Management Layer

BACnet Workstation Software

BACsoft-AWS

【Description】

BACsoft is a BTL certified BACnet B-AWS advanced workstation software. Through Ethernet and Internet connections, BACsoft can communicate with all BACnet protocol compatible devices without brand restrictions. It can monitor and control the devices in the system, provide data sharing such as record table, record table setting, schedule setting, alarm setting, alarm history, etc. to facilitate the integration of various devices across controllers, systems and brands in the system.



BACsoft provides software application and development tools such as monitoring software main program, BACnet driver program, DDC editing program, graphic control development interface, web page editing software, touch man-machine interface editing software, It is a complete set of application software services. Users only need to learn one set of software to apply the hardware equipment provided by AIRTEK, thus saving system import time, lowering the application threshold of engineers and providing the most cost-effective software.

BACsoft is implemented in the website server mode. Any terminal can monitor the system in the cloud through a browser, providing import and export of map files, database links, executing report programs or opening data to third-party software to make various related reports and other related applications, thus providing energy efficiency.

It can provide energy management programs, such as time schedule and demand control, etc. It can provide energy recording function, support BACnet communication energy management system application with data, analyze various energy efficiency, and provide various building energy system certification, such as LEED and smart green building application.

BACsoft can remotely control the connection operation through the internal network and the Internet. These flexible and centralized control options can save users countless time and resources. Engineers and technicians can control all BACnet-connected equipment in the building from a central monitoring workstation.

【Specification】

Model	Extension	BACnet device	Function	Function	Working environment	CPU level	Memory
BACsoft-AWS	-3K	Max. 3K	-WB -W -S	Web and energy analysys Web remote monitor PC local monitor	64-bit Win 7 Pro Win 10 Pro Win 11 Pro Win Server 2012R2 Win Server 2016	Intel Core Ultra 9 / i9	32G
	-1K	Max. 1K				Intel Core Ultra 9 / i9	32G
	-512	Max. 512				Intel Core Ultra 9 / i9	32G
	-256	Max. 256				Intel Core Ultra 9 / i9	32G
	-128	Max. 128				Intel Core Ultra 7 / i7	16G
	-64	Max. 64				Intel Core Ultra 7 / i7	16G
	-32	Max. 32				Intel Core Ultra 5 / i5	8G
	-16	Max. 16				Intel Core Ultra 5 / i5	8G

Note: Capacity and function can be freely selected. If you want to purchase less than 32 sets of capacity with cloud monitoring and energy-saving analysis functions, the selected model is BACsoft-AWS-32-WB.

Management Layer

BACnet Workstation Software

BACsoft-AWS

◆ Hardware：

* USB2.0 dongle.

◆ Software：

* The software main program (Download from the official website) contains BACnet driver, DDC Editor, SCADA interface development, web editing software, Touch HMI editing software such as software applications and development tools.

◆ Language：

* English, Traditional Chinese and Simplified Chinese, when switching languages, software, and operating and edit the page drop-down menu will completely into the language.

◆ Display：

* No graphics quantity and resolution limitations depend only on the hard drive capacity and graphics card.

◆ Points：

* Unlimited software points, with BACnet BI, BO, BV, AI, AO, AV software and other kinds of object types.

◆ Ethernet network：

* Optional BACnet Ethernet (ISO-8802-2) or BACnet / IP communications。

◆ Security：

* SSL encryption credentials can be set (network credentials need to be purchased).

◆ Web Services：

* Integration of various Web services, such as weather information, LINE/Telegram announcements, Bing/Google Map geographic information.

◆ Cluster mode：

* With Windows Server operating system, cluster operation can be enabled, so that multiple BACsoft only need one set of IP addresses externally.
Note: Win Server operating system must be used for cluster operation function.

◆ Database：

* Maria DB.

◆ Data Sharing：

* Sharing Record Form, Record Form Setting, Timeline Setting, Alarm Setting, Alarm History, etc.

