



YDS-3-GNS-0408

ENGLISH

INSTALLATION & OWNER'S MANUAL

THIRD GENERATION NETWORK SYSTEM

Please keep this operation manual properly.
Read this operation manual carefully before using the unit.

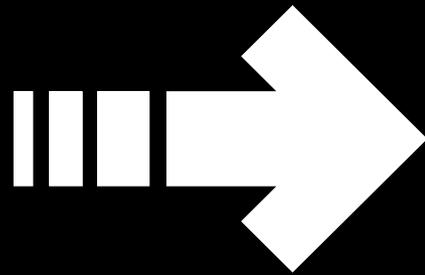
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***Third Generation
Network System
Installation Manual***



- Thank you for your confidence and choosing the Third Generation Network System.
- To ensure correct use of the product, please read this manual and the indoor unit operation manual carefully before using the unit.
- For convenience of future reference, keep this manual properly after reading it.
- For any question, contact the supplier.
- Make sure you have a *Customer Service Manual*.

1 General Description of The System

1-1 Third Generation Network System

The intelligent network air conditioner management system that is the upgrade and perfect version base on original network management system, integrating with prior network monitored management system and network power supply division system, could substituting the prior version.

1-2 Available occasion

The network system suitable used for middle or small size building, controlling mostly 1024 items indoor units and 512 items outdoor units.

1-3 Features

- 1) This system introduce construction concept by creating some new attributes through the system so as to communicate indoor and outdoor units, as well as additional employ a fee charge function for counting fee during operation.
- 2) This system introduce user-stratified concept for ensuring correct system data that would not be altered by different users' operation.
- 3) This system records the indoor and outdoor units operation data for convenient control of future maintenance and upkeep.
- 4) This system provides LonWorks and TCP/IP interfaces for convenient controlling the air conditioner by external LonWorks and TCP/IP.
- 5) This system provides operation real-time defective report and offers troubleshooting method (simple description) for your reference.
- 6) This system realizes on-line problem diagnosis service, guarantees the safety of your air conditioner system.
- 7) The longest steady transmission distance of this system is 1200 meters. Provided that the distance over than 1200 meters, an additional special relay should be purchased to extend its mostly transmission distance to 3000 meters.

2 System Configuration

2-1 System diagram

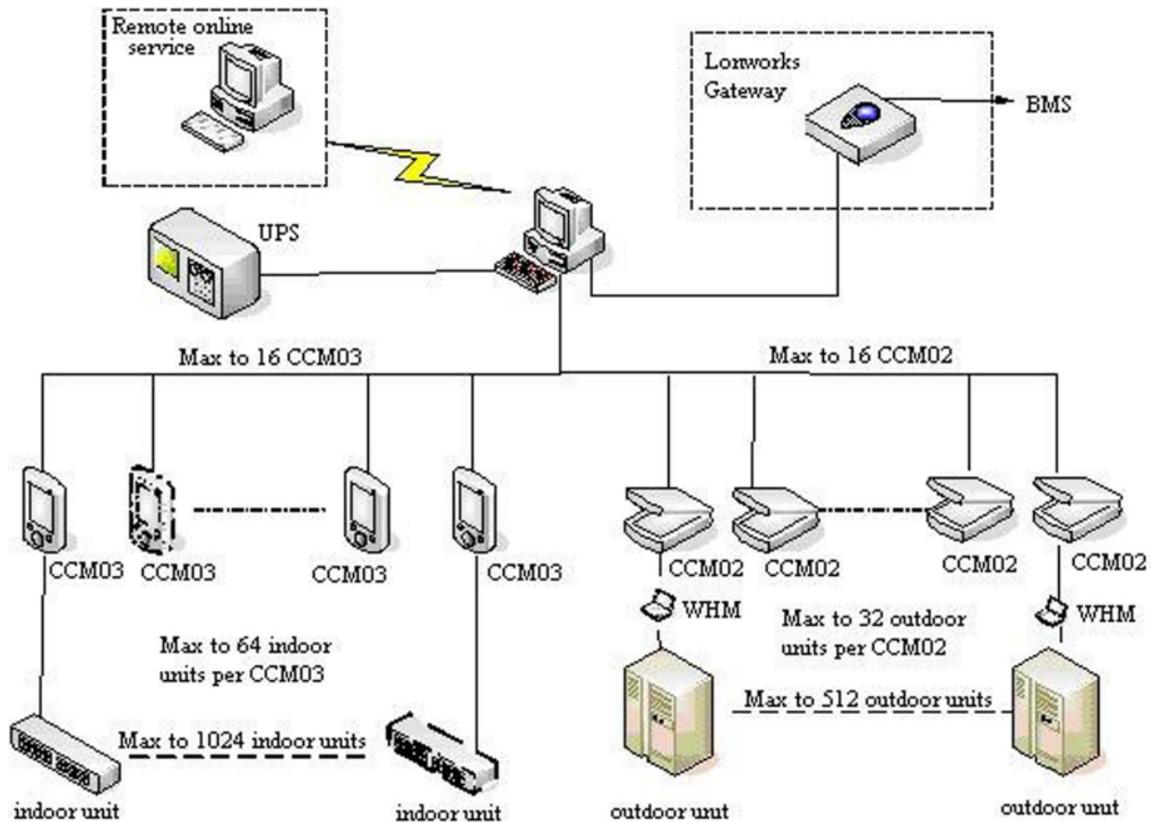


Fig.2-1

- 1) The system mostly can be connected to 16 indoor centralized controllers and 16 outdoor one simultaneously with each indoor controller connecting up to 64 indoor units and each outdoor centralized controller connecting up to 32 outdoor units.
- 2) The communication connection lines of indoor unit, outdoor unit and computer are pooled together to connect to the computer via a computer serial port or USB port.
- 3) LON gateway is connected via another serial port, which requires a computer with Dual-serial-port, if not, a USB-RS232 transducer should be employed for it.
- 4) Remote on-line service can transmit data from monitor computer to remote air conditioner via INTERNET.

3 System Structure

3-1 Equipments and spaces requirement in the system

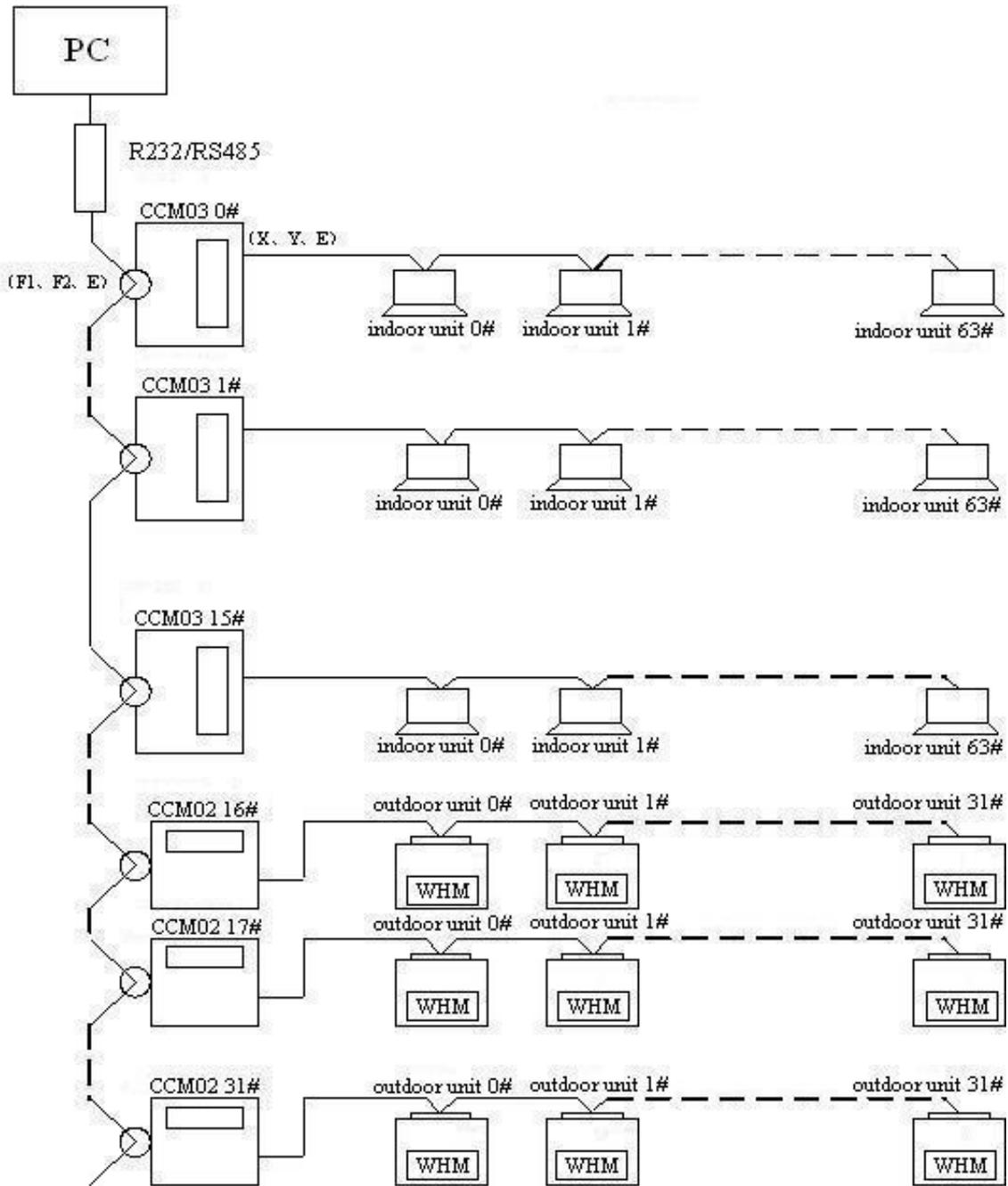


Fig.3-1

3 System Structure

No		Equipment specification	Recommendation	Note
1	PC	CPU: Pentium 4, 2G or more frequency. Hard disk: 40G or more. Memory: 512M or more Communication port: two or more R-232 ports, and three or more USB ports. Operation system: WIN2000 or WIN XP. Application software: Legal personal version SQL Serve 2000. Printer: Ordinary laser printer or inkjet printer is able to output A4 size paper.	Lenovo, DELL products	Sp4 or above patch, which could be downloaded from Microsoft official website must be installed in SQL Sever via WIN XP system.
2	Un-interrupted power supply (UPS)	Capacity: 200~250W/20min Voltage: As per the field requirement. Control signal: Power failure signal.	APC SU700 series	Optional Accessory, recommend to choose
3	Watt hour meter (WHM)	Function: Dynamically change the address of WHM as per the standard and display the reading of WHM as per the dynamic address of main board input.	Zhengtai DTS634 Zhitong DTS636	Reference to the supplier Instruction
4	3rd network system package	Attached Operation manual, soft-dog, Installing disk and 485-232 converter		Must purchase it from Air conditioner supplier.
5	Other	3-cord Shielded twisted-pair wire		Conform to Air conditioner supplier network air

Table 3-1

Note

- 1) Please carefully keep the soft-dog. Any accessory loss after sale, no single accessory could be offered additionally, but purchase the whole set if necessary.
- 2) User should purchase a legal software (Operation system and SQL Server database) that providing a running environment for 3rd network system. Air conditioner supplier only install the network monitor system and give the technical support for user.

3 System Structure

3-1-1 Indoor, outdoor centralized controller

A. Indoor centralized controller

1) Indoor centralized controller is used for query, control indoor units, transmit indoor units status information to PC and deliver control and query order from PC to indoor units.

2) Overview of indoor centralized controller

(1) Overview of indoor centralized controller

a. An indoor centralized controller jointly with 64 items of indoor units to compose an air conditioner LAN, so as to centralize control all air conditioners within the LAN, where various control commands and setting statue can be sent to each indoor unit to satisfy various control requirements. The control signal of centralized controller can be sent longest than 1200m, or longest than 3000m by applied the relay, which provided by air conditioner supplier.

b. A centralized controller enables interface with computer or gateway to realize centralized computer control over, parameter setting and status query of all the air conditioners in the network. Furthermore, it enables connection with WAN through the computer or gateway realizing a longer distance remote computer control.

(2) Description of wiring installation

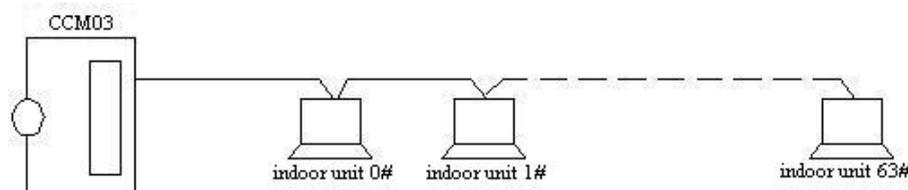


Fig.3-2

! Note

Suitable 100 Ω or 120 Ω resistor must be installed at the front and rear (between the end of X and Y) of the bus. (inside of indoor/outdoor centralized controller)

B. Outdoor centralized controller

1) Overview of outdoor centralized controller

(1) The controller enables centralized control over and data query of the outdoor units. Each controller can form a monitoring and controlling network with up to 32 outdoor units through a network interface module. Wired connection is used for communication and to enable centralized control over outdoor units in the network.

3 System Structure

(2) The controller can communicate the computer via RS485/RS232 transformation interface. Each computer can connect with 16 outdoor centralized controllers and 16 indoor centralized controllers. The computer enable central control over, management, status query, etc of the outdoor centralized controllers, indoor centralized controllers, indoor units and outdoor units within the monitoring system.

(3) Communicate between controllers and outdoor units, as well as between computers and controllers by the way of primary machines queries and the secondary machine replies. In the monitoring system composed by controllers and outdoor units, the controller is the primary machine, while the outdoor unit is the secondary machine.

