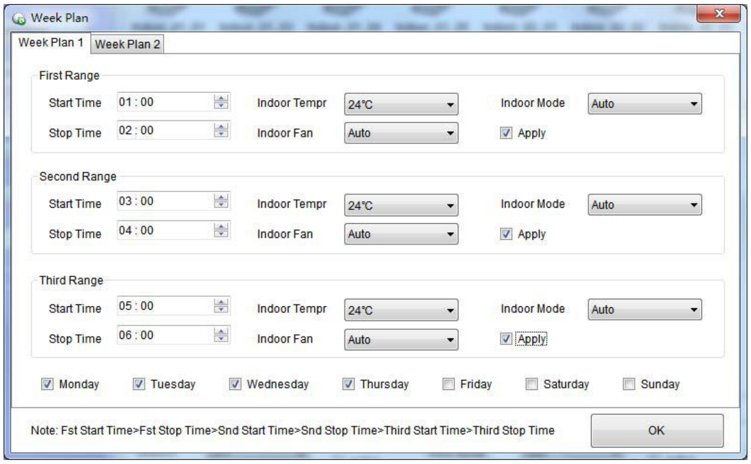
Weekly group time control is one of the control function in ***user*-*defined Zone***, system group has no this function, setting can be chosen only when the user-defined ***region*** is ***selected*** in ***query***. Shown as figure below:



Aircondition Control | Zone_1--Control

ON/OFF: OFF ☐ Lock ☐ Active
Work Mode: Auto ☐ Lock ☐ Active
☑ Week Plan
Tempr Set: 24℃ ☐ Lock ☐ Active
Indoor Fan Set: Auto ☐ Lock ☐ Active
Apply

Then setting dialog box will pop out when Week Plan is selected, shown as figure below, after ***completion*** of set, click the "OK" button to finish the setting.



Week Plan

Week Plan 1 | Week Plan 2

First Range
Start Time: 01 : 00 Indoor Tempr: 24℃ Indoor Mode: Auto
Stop Time: 02 : 00 Indoor Fan: Auto ☑ Apply

Second Range
Start Time: 03 : 00 Indoor Tempr: 24℃ Indoor Mode: Auto
Stop Time: 04 : 00 Indoor Fan: Auto ☑ Apply

Third Range
Start Time: 05 : 00 Indoor Tempr: 24℃ Indoor Mode: Auto
Stop Time: 06 : 00 Indoor Fan: Auto ☑ Apply

☑ Monday ☑ Tuesday ☑ Wednesday ☑ Thursday ☐ Friday ☐ Saturday ☐ Sunday

Note: Fst Start Time>Fst Stop Time>Snd Start Time>Snd Stop Time>Third Start Time>Third Stop Time

OK

Notes:

1. All the related intellectual property rights as System patent right, software copyright etc. ownership belongs to Ningbo AUX Electrical Company Ltd. Any unit or individual shall not copy, assignment, transact or use related production in other ways without permission. Otherwise Ningbo AUX Electrical Company Ltd. will have the right to pursue legal responsibilities.
2. If system is damaged by suffering a natural force majeure (such as earthquake fire typhoon, etc.), all losses should be responsible for system investors.
3. The user should use legal copy of Windows XP or Windows 7 and other legal copy of related software and antivirus software, make sure the computer is virus free and the Computer Independent Connecting Billing System is unaffected by other network or external port (***USB port etc***.), otherwise it is the users' responsibilities if there is any lost or damage.

3. The user should use authorized ***computers*** along with ***UPS***, the UPS should use the standard that it can keep the computer working for at least one hour if the power is suddenly cut off, and during this one hour the administrator would take care of the computer. It is users' responsibilities if any accident or ***data loss*** happened because of a ***sudden power failure***.

4. The user must make sure that the Photoelectric isolating ***converter*** is placed in a ***safe place*** that the converter is not easily damaged by people, make sure the wiring terminal is not loose leading to poor contact, and make sure the power is NOT easily cut off, otherwise it is the users' responsibilities if there is any lost or damage.

5. To make sure the system work for a long time, the user should ***regularly check*** and ***repair*** it, ***reboot*** the ***computer*** at a fixed time ***every day***, so that the computer could run in a good environment, ensure the reliability of the system, release the computer resource. Here is what users should do, ***first stop*** the communications of ***Billing*** System, then ***exit*** it, ***reboot*** the computer, open the software after the computer is ***rebooted***.