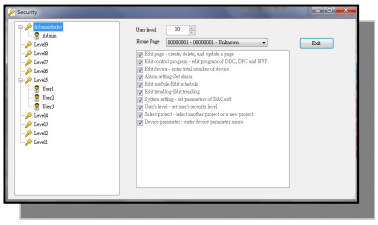
◆ Certification：

* BTL (B-AWS) Certification.

【Features】

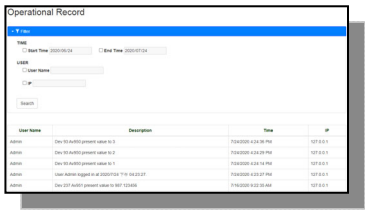
- **User Management (USER ID)**

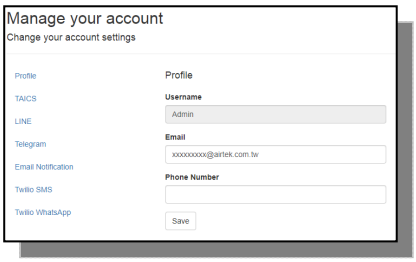
  - **Group user priority management** has a program to manage user ID and password, and can set many user account groups and passwords. Each group can set its own rights, such as monitoring points, monitoring programs, controllers at various levels and related software functions. In addition to restricting the use of basic toolbar (alarm/time schedule/record table, etc.) functions, the permission level can give different access permissions to different controls according to user permissions when making graphic controls。



  - **Cloud Personal Account Management:** Users of each account can log in to the account through the browser and make settings for the content/function of the personal account; Such as passwords, basic information (telephone/mail), weather forecast areas, LINE announcements, email announcement lists, API data lists.

- **Cloud user activity** records the relevant operations of different personnel on map control in browsers at different Client ends will leave records (including operation content, time, account number and source IP), and provide simple screening function to make it easier for managers to trace/analyze the operation history of the project.

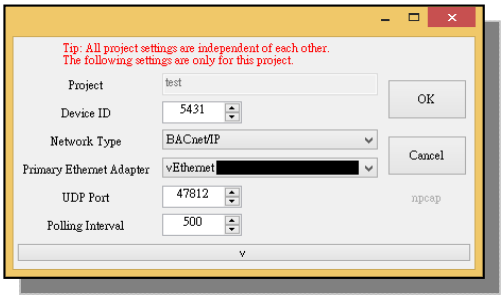




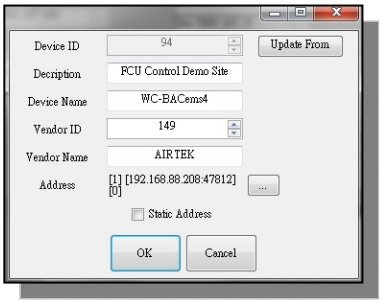
Network management

- The network communication device BACnet Driver can be connected to BACnet Ethernet or BACnet/IP communication layer for communication.

- Information sharing uses standard BACnet open communication, can communicate and share information with BACnet Ethernet or BACnet/IP AIRTEK DDC and other BACnet brand DDC at the same time, and will not cause various operation inconveniences due to identification of non-AIRTEK Vender DDC; In addition, a standard TAICS Web API interface is provided, which can make the system more convenient to complete data integration with various cloud platforms.

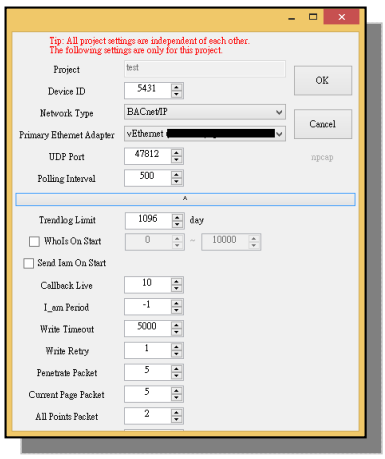


- Direct device management users can establish their own device lists and connect directly to devices with known address information without BBMD mechanism, thus effectively saving cross-domain connection costs.