2) Description of wiring installation

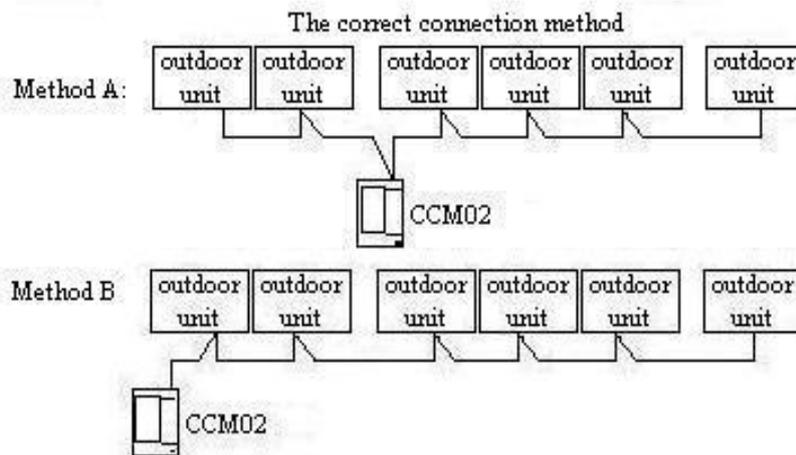


Fig.3-3

⚠ Note

Suitable 100Ω or 120Ω resistor must be installed at the front or rear (between the end of K1 and K2) of the bus.

3-1-2 Active watt-hour meter

1) Function of watt-hour meter

Watt-hour meter is used for measure the consuming power of each outdoor unit, and deliver the data to main control board of outdoor unit.

3 System Structure

2) Requirement on watt-hour meter

- (1) System is required the meter read data by 485 communication interface satisfying DL-T645-1997 (national standard watt-hour meter regulation)
- (2) The meter shall conform to the relevant national technical standards and be confirmed by the power supply authorities.
- (3) The watt-hour meter shall conform to the I Grade technical requirements of GB/1725-2002g Grade I and Grade II Static AC Active Watt-hour Meters.
- (4) Installation site:
Specified work temperature: $-25^{\circ}\text{C}\sim+55^{\circ}\text{C}$
Scope of work temperature: $-40^{\circ}\text{C}\sim+55^{\circ}\text{C}$
Relative humidity: $<85\%$
- (5) Wring methods of watt-hour meter shall be referred to the wiring nameplate attached in the watt-hour meter.

3-1-3 Softdog

Softdog is essential in starting the system by insert it into any USB port, and it attaching in the network package.



Fig.3-4

4. Install the Network System

4-1 Overview of system installation and setting

- 1) Install operating environment of database SQL Server 2000(Personal version). Complete the installation of SQL Server 2000 (personal version) as per the database installation in the installation manual. (See Section 4-2-1 for detail)
- 2) Install 3rd network system. (See Section 4-2-2 for detail)
- 3) Install softdog driver. (See Section 4-2-3 for detail)
- 4) Setting 3rd network system. (See Section 4-3-1 for detail)
- 5) Complete computer setup as per type of operating system computer.

4-2 System installation process

4-2-1 Install the database SQL Server 2000 (personal version)

The system adopts Microsoft sever 2000 in a couple of versions, simplified personal version is recommended. The installation process are as following:

- 1) Double click AUTORUN.EXE to enter the following window:



Fig.4-1

- 2) Select “SQL Sever2000 Components” to enter the following window.



Fig.4-2

4. Install the Network System

1) Select "Install Database Sever" to enter the formal installation window as follows. Then click [Next].



Fig.4-3

2) Select "Local Computer". Then click [Next].

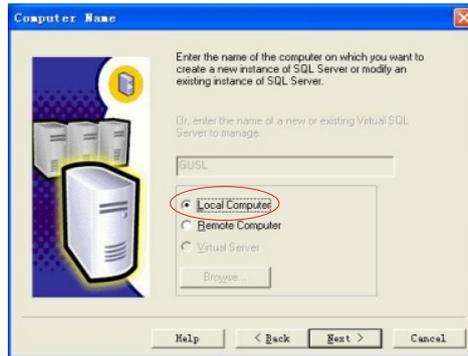


Fig.4-4

3) Select "Create a new instance of SQL Server or install client Tools". Then click [Next].



Fig.4-5

4. Install the Network System

6) Fill Name and Company. Then click [Next].

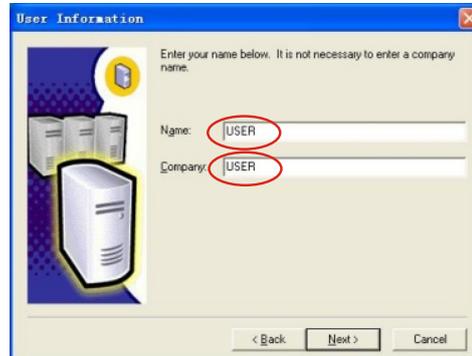


Fig.4-6

7) Read the "Software License Agreement" and select [Yes] continues the installation.

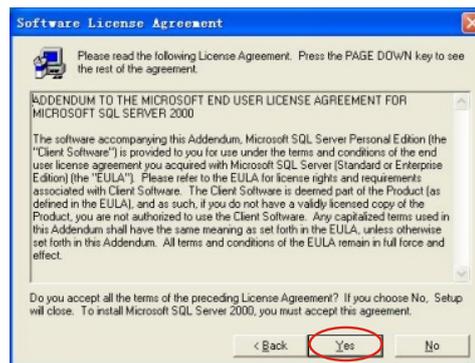


Fig.4-7

8) Select "Server and Client Tools". Then click [Next].

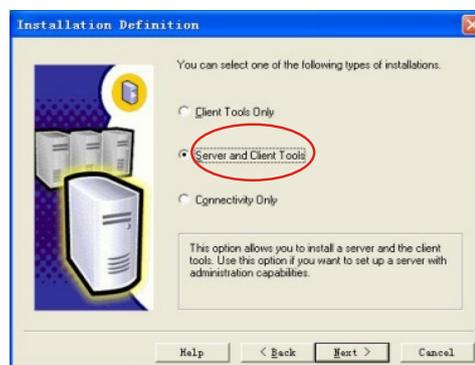


Fig.4-8

4. Install the Network System

9) Select "Default". Then click [Next].

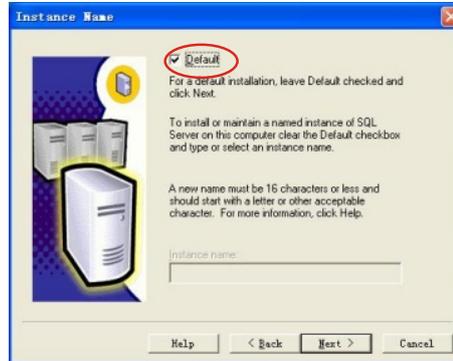


Fig.4-9

10) Select installation type "Typical", click [Browse] to choose the install catalogue. Then click "Next".

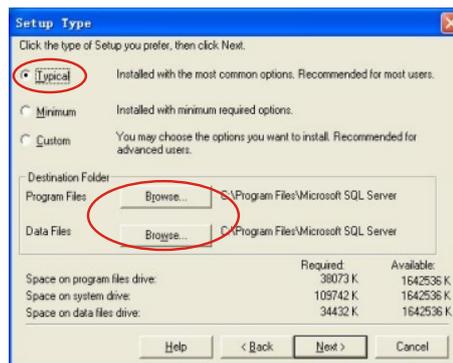


Fig.4-10

! Note

10 GB must be available for use in this install catalogue.

11) Select "Use the same account for each servers. Auto start SQL Server Service". Select "Use the Local System account" for server set. The click [Next].

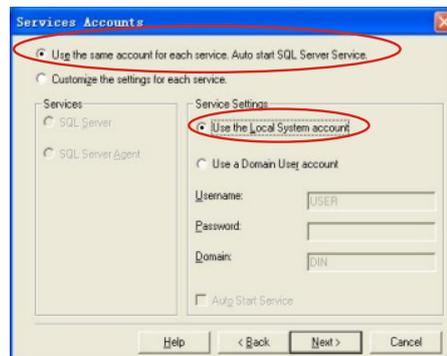


Fig.4-11

4. Install the Network System

12) Select Authentication mode "Mixed mode" and input "sa" that password is "sa" (The connective password between system and database is "sa", thus the login passage must be "sa"). Then click [Next].



Fig.4-12

13) Select [Next] enter the software installation window.



Fig.4-13

14) The software installation window of SQL Server are as following:

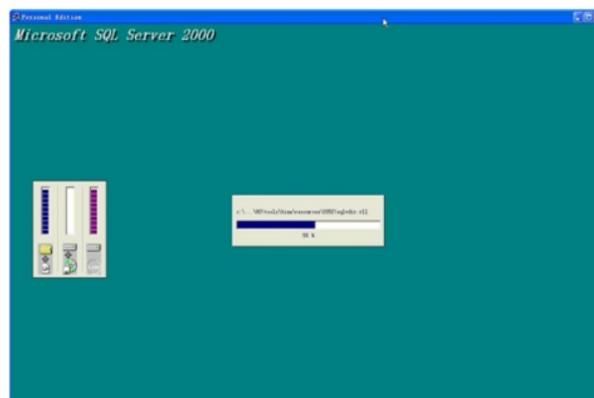


Fig.4-14

4. Install the Network System

15) Upon all above process are finished, the software has been installed.

! Note

If install fail during installing process, the reason were same software have been installed but failure. You could solve the problem by running "regedit", and then opening the Registry Editor, in HKEY_LOCAL_MACHINE\SYSTEM\CurrentControl Set\Control\Session Manager to find out the PendingFile RenameOperation file, and delete it. That temporary install file is cleaned up.

4-2-2 Install network system

1) Run the "Setup. exe" in install package, the following window is showed:



Fig.4-15

2) Click [Next] the following window will show, Please click "I agree to the terms of this license agreement" as below figure, and then click [Next].

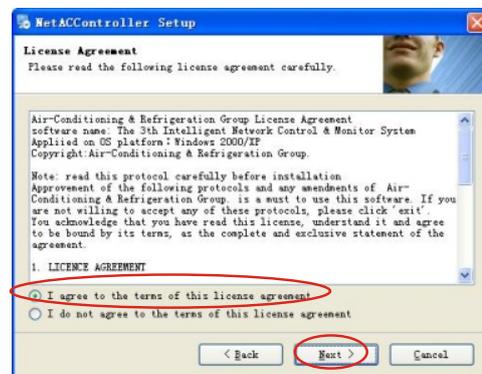


Fig.4-16

4. Install the Network System

- 3) Click [Next], the following window will show. Please fill Name and Company, and then click [Next].

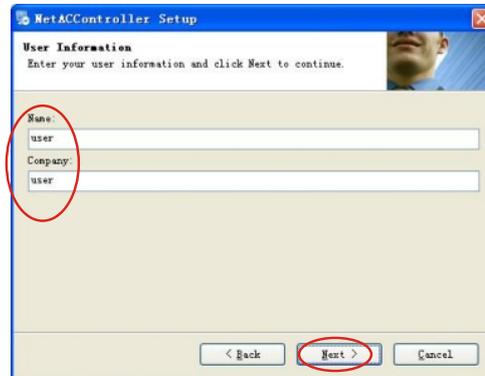


Fig.4-17

- 4) Click [Next], the following window will show. The install location could default as the address listed below or click "Change..." to select MNS install location.

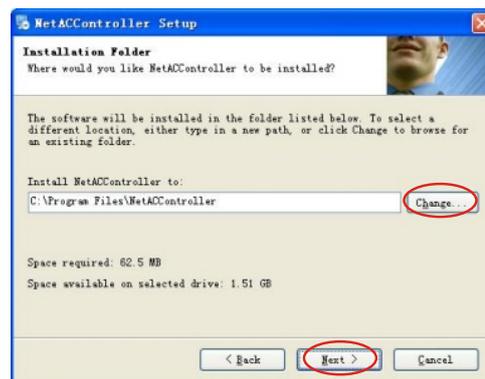


Fig.4-18

- 5) Click [Next], the following window will show. Select monitoring software name in the starting process of task column, and tick "Make shortcut available to all users".

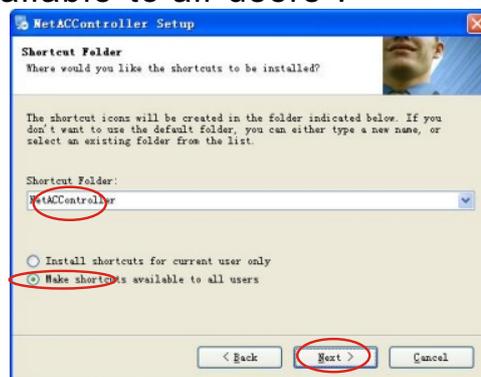


Fig.4-19

4. Install the Network System

6) Click [Next] enter software installation window. After confirm all information you filled are correct, please click [Install] button access to monitoring installation process. Installation window as following:

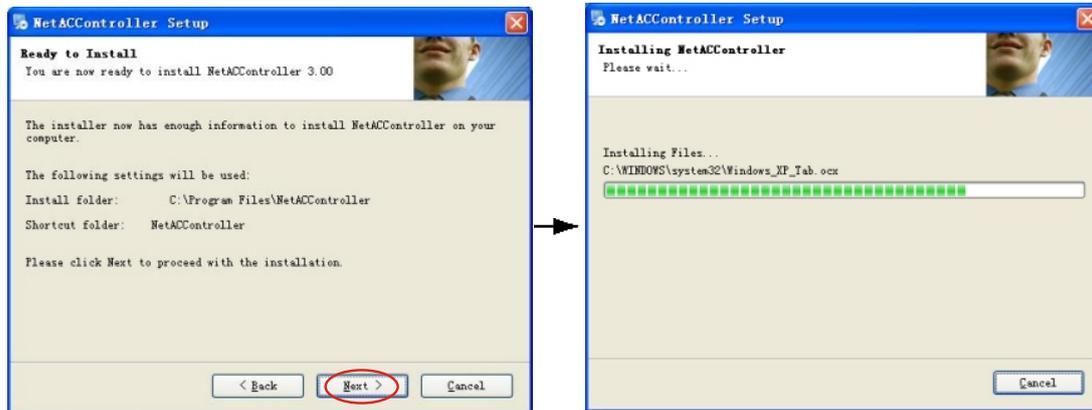


Fig.4-20

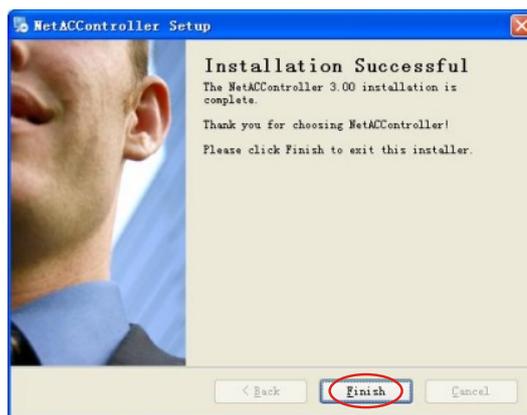


Fig.4-21

Upon all above process are finished, the software has been installed.