- Communication Security: Web Server can set SSL encryption credentials to strengthen monitoring network security (network credentials need to be purchased).

- Communication Type Adjustment: Due to network architecture, equipment level or application requirements, each case field needs to match different communication types in order to achieve the best integration effect. BACsoft provides Polling and Realtime communication methods, and allows users to adjust their specific gravity and related detailed parameters.



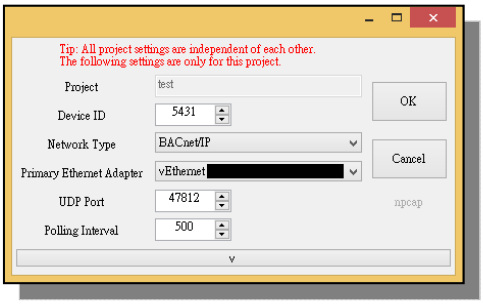
Cloud Execution Mode (Web Server Runtime)



- The execution mode of the web page map control environment is presented in the form of web pages, and users can easily monitor the building through a general Web browser such as browsing web pages at any Client end.
- Simple data sharing uses the Web Sever architecture, and any operation/access/record with Client will use the same database. No longer requires complicated Client/Server settings when multiple SCADAs share databases.
- Multi-person collaborative editing of Web Server can set multiple platforms, and individual platforms can be set to link to different databases. When there are many people managing the editing and control requirements, it is not necessary for everyone to install the standard BACsoft environment and Windows Pro, thus greatly saving the cooperation cost of many people.
- Based on the concept of cloud application, BACsoft integrates diversified external network application services for operators to use, including Line, Telegram alarm notification, weather and air quality report, network SMS warning sending, Google Map geographic information application, etc.
- Users can edit customized monitoring forms and group control commands through simple operations on the web page without the need for engineers to edit maps, thus greatly increasing users' operational flexibility.

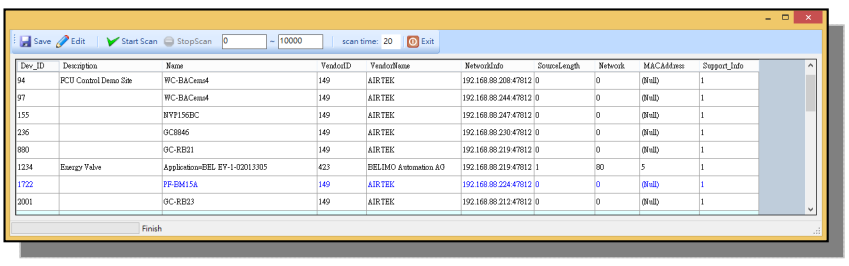
Project Management & Development

- Addition, deletion and switching provide engineers with powerful functions to develop and design drawings and control pictures for many projects.
- Independent Network Settings Behind each project are different case fields, different case fields and possible different network settings. BACsoft allows each project to have independent network setting parameters, so it is not necessary to reset the network-related parameters of the case field frequently when operating in different case fields.
- Portable convenience project data (such as drawing files, control programs, etc.) are not stored in the form of folders/files, but are directly stored in the database, so that when moving the project, there is no need to worry about the path problem of related files, thus improving the portability of project data.



Device Management

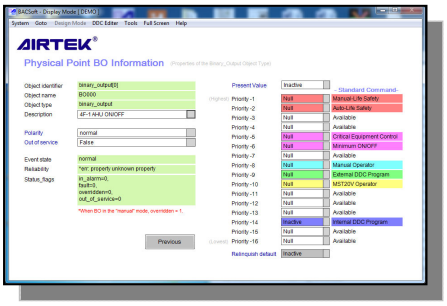
- The device scanning function of the device inspection network can identify and list all AIRTEK controllers and other BACnet-compliant device controllers in the monitoring network for archiving application so that users can quickly establish the system.