4-2-3 Install Softdog Driver

1) Run the "MicroDogInstdrv. Exe" in install package, the following window is showed. Insert the softdog to any USB port of upper PC, and then click [Install Drive].

4. Install the Network System

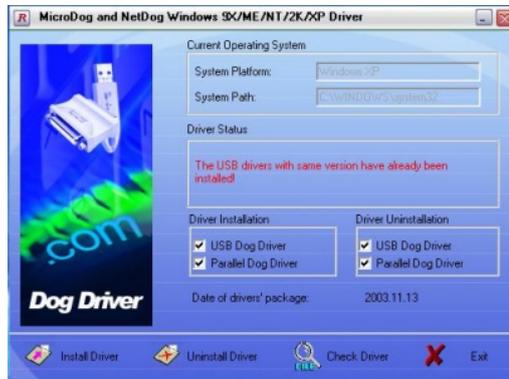


Fig.4-22

2) Automatic enter to the following window, please select "Install the software automatically(Recommended)", and then click [Next].



Fig.4-23

3) System will search the driving process automatically as following window:



Fig.4-24

4. Install the Network System

- 4) The following window shows, click [Finish], Softdog driver has been installed.



Fig.4-25

4-3 System setting

4-3-1 Monitoring system setting

1. Initialize the system

Microsoft SQL SERVER2000 must be install before install the system. And run C:\Program Files\NetACController\NetAcControllerIniting.exe, after finished the system installation.

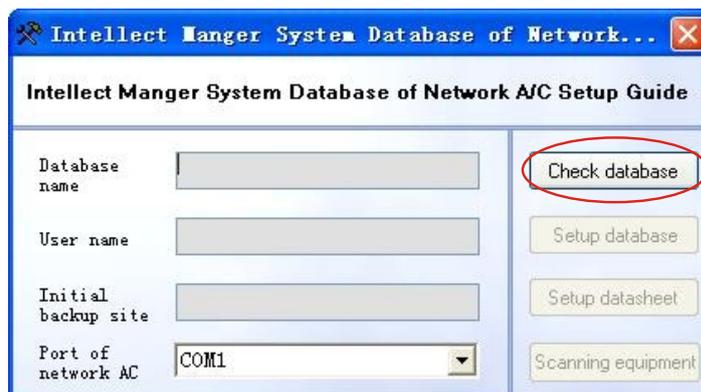


Fig.4-26

- 1) Click "Check database", the following window will shows, input the licensed code (Licensed code in "readme.exe" of installation file)

4. Install the Network System

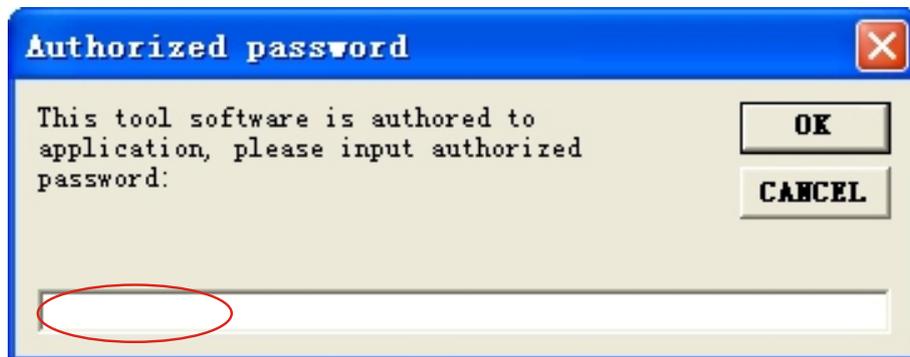


Fig.4-27

2) Click "Setup database", window showed as follows:

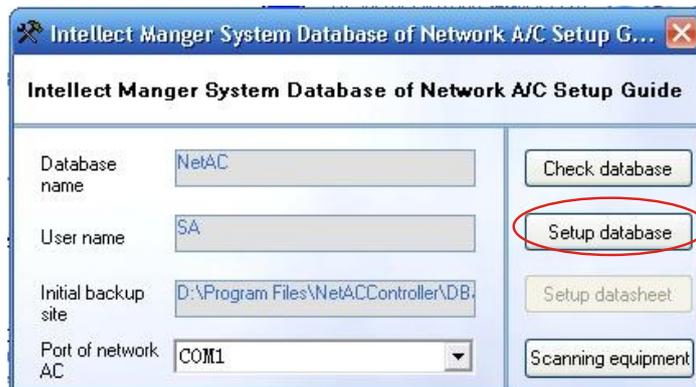


Fig.4-28

Until the "Setup database successful" dialogue box is promoted, database has been built up.



Fig.4-29

4. Install the Network System

3) Click "Setup database", window showed as follows:

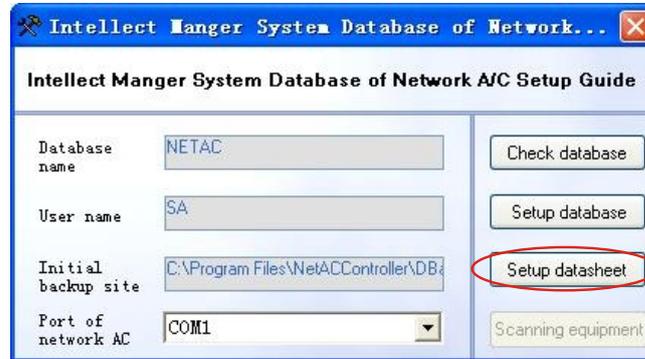


Fig.4-30

Until the "Setup datasheet successful" dialogue box is promoted, data form has been built up.

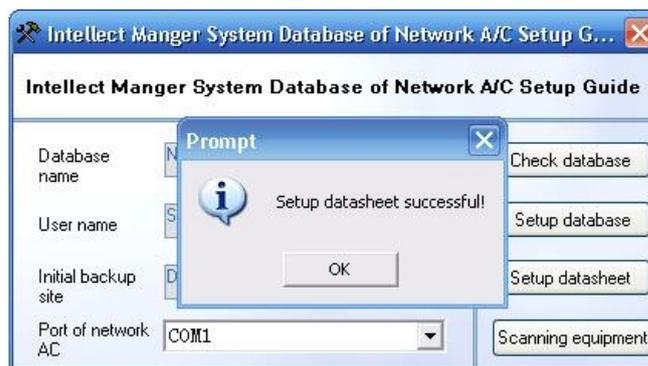


Fig.4-31

4) Click "Scanning equipment", window shows as following:

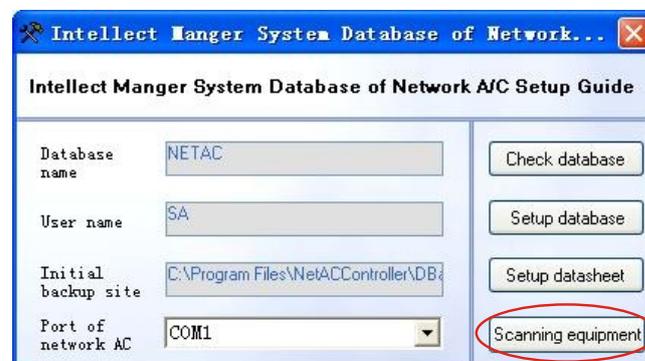


Fig.4-32

4. Install the Network System

See following figure, this window will show upon the process finish. All indoor and outdoor units, indoor and outdoor centralized controllers within this system will be save as per their addresses to database.

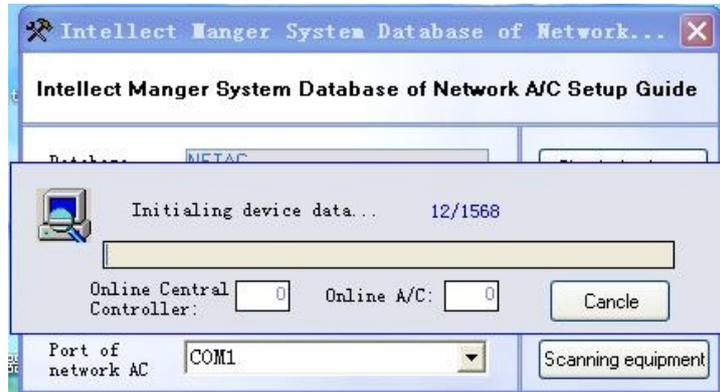


Fig.4-33

Upon all above processes are finished, system has initialized.

2. Build up outdoor units

Units described as multi-connecting unit controlled by outdoor centralized controller.



Fig.4-34

Please select the practical outdoor centralized controller according to actual outdoor unit quantity to setup.

4. Install the Network System

3. Setup outdoor units

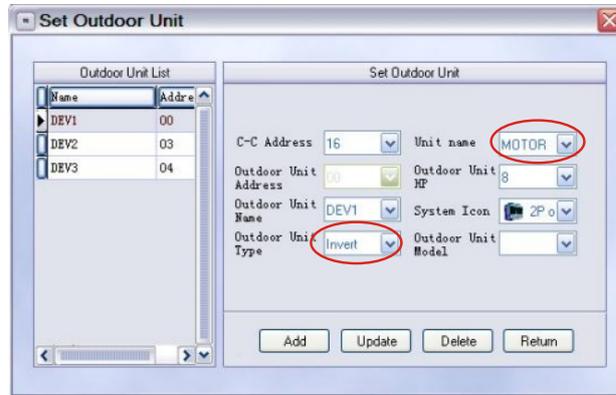


Fig.4-35

- 1) Upon finish the initialization, system defaults outdoor unit address is outdoor unit's name. User could rename units for your operation convenience.
- 2) Outdoor unit model default as fixed frequency outdoor unit, thus for correct information display, you should modify it as per your actual outdoor unit model.
- 3) Select the units of this outdoor unit. All unit under the same centralized controller are in the drop down box. It is essential to select as per the actual installation as it is related to attribution of electricity consumption to specific outdoor unit.
- 4) Input the actual capacity of outdoor unit in the horsepower column as the reference parameter of outdoor unit.
- 5) Select the outdoor unit icon easily identifiable in the system as per the actual condition.
- 6) Input the model of outdoor unit as per the actual condition and press [Update] after confirming everything is OK.

4. Centralized controller setting window

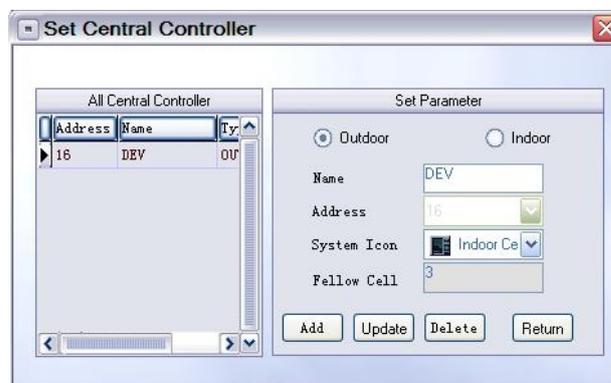


Fig.4-36

4. Install the Network System

1) After running the initiation tool, select outdoor and the outdoor centralized controller will be listed. The name of centralized controller is its address. Likewise, select indoor and all the indoor centralized controllers will be listed with the address of controller as its name.

2) Select centralized controller of the list and change its name for you're easy remember. In the meanwhile, select an icon easily identifiable.



Fig.4-37

5. Setting of indoor unit

1) After initiation, all the indoor units of the selected centralized controller will be listed, please modify the model, capacity and the corresponding relationship with outdoor units as per the actual condition.

2) Input an easy to remember name for indoor unit. In the meanwhile, select the model of indoor unit as per the actual condition and input the model of indoor unit.

3) In case of electricity bill calculation, it is essential to select its corresponding outdoor units. If it is only for monitoring and control, it is unnecessary to correspond to the outdoor units.

4) You shall be careful to input the capacity of indoor unit, as it is an important parameter directly relating to electricity bill calculation (See the following form). Ex: Model MDV-D71Q4 indoor unit. In this model, the number after "-" is "71" that means this indoor unit model is 71, which corresponding horsepower is 2.5 HP.

5) If it is essential to limit the electricity use of air conditioner user, the electricity limit option shall be selected for indoor unit with input of limit quota. If the quota balance from the previous month can be carried over to the next month, the option "balance carrying over" shall be selected.

4. Install the Network System

6) If the conditioner is installed in a public area with the fees to be shared, it is essential to select the property of common air conditioner.