- Equipment information can read DDC device related information through the network, including device number, network address, controller model, manufacturer data, firmware version, software function resources, etc. It can also directly obtain third-party equipment manufacturer information, and then obtain relevant information, so that graphic control developers can quickly understand each equipment special line for system integration.
- Editing, adding and deleting not only can automatically add devices through device inspection when online, but also can manually add devices when offline, and can also manually input device-related information (including network address) when adding, so that the system can start operation without re-scanning when online.
- Data backup and playback can back up relevant data (including data point contents/dynamic objects/DDC programs, etc.) in BACnet controller under the condition of system operation. Backup data is allowed to be playback to this computer or other controllers for online replacement and restart DDC work. In addition, it also allows the data in the controller to be read back to the database for storage or the data in the database to be stored back to the controller. Improve the convenience of engineers in testing and maintaining the system.
- Device communication control can control the network communication of devices at all levels that meet BACnet communication. According to the requirements of network test adjustment, it can set temporary offline or online, or set network location, etc.
- Firmware Update When there are AIRTEK series controllers in the system, online firmware update can be directly carried out through BACsoft.

Object Management

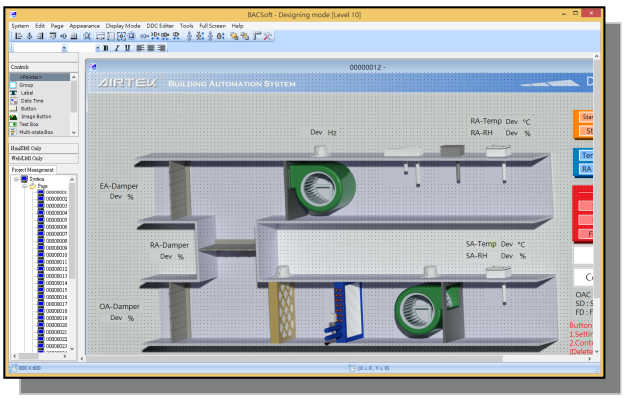
- Object adopts BACnet object attribute standard to establish objects. Each object has the complete attribute of this type, which provides the system for cross-system integration application. It is not general monitoring point logic, and needs to continuously add software point production related functions, which is expensive and labor-consuming
- Description can read and write the description function of the object, and the user can add the description by himself so as to understand the function of the object.



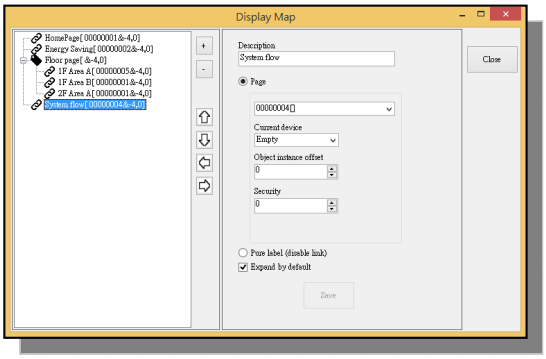
- Objects have 16 levels of priority management, which provides applications in system control. When there is life-threatening control such as fire alarm, the control priority can be set to the highest level, and relevant programs can be directly ordered to be operated to ensure system reliability.

Display development

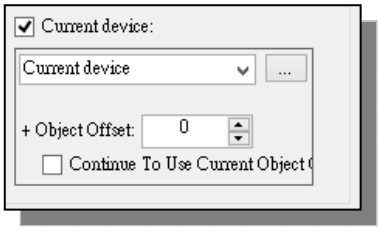
- Online editing provides an online graphic editing environment (BACsoft editor). Under the condition of not being offline and not affecting the normal operation of the monitoring system software, users can carry out graphic control development (including creating, adding, modifying and deleting) the monitoring graphic pages of the monitoring workstation, and provide various graphic making tools, control point making and attribute setting functions. It enables engineers to make customized monitoring pages, such as floor planes, according to the environmental requirements of the work site.