Normal Models & Their Horsepower

Indoor unit model	Horsepower	Indoor unit model	Horsepower
22 model	0.8HP	75 model	3HP
28 model	1HP	80 model	3HP
36 model	1.3HP	90 model	3.2HP
45 model	1.7HP	112 model	4HP
56 model	2HP	140 model	5HP
71 model	2.5HP		

Table 4-1

Note

Note: The air conditioner supplier commends system parameters been set as Table 4-1, however, user could decide it by own and do so at their own risk. The air conditioner supplier does not responsible for it.

6. Group setting

- 1) Click "Set group parameter" and select a blank line in the list to input the group name
- 2) Then click [Update] button and the new group is created.



Fig.4-38

7. Setting air conditioners of a group

- 1) Select the group to be set on the right.
- 2) Click to open the left tree and select the air conditioner to be added into the group. Then click [>>] to add the air conditioner into the group. Likewise, select an air conditioner in the list and click [<<] to delete it from the group.

4. Install the Network System

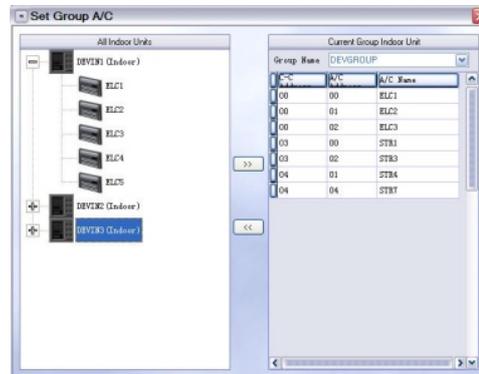


Fig.4-39

4-3-2 Setting operation system

1. Setting auto restart

1) Auto restart setting can ensure auto restarting upon power on after failure of computer.

(1) Click start button specify setting /control panel, and double click "system" icon.

(2) Click [Advanced] tag to select "Startup and Recovery".



Fig.4-40

(3) Tick "Send an administrative alert"

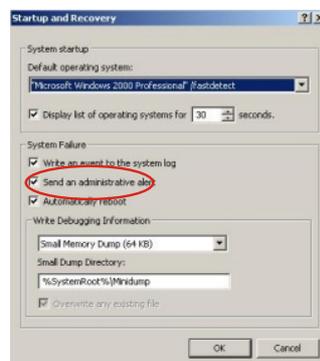


Fig.4-41

4. Install the Network System

2) AUTO logon

Upon starting of Window 2000, it is essential to logon via pressing ctrl-alt-del. This indicates that all the programs, including our intelligent management system, must start the management system upon restarting after shut down. So auto start is needed.

(1) Enter [Control panel] and double click the icon [User account and passwords]

(2) Remove the tick for the option [User must enter a user name and password to use this computer]

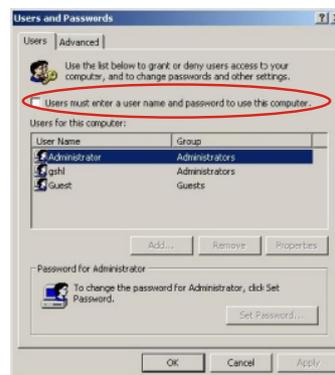


Fig.4-42

(3) Click [Advanced] button.

(4) Remove the tick beside [Press ctrl-alt-del to logon the system]



Fig.4-43

3) Auto start

After starting of Window 2000, start our intelligent management system automatically.

(1) Open the file C:\documents and settings\all users\start menu\programs\startup

(2) Click the right key: [NEW]-[SHORTCUT]

4. Install the Network System



Fig.4-44

(3) Click [browse] and select EXE file of our intelligent management system.

(4) Give the auto start a name easy to remember and then press [Finish] button.

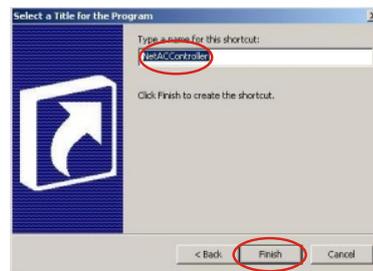


Fig.4-45

(5) Restart the computer and check whether our intelligent management system will start automatically.

2. Window XP, software auto restart function

Set the auto restart function when Window XP accidentally terminates.

(1) Select [Control panel] from [Start] and double click [System] icon.

(2) In the [Advanced] option, click to select the [Setting] options under the menu [Startup and recovery]



Fig.4-46

4. Install the Network System

(3) Select [Automatically restart]

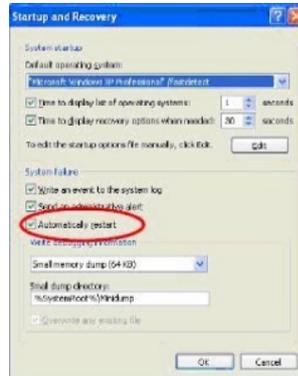


Fig.4-47

3. Auto network logon

Auto network logon is essential to run the computer of our intelligent management system.

Auto network logon setting enables automatic logon to network of Windows XP without logon when the computer operating monitoring system is turned on Windows XP may encounter the following cases at the beginning of auto network logon:

- "Welcome screen" may be set up
- Cancel guest accounts
- Two or more user accounts are not allowed
- User password cannot be set up

1) "Welcome screen" can be set up

- (1) Click [Start], select [Control panel] and then click [User account] icon
- (2) Click [Change the way users log on or off]

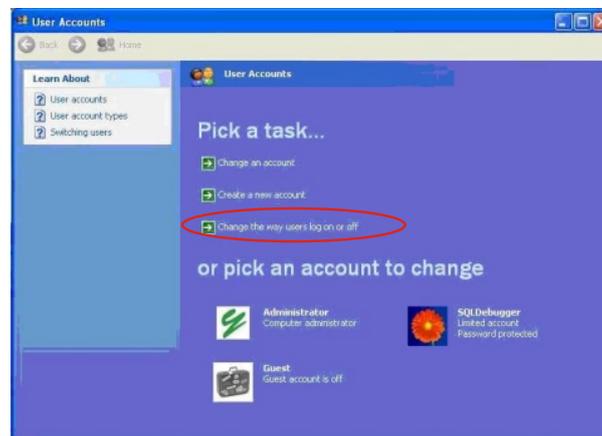


Fig.4-48

4. Install the Network System

(3) Tick [Use the Welcome screen]

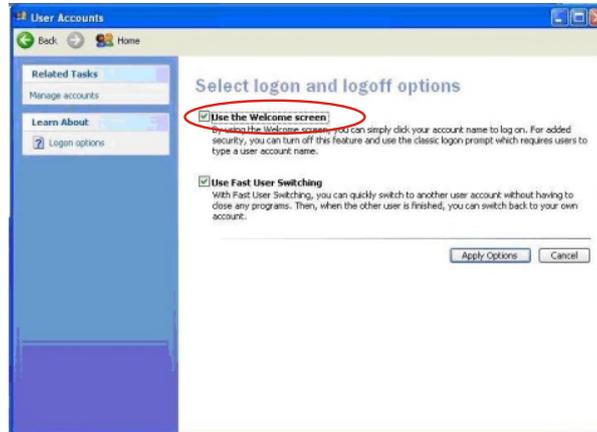


Fig.4-49

2) Cancel guest accounts

(1) Click [Start], select [Control panel] and double click [User account] icon.

(2) Click [Guest]

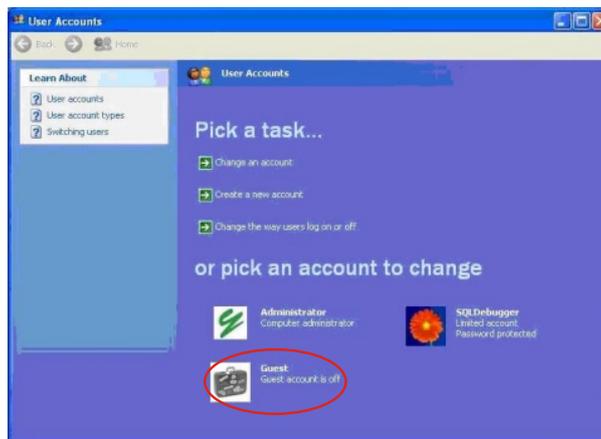


Fig.4-50

(3) Click [Turn off the guest account]

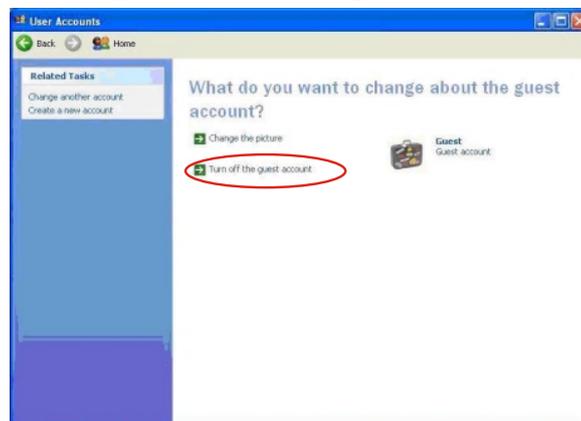


Fig.4-51

4. Install the Network System

3) How to remove user account and password in window system

(1) Click [Start], select [Control panel] and double click [User account] icon.

(2) Select the user account and password to be removed

(3) Click [Remove the password]

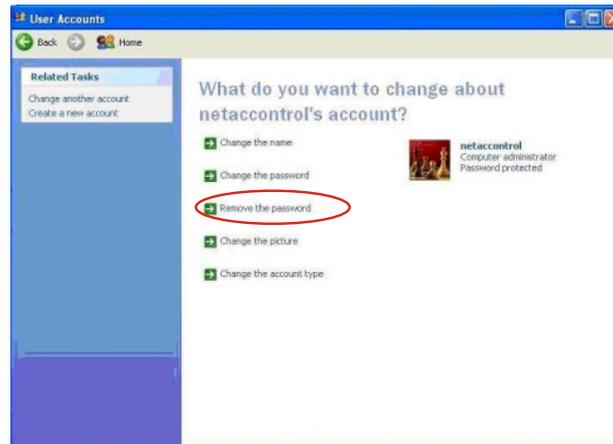


Fig.4-52

(4) First input user account and password and then click to [Remove password].

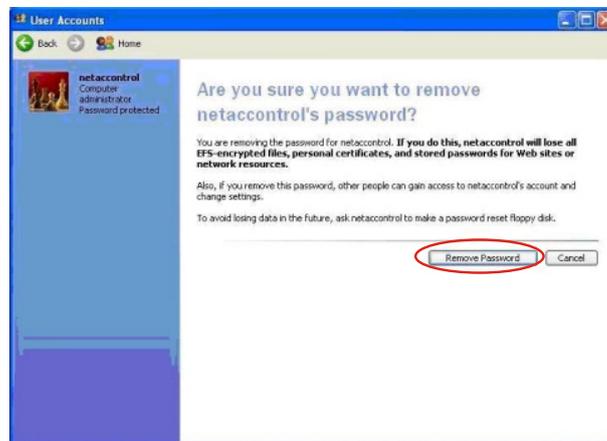


Fig.4-53

4) Auto start our management system software upon starting

(1) Open the file C:\document and setting\all users\start menu\programs\startup

(2) Click the right key [NEW]-[SHORTCUT].

5. Important Points of Design

5-1 System composition

1) System overview

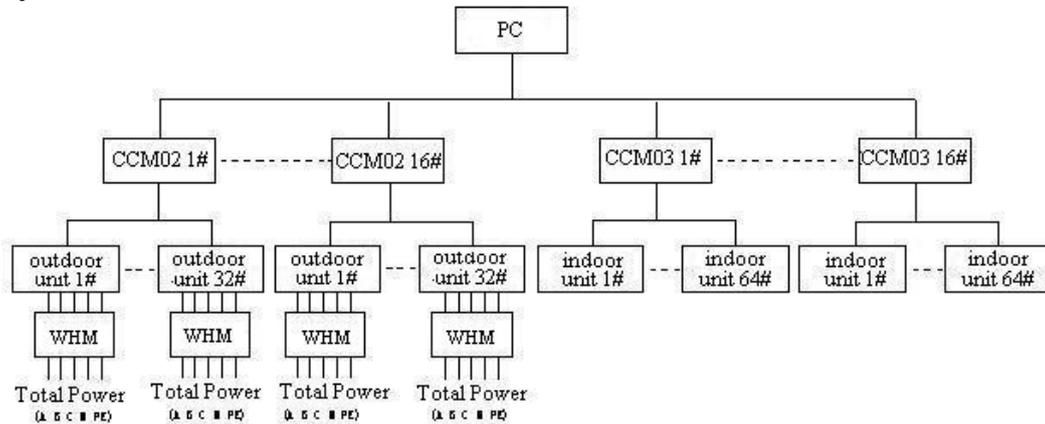


Fig.5-1

2) System connection

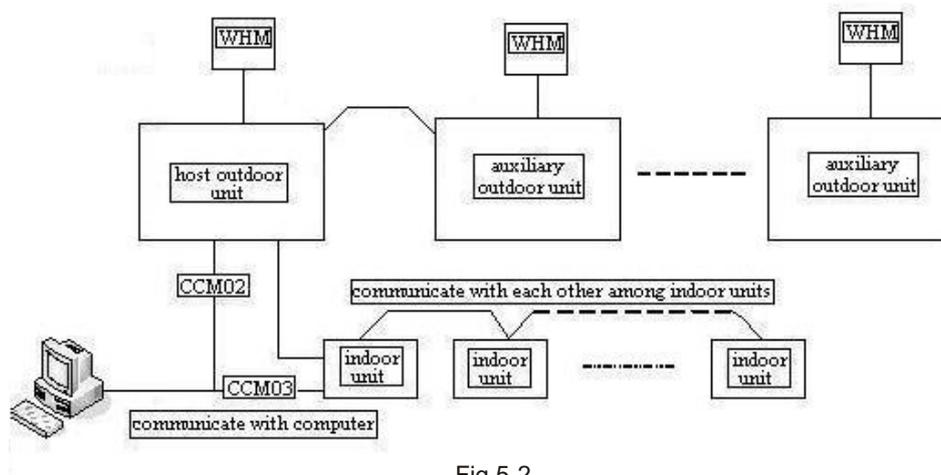


Fig.5-2

5-2 Group control

- 1) Concept of group. A group can be a control unit in the system and all the indoor units under a group can be controlled via system operation. Provisional control or the predefined group task control is feasible. In the meanwhile, the group can also be a unit of electricity bill settlement and all the electricity fees of all the indoor units under a group can be summarized.
- 2) When setting air conditioners for a group, it is recommend not to arbitrarily change air conditioners of the group as it involves the calculation of electricity fees. The system will record the electricity fee even for a small portion of time to the report sheet to avoid any doubts.

6.Problems Used to Encounter in Fee Charge System

6-1 How to solve the problem about diary full.

The following dialogue box may shows during the operation, for the reasons of after a long time running of fee charge calculation system

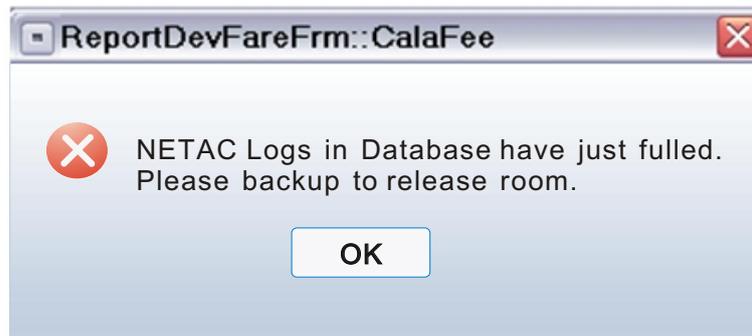


Fig.6-1

There are 2 methods to solve the problem: To reduce the diary files size in database and to enlarge the diary files size up to the maximum allowance, details process as follows:

1) Reduce the diary files size value

(1) Open the enterprise management database, see window as below. Select NETAC database, click right key to choose [All tasks]-[Shrink Database]

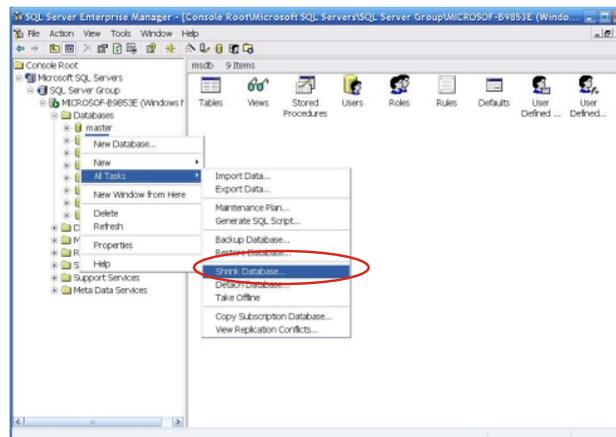


Fig.6-2

6.Problems Used to Encounter in Fee Charge System

(2) Click [Files]:

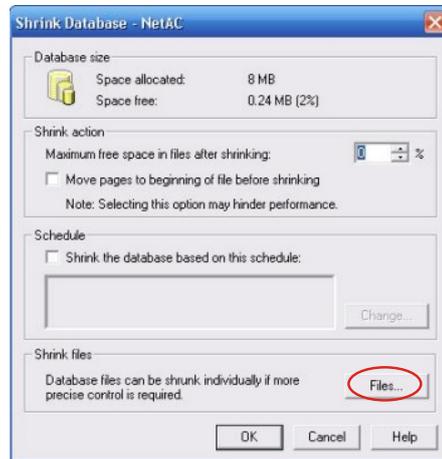


Fig.6-3

(3) In database file, to select "NETAC_LOG", and choose "Shrink the file to ", fill in the minimum reduce size value, and press [OK].



Fig.6-4

2) The process of modify diary files' maximum size value
(1) Open the enterprise management database, select NETAC database, click right key to choose [Properties]



Fig.6-5

6.Problems Used to Encounter in Fee Charge System

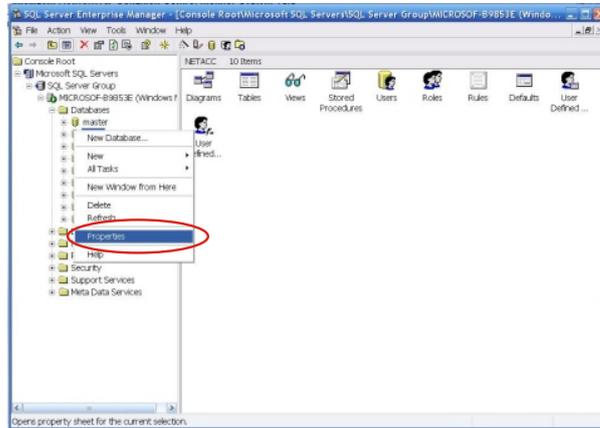


Fig.6-6

(2) To select "Transaction Log". In "Restricted file growth", the default size value is 150M, we recommend 500M, i.e. please alter 150M to 500M.

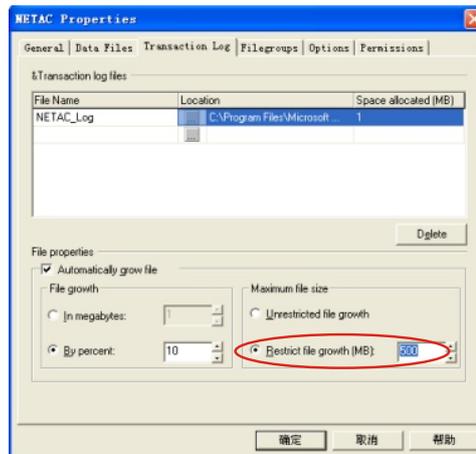


Fig.6-7

Here above are two methods to shoot diary full problem, actually, we need to both alter the maximum size value of diary files and reduce the diary files' size value

7. Install Optional Assembly in Uninterruptible Power System

7-1 Uninterruptible power parameter

Recommend employ APC SU700 Series

Requirement	Performance
Capacity	200~250 Watt/20min
Voltage	220~240
Control signal	Power cut signal (From UPS) USP close signal (Deliver to UPS)

Table 7-1

7-2 Install UPS power supply

1) In compliant with attached Operation Manual in APC Su700, Please tightly connect power cable and signal corresponding to



Fig.7-1

- A. The signal connected between in USP and PC shall connect with any series port.
- B. UPS power supply output port
- C. UPS power supply input port

2) Install APC Su700 power supply management software.

8. Setting the SQL Server Database

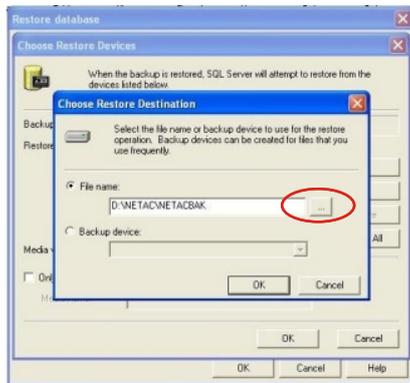


Fig.8-7

3) To set the name and route of new database

For defaulting information of database route is original information, user should rename and reset route of the database, see figure as 8-8. Try not to store data files on the system disk.

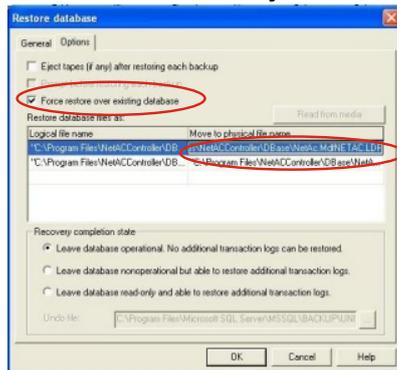


Fig.8-8

4) To confirm installation success

After database install success, showed as following figure that will display "NETAC" database and relevant data lists, which imply database is installed successfully.

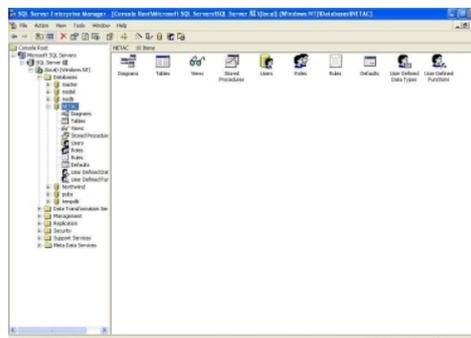


Fig.8-9

8. Setting the SQL Server Database

8-3 Usage setting of database server internal storage

SQL Server2000 acquiring memory continually, during system running, which would leads to low speed of system operation. To this solve problem, you could limit the usage of SQL Server2000 internal storage for guarantee that acquired memory could be released timely, detail operation process as following:

1) Click [Start]-[Program], Microsoft SQL Server assess into [Enterprise manager], window as follows:

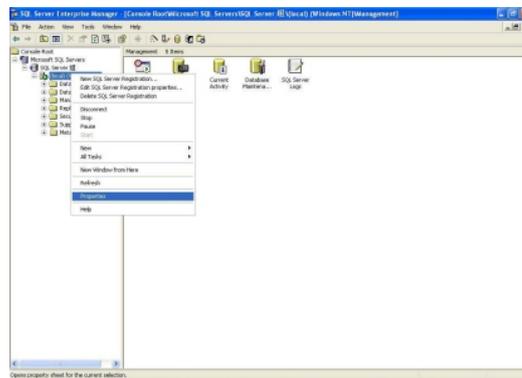


Fig.8-10

2) Click the tree in the left side, select [SQL Server Group] and press the mouse right key to choose [Properties] column, and then you will see the Attribute Setup Interface of database server, click [Memory] column.

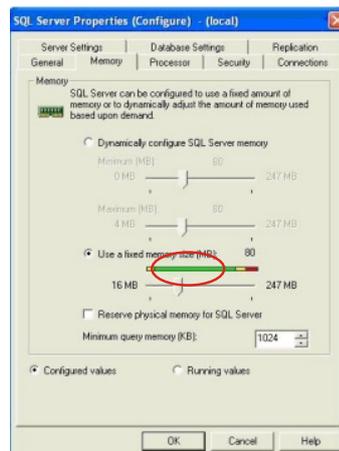
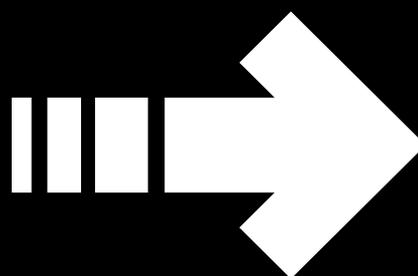


Fig.8-11

Choose [Use a fixed memory size], slide the bar to a appropriate site, slide to 1/3 of total memory is recommended. Upon setting, click [OK] then finish setting.

***Third generation
Network System
Operation Manual***



- Thank you for your confidence and choosing the Third Generation Network System.
- To ensure correct use of the product, please read this manual and the indoor unit operation manual carefully before using the unit.
- For convenience of future reference, keep this manual properly after reading it.
- For any question, contact the supplier.
- Make sure you have a ***Customer Service Manual***.

1. Overview of System

The system consists of front-end interface, back-end database and communication components. The front-end interface is an interactive interface enabling system operation and data query by the user. The back-end communication components automatically update the system continually to ensure information refreshing of indoor and outdoor units of air conditioner in the system and punctually delivery of user's control and query signals. Database mainly stores the information of indoor and outdoor units of air conditioners and furthermore allots electricity quantity for each indoor unit through internal mechanisms.