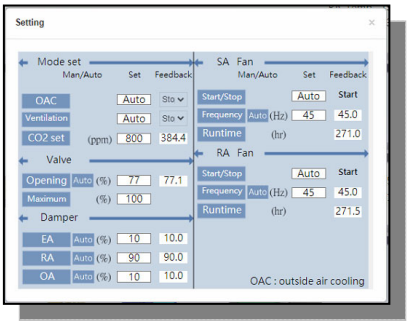
- The drawing control of the drawing board management project is formed by combining many drawing boards. It provides drawing board management tools such as list, setting, storage, etc. for the application of the project. Users can also make a Tree map of the drawing board by themselves, making it easier for users to understand the relative relationship between the drawing boards when operating in the execution mode.



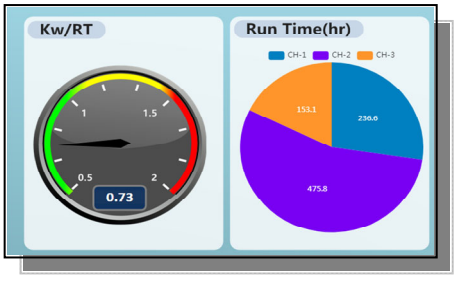
- BACsoft provides flexible dynamic plate making function, which enables plates with the same Layout but different devices or data to be unified through simple setting without repeated making, thus greatly saving the time for plate making and maintenance.

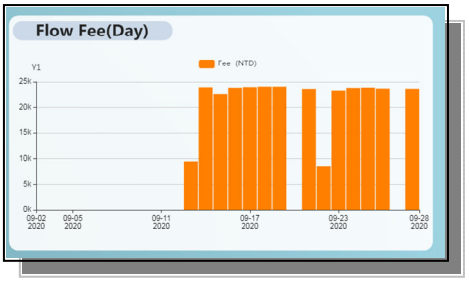


- The floating plate function BACsoft allows users to make floating plates, so that users do not need to switch pages (web pages) frequently when making different settings under the same plate, thus saving operation steps and time.

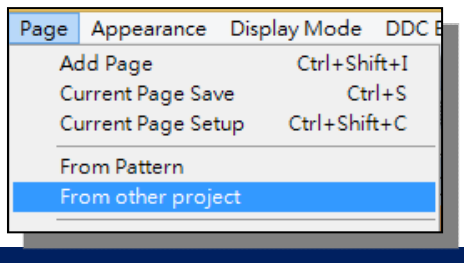


- The dashboard tool BACsoft provides a simple dashboard making tool, which can change the data value to a more intuitive visual form of data such as trend/histogram/table, making the system monitoring screen more concise and easy to understand.





- The graphic control of the project referenced by the real-time graphic board is formed by combining many graphic boards. In the project development, the data of other project contents can also be referenced in real time without frequent actions such as file moving or project switching, so as to save the project development time.