2. Operation of System

2-1 Communication browse window

The communication data browse window is shown as follows:

Index	Date/Time	Head	Commu.	Dest.	Source	Data	Check	Trid Code	Length	Result
16653	2006-11-20 10:56:15	AA	C1	1601	8080	00000000000003E	EA	55	16	OE
16652	2006-11-20 10:56:15	AA	CO	8080	1601	8014880213545A5	50	55	32	OE-Up
16651	2006-11-20 10:56:15	AA	CO	1601	8080	01000000000003F	B0	55	16	OE
16650	2006-11-20 10:56:15	AA	C1	8080	1501	18FF19190000000	B0	55	32	OE-Up
16649	2006-11-20 10:56:14	AA	C1	1501	8080	00000000000003E	EB	55	16	OE
16648	2006-11-20 10:56:14	AA	CO	8080	1501	8014880213545A5	E1	55	32	OE-Up
16647	2006-11-20 10:56:14	AA	CO	1501	8080	11000000000003F	BA	55	16	OE
16646	2006-11-20 10:56:14	AA	C1	8080	0C01	96FF32200000000	50	55	32	OE-Up
16645	2006-11-20 10:56:14	AA	C1	0C01	8080	00000000000003E	P4	55	16	OE
16644	2006-11-20 10:56:13	AA	CO	8080	0C01	8014880213545A5	60	55	32	OE-Up
16643	2006-11-20 10:56:13	AA	CO	0C01	8080	10000000000003F	80	55	16	OE
16642	2006-11-20 10:56:13	AA	C1	8080	0B01	18FF19190000000	EA	55	32	OE-Up
16641	2006-11-20 10:56:13	AA	C1	0B01	8080	00000000000003E	P5	55	16	OE
16640	2006-11-20 10:56:13	AA	CO	8080	0B01	8014880213545A5	31	55	32	OE-Up
16639	2006-11-20 10:56:13	AA	CO	0B01	8080	01000000000003F	P4	55	16	OE
16638	2006-11-20 10:56:13	AA	C1	8080	0201	96FF32200000000	43	55	32	OE-Up
16637	2006-11-20 10:56:12	AA	C1	0201	8080	00000000000003E	FE	55	16	OE
16636	2006-11-20 10:56:12	AA	CO	8080	0201	801488021354525	68	55	32	OE-Up
16635	2006-11-20 10:56:12	AA	CO	0201	8080	10000000000003F	EE	55	16	OE
16634	2006-11-20 10:56:12	AA	C1	8080	0101	18FF19190000000	P4	55	32	OE-Up
16633	2006-11-20 10:56:12	AA	C1	0101	8080	00000000000003E	FF	55	16	OE
16632	2006-11-20 10:56:11	AA	CO	8080	0101	8014880213545A5	95	55	32	OE-Up
16631	2006-11-20 10:56:11	AA	CO	0101	8080	01000000000003F	FE	55	16	OE
16630	2006-11-20 10:56:11	AA	C1	8080	0900	FFFFFFFF0000000	3A	55	32	OE-Up
16629	2006-11-20 10:56:11	AA	C1	0900	8080	00000000000003E	P0	55	16	OE

Fig.2-1

Above interface is used for check the communication status during system debugging, and mainly display the contents of frames the system receives and sends.

a. The three buttons "Close", "Open Comm", "Clear" respectively have the following functions:

"Close" can close the interface

"Open Comm" can open the communication port of the selected system

"Clear" can clean the content of the interface

B. [Start] and [Stop] buttons

"Start" can restart communication "Stop" can cut off communication

2-2 Diagnosing interface of communication status

Communication State Diagnose

Select diagnose object:
 Indoor unit
 Outdoor unit

Number of CDM: 10
 Number of A/C: 1
 Confirm

Send data

Data frames:
 Initiative code: []
 Command code: []
 Destination address: []
 Source address: []
 Checkout code: []
 End code: []

Data package:
 Mode: []
 Fan speed: []
 Setting temperature: []
 Timer on: []
 Timer off: []
 Function of assistant: []
 Fan mode: []
 Command reverse: []

Receive data

Data frames:
 Initiative code: [] Send state query
 Command code: [] Send remote lock
 Destination address: [] Send speed query
 Source address: [] Send remote unlock
 Checkout code: [] Send mode setting
 End code: [] Send CDM lock
 [] Send on/off lock
 [] Send CDM unlock

Data package:
 Model: []
 Mode: [] Protect state
 Indoor unit state: [] Network failure
 Setting TEMP: [] Power
 Indoor unit TEMP: [] Humidity
 Pipe TEMP. of [] Timer on
 Middle part TEMP. of [] Timer off
 Pipe TEMP. of [] Outdoor unit state
 Compressor current: [] Auxiliary function
 A/C failure: []

Fig.2-2

2. Operation of System

Operate the interface

- 1) Please click the box at the upper-left of the interface, the options are: To query [outdoor unit] or [Indoor unit].
- 2) Upon select the indoor unit or outdoor unit, please choose the serial number, which is composed by centralized controller number and air conditioner number, of air conditioner that you are going to query. Or you could fill in the serial number to the blame in data column. The number sequence is that air conditioner number in front and centralized controller number follows that be converted to hexadecimal.
- 3) Press the type of order-sent button, and you will receive a data package which including some data. If there were no data displayed, it means that the data package is empty.

2-3 User login

Double click the shortcut icon of new system in desk, following interface is showed:



Fig.2-3

1. User: User is an account established in the database of system. You could choose your ID at the drop-down menu of the account box.

1) If you have selected "Remember password", you can logon to the system only by press OK each time.

2) If you have selected "Auto login", you can enter the system by pressing the user name and password each time.

2. Operation of System

2. User authorities

The users may be divided into **super administrator**, **administrator** and **user**.

Super administrator has the authorities to operate all pages, including all the authorities such as communication diagnosis, communication browse, system construction, query and control of air conditioners and centralized controllers, query of outdoor units and group schedule management.

Administrator has all the authorities of super administrator except communication diagnosis and communication status browse, and mainly has the function of site construction of system and system management.

User mainly has the function of main window, uniform setting window, indoor centralized controller window, air conditioner window, group operation, schedule management, report query, etc.

After the user name and password are entered, you can enter the billing base reading selection window, shown as follows:

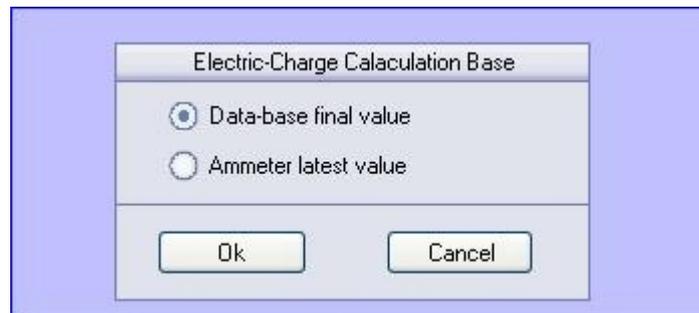


Fig.2-4

1. The last numerical reading in the database is regarded as the default value radix for billing electric charge.
2. When select "Ammeter latest value" as billing radix, the system check the watt-hour meter in the first cycle during system operation without any calculation. Normally, the final reading of the database shall be used as the calculation base of electricity billing, except watt-hour meter replacement.

2. Operation of System

2-4 System parameter setting

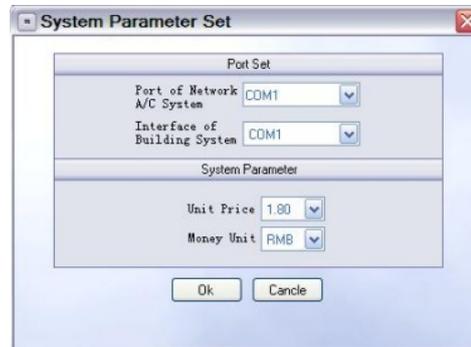


Fig.2-5

1. The port of network air conditioning system may be selected according to the actual condition of computer in use.
2. Building system interface is the port interfacing with LON gateway and shall be selected as per the actual condition.
3. Electricity rate is an important parameter and will be used in the report and actual calculation process.
4. Currency unit is the unit of money involved in our report.

3. System Construction

System construction process as follows:

1. Input of indoor and outdoor centralized controllers.
2. Input of outdoor unit. A set are under the outdoor centralized controller and any outdoor unit shall be under a set. All the outdoor units under a set are under the same centralized controller and so an outdoor set is different from the group of indoor units.
3. Input of indoor unit. After input of indoor centralized controller, outdoor centralized controller, set and indoor unit, the whole system is created. The operations afterward are specific to such components, including system scanning.

3-1 Input of outdoor centralized controller

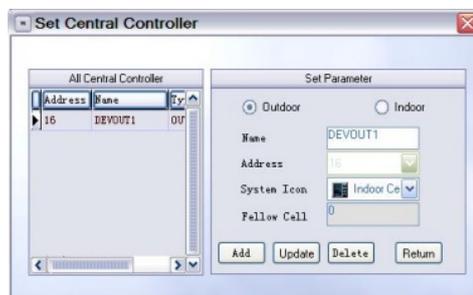


Fig.3-1

1. Select outdoor, press [Add] and left list will display a blank line. Select the row and then input the name for centralized controller to be created under the centralized controller name. Select the icon used in the system. Finally, press, [Update] to create the centralized in the system.
2. After creation, you can select and modify it from the list and then press [Update] button for updating.
3. It can be selected from the list.

3-2 Input of unit group



Fig.3-2

3. System Construction

After the centralized controller is create, a units group can be create under the outdoor centralized controller.

1. Select outdoor centralized controller, and then all the centralized controller will be displayed in the list.
2. Press [Add] and the list will display a blank item. Select it and input the name of set and after that press [Update] button.
3. The set can be deleted if it consists of no outdoor unit. Select the set to be deleted and then press [Delete] to delete the set.

3-3 Input of outdoor unit

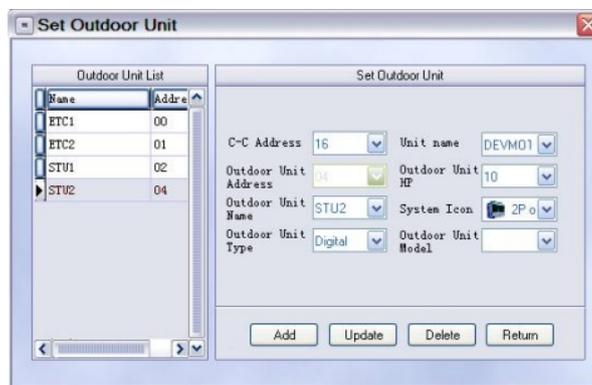


Fig.3-3

1. Establish a new outdoor unit, and the outdoor centralized controller address could be chose under the drop-down menu of outdoor centralized controller address box.
2. Press [Add] button an additional blank will come out, click this blank to edit outdoor unit address, indoor unit name, icon of system, outdoor unit model number etc. and choose the unit affiliated group simultaneity, and then click [Update] outdoor unit establishment is finished.
3. After choose the address of centralized controller, please click the left list to choose the outdoor unit you're going to modify, then modify the which parameter at the right box.
4. Delete outdoor unit by choose this unit and press [Delete] button.

3. System Construction

3-4 Input of indoor centralized controller

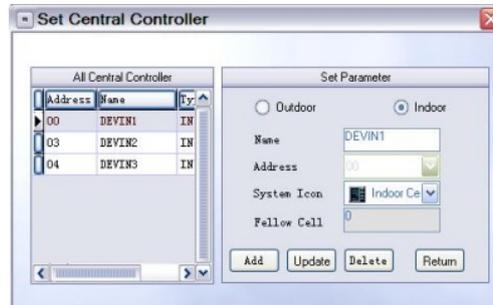


Fig.3-4

1. Select the centralized controller option from the menu to enter the centralized controller setting window. Then select indoor option and the left list will display the created indoor centralized controllers.
2. Press [Add] and the list will display a blank. Click the blank and input the name of centralized controller to be created. Select the address of centralized controller and its icon to be used in the system. Then press "Update" and the centralized controller is ready.
3. The centralized controller to be modified may be selected from the left. Then modify the name of centralized controller and its icon in the system from the right options. After modification, press [Update] to update the charges into the database.
4. If an indoor centralized controller has no air conditioner and will not be used, the centralized controller can be deleted. During deletion, select the centralized controller to be deleted from the left list and then press [Delete] button. When the centralized controller still has air conditioners, a prompt box will be displayed that the centralized controller cannot be deleted. A centralized controller can be deleted if it has no air conditioner under control.

3-5 Input of indoor air conditioner

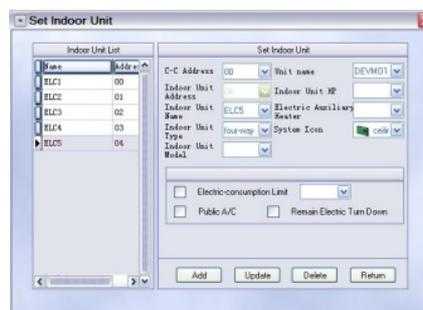


Fig.3-5

3. System Construction

1. If you want to view the indoor units of a centralized controller, you may select the address of centralized controller through the centralized controller address option. So the left air conditioner list will display all the air conditioners under the centralized controller.

2. if an air conditioner needs to be created under the centralized controller, press [Add] to display a blank at the bottom of the left list. Click the blank and then input at the right options the name of indoor unit, centralized controller address, air conditioner address, the set connected in the system, capacity of indoor unit, capacity of auxiliary electric heater for the indoor unit, type of indoor unit, indoor unit model and its icon displayed in the system.

1) When the electricity bill with cost limit is calculated in the system, the electricity limit option may be selected. Then fill in the specific electricity quantity. If electricity balance of a month can be carried over to the next month, the electricity balance carrying over option shall be selected.

2) If the room temperature inquired to maintain at a range, temperature range setting needs to be carried on. After selected this function, indoor unit will keep on service been detected by upper unit delivering different control signal to it according to different temperature. In this condition, main interface would be invalidated.

3. After all the optional are filled in, directly press [Update] to create the air conditioner.

4. If the basic parameters of an air conditioner shall be changed, select the address of centralized controller of the indoor unit and select the air conditioner from the left list. Then all the information about the air conditioner will be displayed on the right. Modify the parameters and after directly press [Update] and the modification is complete.

5. When an air conditioner does not actually exist, delete it as per the following processes. Select the centralized controller to be deleted; select the air conditioner to be deleted from the left list and then press [Delete] directly to delete the air conditioner from the system.

3. System Construction

3-6 Input of group



Fig.3-6

1. Group creation. When entering the group parameter setting window, all the group of the system will be in the list. To create a new group, press [Add] and the list display a blank. Click the blank and input the new group in the group name box. Then press [Update group] button and the new group is created.
2. Charge of group name. To change the group name, enter the group parameter setting window directly and click the group to be changed.
3. Delete a group. When there is no air conditioner in a group, you can delete the group by selecting it from the list and press [Delete] to delete the group.

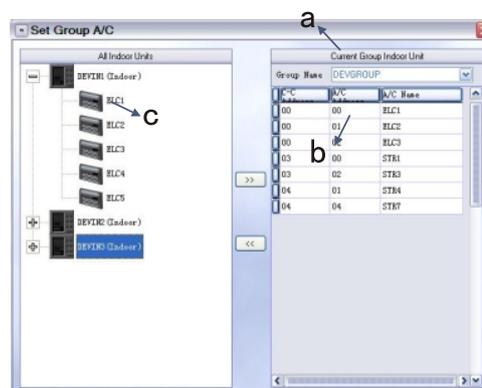


Fig.3-7

3. System Construction

3-7 Setting air conditioner group

1. Select the group to be maintained in "a" and all the indoor units of the group will be displayed in list "b".
2. Select the indoor unit to be added into the group from tree "c" and then press . If the indoor unit id already in the group, it prompts that the indoor unit is already in the group. If the indoor unit is in another group, it will prompt that the indoor unit is in another group and whether to change its group property to add it into this group. If [No] is chosen, its group properties will not be changed. The indoor unit can join the group directly if it is not in any group.
3. To delete the air conditioners in the group, select the indoor unit in list "b" and press . Then the selected air conditioner is deleted from the group.

4. System Operation

4-1 Main window



Fig.4-1

1. An icon represents an operation window in the system.
2. You can enter the specific function operation window from any icon in the window.

4-2 Indoor centralized controller window

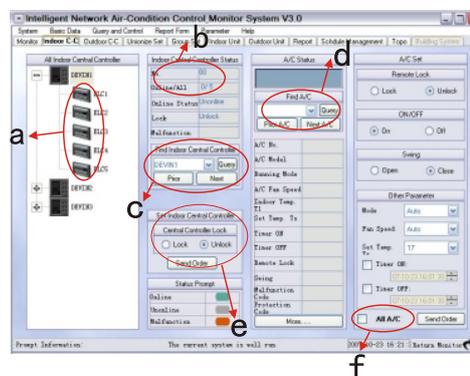


Fig.4-2

1. In this window, the system automatically builds a tree structure as per the relations between indoor units and centralized controllers, as shown in "a". Direct click the icon of centralized controllers and the connected indoor units will be displayed. Light green indicates on line and normal operation, but gray indicates off line and reddish brown indicates on line and faults.

4. System Operation

2. The centralized controller status display can be referred to "b", display the centralized controller number and the on-line air conditioners under the centralized controller.

3."c" is the centralized controller selection box. The selection box at "d" on the right is link with centralized selection box and lists all the conditioner names under the centralized controller selected in the centralized controller selection box.

4. The indoor unit selection box is linked with "c".

5. The centralized controller setting box "e" can lock and unlock the centralized controller. The centralized controller will be locked upon a locking command being sent successfully. Then the locked icon of centralized controller will be displayed and the air conditioners under it cannot be operated from the centralized controller level. The locked icon of centralized controller will disappear after the unlocked command is successfully sent to the locked controller and then the air conditioners can be operated through the centralized controller.

6. The air conditioner setting boxes can be divided into remote control setting, ON/OFF settings, swing setting, mode setting, fan speed setting, temperature setting and timing setting.

1) If "All A/C" under "f" is not ticked, the air conditioner setting box is to set up the air conditioner selected from the air conditioner selection box "d".

2) If "All A/C "f" is ticked, the settings are valid for all the air conditioners under the centralized controller selected in "c".

3) The centralized controller settings include two options: remote controller locking and unlocking. The default is unlocking. When locking is selected, the selected air conditioner will not receive remote controller signals after successful locking, but the upper level settings are still valid. When the remote controller of air conditioner is locked, the remote controller can be unlocked and then the indoor unit can receive remote controller signals.

4) ON/OFF setting is used to set up the air conditioner switching ON/OFF. When timing on or off is selected, ON/OFF setting is shielded and cannot be operated.

5) Mode setting is used to set up the operation mode of air conditioner, including Cooling, Heating, Auto, Dehumidifying and Fan. The fan speed options include High, Low and Auto. The temperature setting can vary between 17~30°C.

4. System Operation

6) Timing ON/OFF option, if not ticked and selected, the timing ON/OFF time is not available. When either option is selected, all the setting information cannot be sent to the indoor unit immediately through [Send] Instead, such information will be saved in the database as per the selected timing ON/OFF status. If timing on is selected only, at the setting information except air conditioner ON/OFF will be saved, including set timing on time. When the set timing on time is up, the setting information, including switching on will be sent to the indoor unit. If timing off is selected, only the timing off is saved and switching off command will be sent upon the timing off time.

4-3 Outdoor centralized controller window

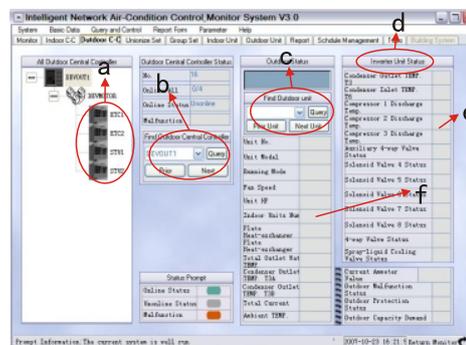


Fig.4-3

1. "a" is made of the tree consisting of outdoor centralized controllers, sets and outdoor units. The set refers to the outdoor units under the same refrigeration system,
2. "b" is the centralized controller selection box. After the centralized controller is selected, the outdoor units in "c" will charge with centralized controller. Press [Query] to display the information of centralized controller. Press [previous] to query for the information of the previous outdoor centralized controller and [Next] for the information of the next outdoor centralized controller.
3. "c" refers to the outdoor unit selection box and selection of an outdoor unit under the selected outdoor centralized controller.
4. "d" refers to the type of outdoor units. "f" displays the specific information about a specification model, including digital, frequency variable and water type outdoor units. If no specific information about unit is available, the default is frequency variable.
5. "e" display the common information of all the outdoor units.
6. The outdoor centralized controller and outdoor units can only be queried and cannot be controlled.

4. System Operation

4-4 Uniform setting page

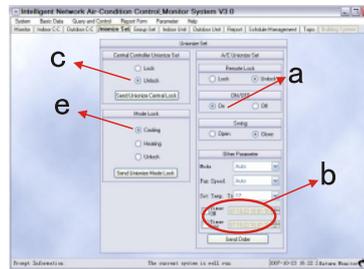


Fig.4-4

1. Uniform setting is specific to all the indoor units within the system and includes mode setting, locking and mode unlocking for indoor units.

2. " a " is the air conditioner setting column, where the remote controller locking setting is to send the locking commands to all the indoor units so that they cannot receive remote controller signals. The default is unlocking. ON/OFF option refers to sending commands to switch on or off the air conditioner. In case of OFF, the swing, mode, fan speed or temperature setting is disabled. Such settings are enabled if ON is selected. Swing function includes swing ON/OFF with OFF as default. Mode option includes cooling, heating, fan, dehumidifying and auto. The fan speed of indoor unit fan may be high, medium, low and auto. The temperature can be set within 17~30°C . After [Send Order]is pressed, the system sends commands to each indoor unit for setting.

3. " b " is the timing ON/OFF setting option. When either option is selected, ON/OFF option will be shielded. If timing ON is selected, press [Send Order] to save the switching ON information into the database. If timing OFF is selected, press [Send Order] to save the switching off information into the database. All the timing information of each indoor unit can be displayed at the query system when the timing time is not up. When timing time is up, all the setting information will be sent to the indoor units and the timing information will then be removed if you query any air conditioner in the system.

4. " c " is the locking option of centralized controller, including locking and unlocking, all the controller key operations will be disabled after all the indoor centralized controllers receive a locking command. Select centralized controller unlocking, and then press [Send Unionize central lock] to unlock all the indoor centralized controllers after successfully sending the commands.

4. System Operation

5. " e " is the mode locking selection box. When only one mode is allowed for the whole system, select cooling or heating from the option, and then press [Send Unionize Mode Lock]. After it is successfully sent, the operation mode of indoor unit cannot be changed through a remote controller or centralized controller. But the indoor unit can be unlocked or other operation mode may be used from the upper level. When the mode locking is applied to all the indoor units, select unlocking and press [Send Unionize Mode Lock] to unlock the indoor units and the mode of all the indoors can be changed after the command is successfully sent.

4-5 Group setting

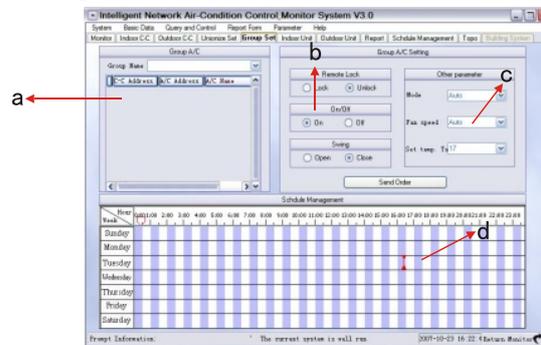


Fig.4-5

1. " a " is the tree structure composed by indoor units and centralized controller.

'After select this group in " b " , browse the item of "Add indoor unit" , and then double clicks this indoor unit, the unit will be added to this group. If the unit had already existed in the group, a chat box would pop up to note that the indoor unit has already existed. If the unit had already existed in other group, a chat box would up to note that the unit has already existed in other group, and ask whether you would like to change the group attribute. If [YES] were chosen, the unit would be deleted from the original group and added to the selected group.

2. " b " is composed by the drop-down box under the group name and the drop-down box under the group number, as well as the indoor units in this group. After the group has been selected, all indoor units in this group will be listed at the drop-down list. When you are would like to delete an indoor unit, select the unit and double clicks it, the unit will delete from this group.

4. System Operation

3. "c" is the setting interface which includes the setting of remote controller, of ON/OFF the unit, running mode selection, fan speed and temperature adjusting. These setting are the same as indoor unit's by press [Send order] button after finish setting to deliver information to all indoor units in the group.

4. Some relevant agenda information will display at Agenda Managing Box after select a group in "b". Information in Agenda Managing Box is formed by many tasks which are unit start-up tasks that startup at start-point and shutdown at end-point, being connected with arrows. When you are going to browse some detail of a task, please click the arrow of the task (Arrow turn red after be selected), and double click it, Agenda Managing Interface will be accessed, detail setting of this task could be see.

4-6 Indoor unit window

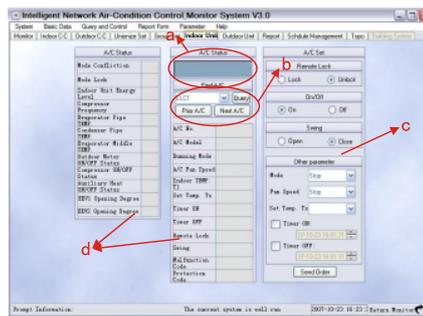


Fig.4-6

1. "a" is used to display the status of selected indoor unit. After "Query" is pressed, the icons in box display the status of the current indoor unit. In the display box, there is icon of indoor unit operation mode, icon of timing setting, icon of indoor fan speed and locking icon. For the mode icons, "❄️" indicates Cooling, "❄️" indicates Heating, "🕒" indicates Timing setting, "⚙️" indicates High speed of indoor fan, "⚙️" indicates low speed of indoor fan, "🔒" indicates remote controller locking or mode locking setting.

2. "b" is the indoor unit selecting box, click the drop down box "▼", and tree consisting of indoor units and centralized controllers will be prompted, as shown in <Fig 4-7>. After the indoor unit is selected from the tree, press "OK" and then the name of indoor unit will be prompted in the drop down box. Then press Query and the relevant information of the indoor unit will be in then display box in "d"

4. System Operation

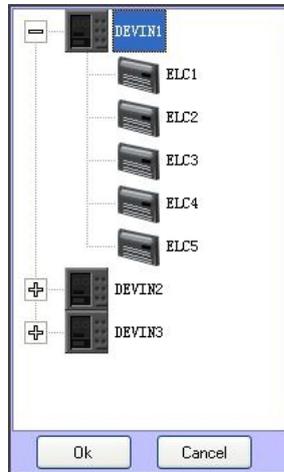


Fig.4-7

3. " c " is used to set indoor units, it is almost the same as the indoor unit setting in indoor centralized controller window. But there is no air conditioner selection box here. So it can only set up the air conditioner selected in " b " .

4. " d " is used to display the indoor unit operation status. If no operation is available for an indoor unit, a blank is used. Timing information may be expressed as " 2006-06-20 14 " , or " 0: 0: 00 " in case of none. After a timing task is fulfilled, the air conditioner returns to non-timing status. In case of mode conflict, the word "conflict" will be displayed behind the mode and at the mode conflict column. The information displayed at the status information display column and the information of database is simultaneously updated.

4-7 Outdoor unit window

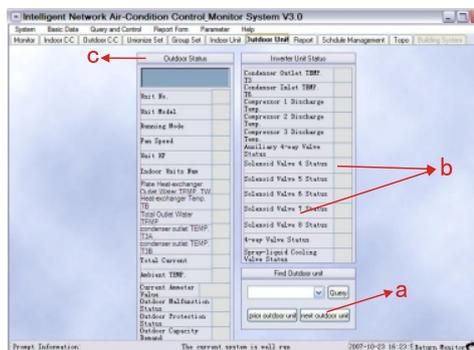


Fig.4-8

4. System Operation

1. Only query function is available for outdoor units and so it has only one outdoor unit selection column, outdoor unit status display column and outdoor unit status marking. The display at outdoor unit status display column are update simultaneously with database updating. The latest current status will be reflected only if Query button is used.

2. " a " is the selection column of outdoor unit. Press outdoor unit drop down box "  ", and the tree consisting of outdoor centralized controllers, sets and outdoor units will be prompted, as shown in <Fig 4-9>. After an outdoor unit is selected, press [OK] and the name of selected outdoor unit will be displayed in the most front.

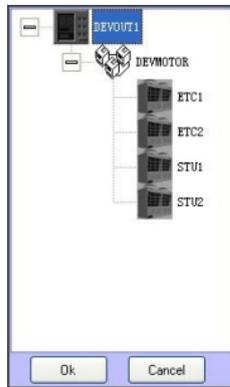


Fig.4-9

3. " b " is the outdoor status display column to display the latest status of selected outdoor unit in the specific items in the column. A blanks is used if no status information is available for an outdoor unit. It is update simultaneously with the database updating.

4. " c " is the status making column of outdoor unit to mark the operation mode of outdoor unit and outdoor fan status. In the operation mode, "  " indicates Cooling mode, and "  " indicates Heating modes. For the outdoor fan, "  " indicates High wind and "  " indicates Low wind.