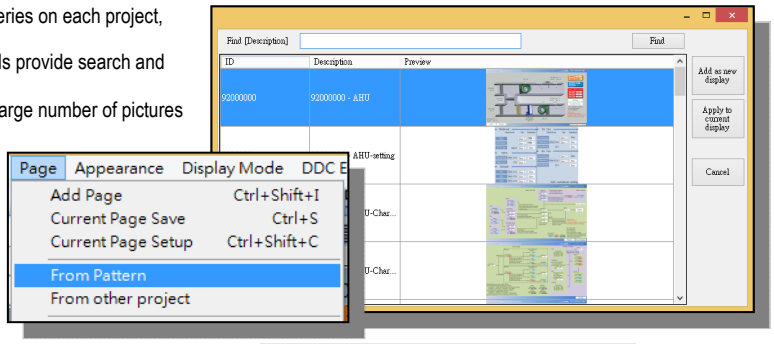
Management Layer

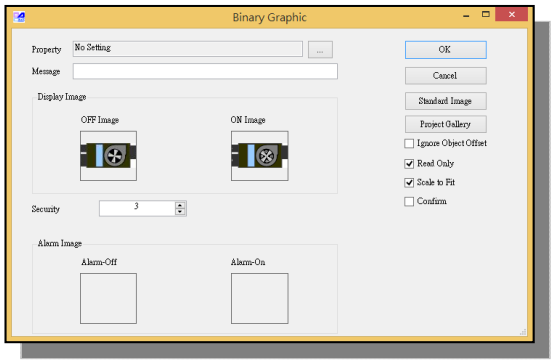
BACnet Workstation Software

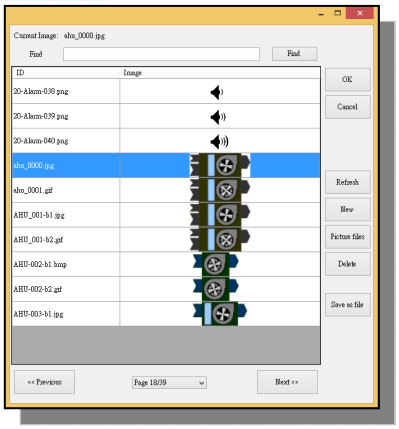
BACsoft-AWS

- The preset chart plate of the system provides a variety of common chart boards for industry chart control, which can be directly applied during project development to speed up the project development process.

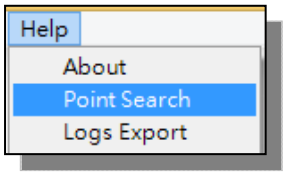
- User's Self-built Gallery Users can create various types of galleries on each project, such as background/digital/analogy/animation, etc. Gallery tools provide search and preview functions. It avoids the trouble of finding pictures in a large number of pictures in a file folder.

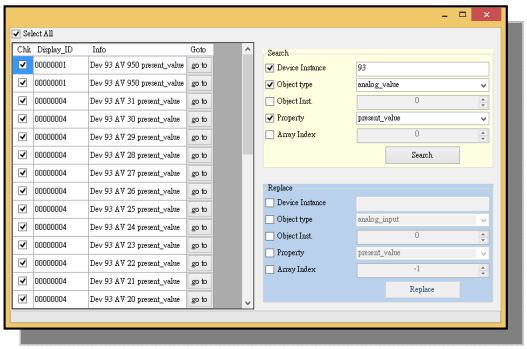






- Point search and replacement in a huge project, due to the large number of actual data points, it takes a lot of time to search for target data and maintain it. BACsoft provides flexible point screening search and replacement functions to solve the problem of searching data in a large number of map control points or modifying large quantities of identical data.

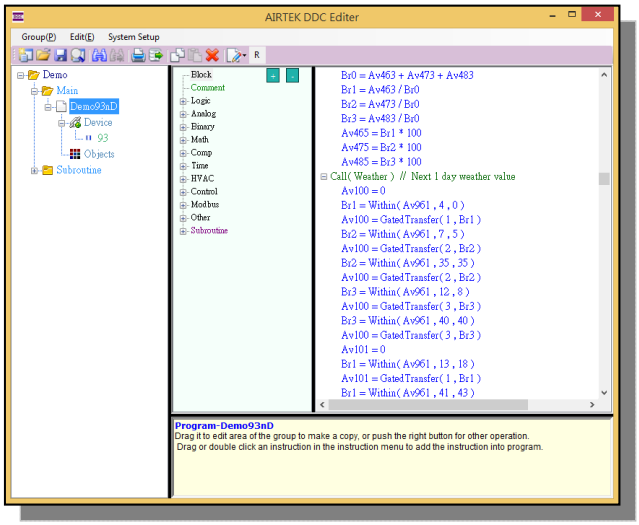




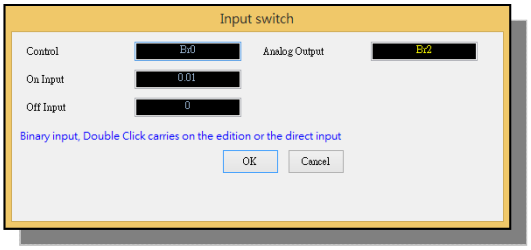
- Touch man-machine graphic control development in BACsoft, the man-machine project development environment is the same as the graphic control project development environment, and users do not need to learn separately. For the special functional items of man-machine graphic control, additional distinctions are also made to avoid confusion. It also provides touch man-machine graphic control export function, which can quickly transmit graphic control to AIRTEK NVT, DST, MFT and NFT series products and provide touch man-machine interface application.

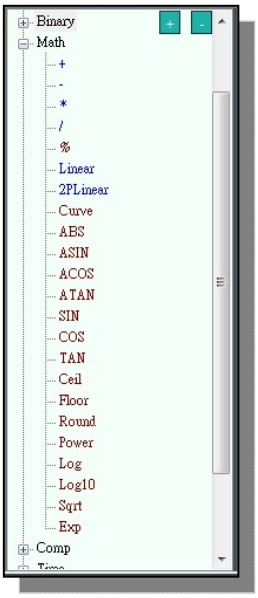
- Graphic Control Development of Web Controller in BACsoft, the development environment of Web Controller project is the same as that of graphic control project, and users do not need to learn anything else. Additional distinctions are also made for the functional items that the web page controller controls to avoid confusion. It also provides a graph control export program for the web page controller, which can quickly convert the graph control into a web page form and transmit it to the web page controller, providing the controller with web browsing.

- **Control program editor (DDC editor)**



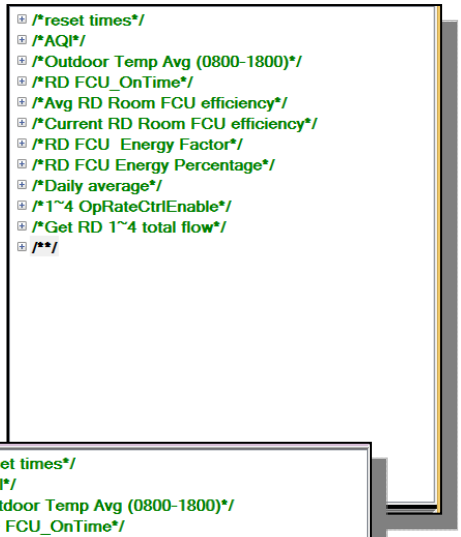
- Diverse Applications BACsoft provides DDC program editors, which can be used to edit programs, operate displays, and edit point comparison tables of communication protocol converters for AIRTEK series controllers with DDC functions.
- In addition to editing mode, online editing also provides debugging mode and real-time value mode. Engineers can verify the correctness and debugging of programs online in real time, and can upload and download control logic programs in real time.
- Modular design adopts text plus modular design, as long as the input conditions are simply filled in and the positions of input and output points are compared. It is not necessary to input codes as time-consuming as in the general text programming environment, nor is it like a logical ladder diagram in the form of a diagram. When the program is large, it is difficult to view the whole picture, which has the advantages of both editing forms.