4-8 Schedule management page

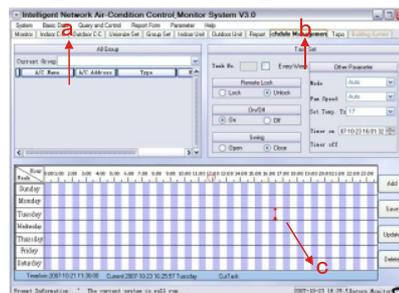


Fig.4-10

4. System Operation

1. " b " is task setting column. When a group is selected from the current group selection box, all indoor units of the group would display in " a ", and all setting tasks of the group will display in " c ".
2. All the tasks of the group are startup tasks, namely starting from startup and ending at shutdown.
3. After a group is selected, you may delete, modify and create tasks.
4. To add a new command, firstly press [Add] and then select the items in setting column "b" one by one. The task setting is basically the same as the setting of indoor unit, but ON/OFF option cannot be operated. The system default is that all the tasks are startup tasks. After all the setting are selected, the task can be set as a weekly task on everyday, task will be executed every Tuesday. If it is not set as a weekly task, the task will be executed when it is time and will be deleted after execution. After the above operations, press [Save] and a new task is created. You can view the task from "c".
5. To modify a task, you may select the task from "c" and then the setting of the task is displayed in "b". Then the setting can be modified in the "b" and after that press [Save] and the task modification is OK.
6. To delete a task, you only need to select the task in "c" and then press [Delete] to delete the task.

4-9 Refrigerant system topology

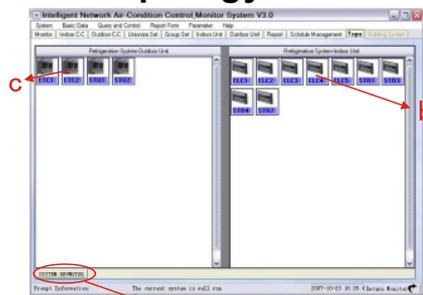


Fig.4-11

1. Refrigeration system TOP diagram is used to connect the outdoor units with indoor units within the same refrigerant system. So you can view the distribution status of system visually.
2. "a" lists all the refrigerant system within the system and the refrigerant systems have the name of outdoor sets.
3. Click any refrigerant system in "a", "c" and "b" will display all the indoor units and outdoor unit of refrigeration system separately. The indoor unit is represented with the icon of indoor unit in the system; likewise, the outdoor units are represented with their icons in the system.

4. System Operation

4. In "b", when we move the cursor to any icon, the complete name of the indoor unit will be displayed through a small mark. When we press any icon, we will enter the indoor unit page and meanwhile the latest status of the indoor unit will be displayed.

5. The outdoor unit operation in "c" are the same as the indoor unit operation in "b". The difference is that to press outdoor unit icon will skip to outdoor unit window and the latest information of outdoor unit will be displayed.

4-10 System command sending prompt box



Fig.4-12

1. The system sends commands in two forms: to send commands manually, and the system sets timing and group task commands. If the commands are manually sent successfully, the sending box will be automatically closed after sending. Unsuccessfully sending commands shall be manually closed. The auto commands triggered by the system will be closed automatically upon completion of sending.
2. The type of command sent and successful or unsuccessful sending will be listed in the sending box.

5. Electricity allotment and report

5-1 Electricity allotment principle

1. The system allotment adopts portion and the electricity for portion is mainly the electricity consumption of outdoor units and of indoor unit fan and auxiliary electric heater.

2. The indoor units of the same refrigeration system share the electricity consumption of the outdoor sets of the refrigeration system. The indoor units outside the system do not share the electricity of the outdoor sets of the refrigeration system.

3. The electric bill of an indoor unit in certain time period can be divided into two parts: basic electricity and share electricity.

1) The basic electricity includes the electricity consumption of the indoor unit due to operations in Cooling, Heating or Fan mode.

2) The shared electricity includes electricity consumed by outdoor units when all the indoor units are in standby status, as well as the electricity consumed by outdoor set (An administrator may log onto the system to select to incorporate this portion of electricity or not) when the whole refrigeration system runs normally but the billing system has some faults).

3) Basic electricity billing

$$F_a = F_A * e$$

F_A standing for total Electricity consumed in a certain period at refrigeration system; e standing for scale coefficient, which accounted as per indoor unit capacity.

4) Sharing electricity billing

$$F_a = F_A * e$$

F_A standing for total Sharing Electricity consumed in a certain period at refrigeration system; e standing for scale coefficient, which accounted as per indoor unit capacity.

4. For billing electricity consumed under different conditions in the same refrigeration system.

1) Under the condition of all indoor units in standby status (no Cooling, Heating or Fan only operation), each indoor unit sharing the electricity (Sharing electricity) that consume as per the indoor unit capacity in a certain period.

2) When system operate in Cooling mode (basic electricity)

Cooling indoor unit: Sharing the electricity consumed by outdoor units, and the electricity consumed by indoor fan and auxiliary heater.

Fan only indoor unit: Electricity only comes out from indoor fan.

Standby indoor unit: No electricity is billed.

3) When system operating in heating mode, no indoor unit conflict to it (basic electricity)

Heating indoor unit: Sharing the electricity consumed by outdoor units, and the electricity consumed by indoor fan and auxiliary heater.

5. Electricity allotment and report

4) When system operating in heating mode, however, there are some indoor units conflict to it (basic electricity)

Heating indoor unit: Sharing the electricity consumed by outdoor units, and the electricity consumed by indoor fan and auxiliary heater.

Cooling indoor unit (conflict): Electricity only comes out from indoor fan.

Fan only indoor unit (conflict): Electricity only comes out from indoor fan.

Standby indoor unit: No electricity is billed.

5-2 Report

1. " a" is composed by outdoor centralize controller, unit groups and outdoor unit. Unit group are the outdoor units within the same refrigeration system.

2. " b" is the selecting box of centralize controller. After select the centralize controller, outdoor units in " c" will be changed as per the centralize controller. Press [Query] button, the relevant information of this centralize controller will be shown; press [Previous unit] button, the previous information will be shown; press [Next unit], the next unit information will be shown.

3. " c" is the selecting box of outdoor unit for choosing outdoor unit under the selected centralize controller.

4. " d" for displaying the type of outdoor unit. " f" for displaying the peculiar information of the specified model. Modes of outdoor unit include: Digital unit, conversion unit and Water heating unit. Provided that there were no specified outdoor unit is set, units would take Conversion unit as default.

5. " e" for displaying the general information of all outdoor units.

6. Outdoor centralize controller and outdoor unit are queried only but control.

5-2-1 Air conditioner billing statistics sheet

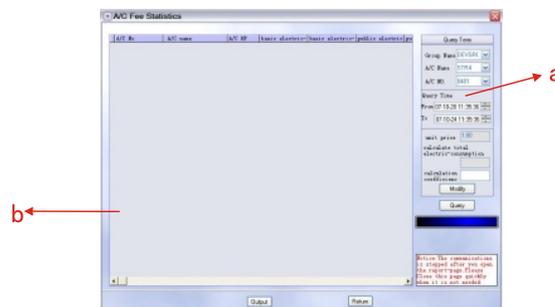


Fig.5-1

5. Electricity allotment and report

1. The billing statistics is base on groups and the billing data of all or individual air conditioners of the group can be printed out.
2. The electricity fees for any time period can be queried for and printed.
3. The electricity bill consists of two parts: basic electricity fee and shared electricity fee. The fee of each unit for the time period is displayed in the total electricity fee item in the report.

5-2-2 Detailed electricity bill



Fig.5-2

1. The detailed bill is the list for a certain time period as per the ON/OFF information of indoor units. It is similar to a telephone bill. The detailed bill of the group of air conditioners or an individual air conditioner can be output.
2. The bill for any time period can be output.
3. All the output bills only include basic electricity fees without shared electricity fees.

5-2-3 Operation data of indoor units



Fig.5-3

1. The indoor unit operation data report is the list of operation data of indoor units under query for a certain time period.
2. Only the data of one indoor unit can be outputted and the maximum time is 7 days.
3. The report is used to analyze data during maintenance it can facilitate identification of causes for defaults.

5. Electricity allotment and report

5-2-4 Operation data of outdoor units



Fig.5-4

1. As the operation data of indoor units, the outdoor unit operation data report is the list of operation data of outdoor units under query for a certain time period.
2. Only the data of one outdoor unit can be outputted and the time period is 7 days.
3. The report is used to analyze data during maintenance it can facilitate identification of causes for defaults.

5-2-5 Malfunction reports of indoor units

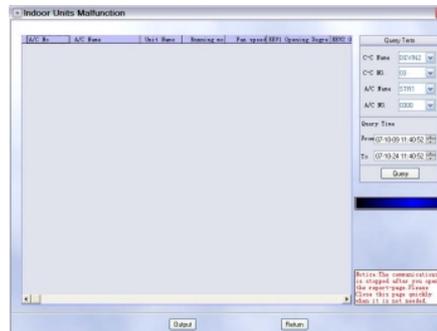


Fig.5-5

1. As the indoor unit operation data report, it is used to query for report of all indoor unit faults and protection information for a certain time period.
2. The maximum query time period of report is 7 days.
3. It is mainly used to query for the faults and protection of indoor units of system during a time period.

5. Electricity allotment and report

5-2-6 Querying outdoor unit malfunction and protection

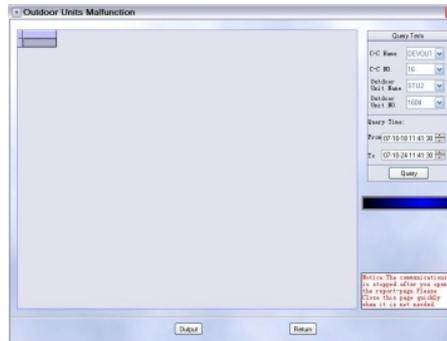


Fig.5-6

1. As the outdoor unit operation data report, it is used for the report of all outdoor unit faults and protection information for a certain time period.
2. The maximum query time period of report is 7 days.
3. It is mainly used to query for the faults and protection of outdoor units of system during a time period.

5-2-7 Report printing, output to Excel worksheets and Word table.

A/C BR	basic electric consumption (degrees)	basic electric charge (USD)	public electric consumption (degrees)	public electric charge (USD)	total electric consumption (degrees)	total electric charge (USD)	
001	5.004	3.004	16.211	0.111	0.019	3.017	18.220
002	3.000	3.541	6.307	0.905	0.010	3.554	6.307
003	3.000	3.574	6.364	0.894	0.008	3.580	6.372
005	5.000	4.964	8.309	0.909	0.909	4.969	8.304
006	3.000	4.611	7.960	0.101	0.101	4.510	8.105
001	5.000	5.072	10.750	0.241	0.474	6.213	11.104
002	5.000	5.444	10.140	0.294	0.030	5.888	10.506
003	3.000	3.410	6.303	0.990	0.174	2.515	4.527
004	3.000	6.001	10.810	0.180	0.136	6.110	11.000
005	3.000	4.200	7.844	0.980	0.010	4.200	7.874
004	3.000	5.900	10.787	0.180	0.186	6.096	10.972
007	3.000	5.688	10.239	0.180	0.136	5.799	10.424
011	5.000	14.902	26.985	0.280	0.404	15.280	27.040
017	5.000	14.902	26.985	0.280	0.404	15.280	27.040
020	5.000	14.902	26.985	0.280	0.404	15.280	27.040
021	5.000	14.902	26.985	0.280	0.404	15.280	27.040
022	3.000	5.987	10.794	0.180	0.136	6.100	10.900
023	3.000	5.987	10.794	0.180	0.136	6.100	10.900
024	5.000	14.902	26.985	0.280	0.404	15.280	27.040
025	5.000	14.902	26.985	0.280	0.404	15.280	27.040
030	3.000	5.884	10.840	0.180	0.136	5.969	10.726
034	3.000	5.983	10.794	0.180	0.136	6.087	10.800
037	3.000	6.004	10.834	0.180	0.136	6.087	10.834

Fig.5-7

1. If the report needs to be printed, direct press button to output the report to the default printer.
2. If the report shall be saved as an EXCEL worksheet, you need to operate as follows: click select all button, press copy button , and then click EXCEL output button to output the report to an EXCEL worksheet. Finally you only need to save it.
3. If the report shall be saved as a WORD table, repeat the process for EXCEL worksheet but press WORD output button at the final step.

DE - COMMISSIONING DISMANTLING & DISPOSAL

This product contains refrigerant under pressure, rotating parts, and electrical connections which may be a danger and cause injury!

All work must only be carried out by competent persons using suitable protective clothing and safety precautions.



Read the Manual



Risk of electric shock



Unit is remotely controlled
and may start without warning

1. Isolate all sources of electrical supply to the unit including any control system supplies switched by the unit. Ensure that all points of electrical and gas isolation are secured in the OFF position. The supply cables and gas pipework may then be disconnected and removed. For points of connection refer to unit installation instructions.
2. Remove all refrigerant from each system of the unit into a suitable container using a refrigerant reclaim or recovery unit. This refrigerant may then be re-used, if appropriate, or returned to the manufacturer for disposal. **Under No circumstances should refrigerant be vented to atmosphere.** Where appropriate, drain the refrigerant oil from each system into a suitable container and dispose of according to local laws and regulations governing disposal of oily wastes.
3. Packaged unit can generally be removed in one piece after disconnection as above. Any fixing down bolts should be removed and then unit lifted from position using the points provided and equipment of adequate lifting capacity. Reference MUST be made to the unit installation instructions for unit weight and correct methods of lifting. Note that any residual or spilt refrigerant oil should be mopped up and disposed of as described above.
4. After removal from position the unit parts may be disposed of according to local laws and regulations.