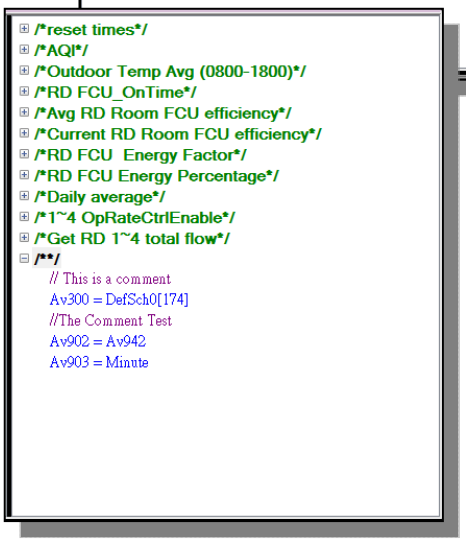


- Functions include general mathematical operation and advanced logarithm, trigonometric function, root sign and other mathematical operation function functions, as well as HVAC common operation functions such as enthalpy value, dew point temperature, PID control and so on. There are nearly 100 kinds of operation modules in total, saving engineers' program making time. In addition, the source code of related sub-programs commonly used in control is provided, which can be directly referenced and modified by engineers, thus greatly saving program development time.

- When dynamic annotation making programs, various annotation information can be added, and the annotation information is not static text, but can be compiled and passed into the controller along with the code, so annotations will be added when the program is read back in the controller, making the program more reliable in future maintenance.

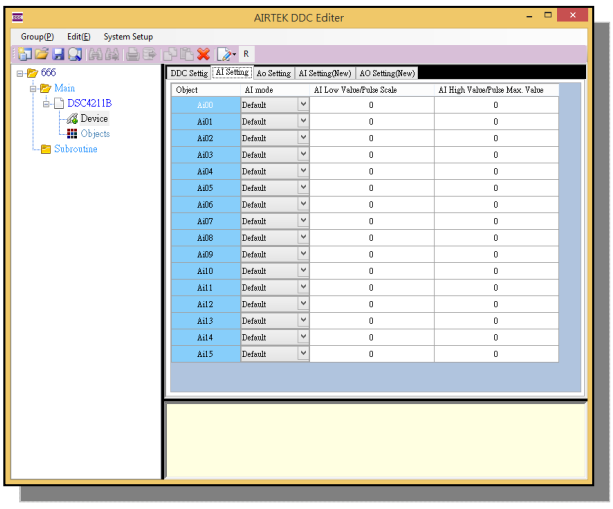


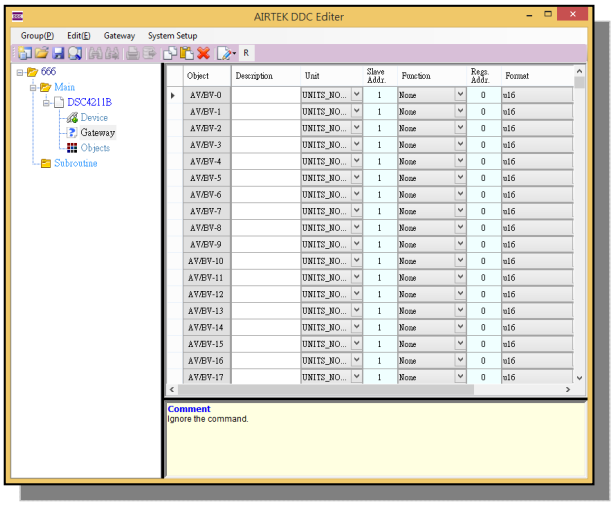
- The program group can form a group of programs with the same function and purpose, which is convenient to copy to other locations for application. It has the functions of new creation, storage, saving as well, opening, reference, etc. to speed up the application of program production.



- The program editor for addressing transmission BACsoft allows users to enter the address of the device to upload/download the control program by themselves. When operating across domains, they can easily modify the program of the target device without going through the complicated BACnet BBMD (Broadcast Management) mechanism.

- I/O and communication setting provides a simple I/O and communication setting tool, which can easily set the I/O, expansion I/O, display communication port, Modbus communication conversion port and other related settings of AIRTEK series controllers and manage them together with DDC programs without additional relevant settings for DDC controllers, thus simplifying the setting management of various devices by engineers.





High reliability

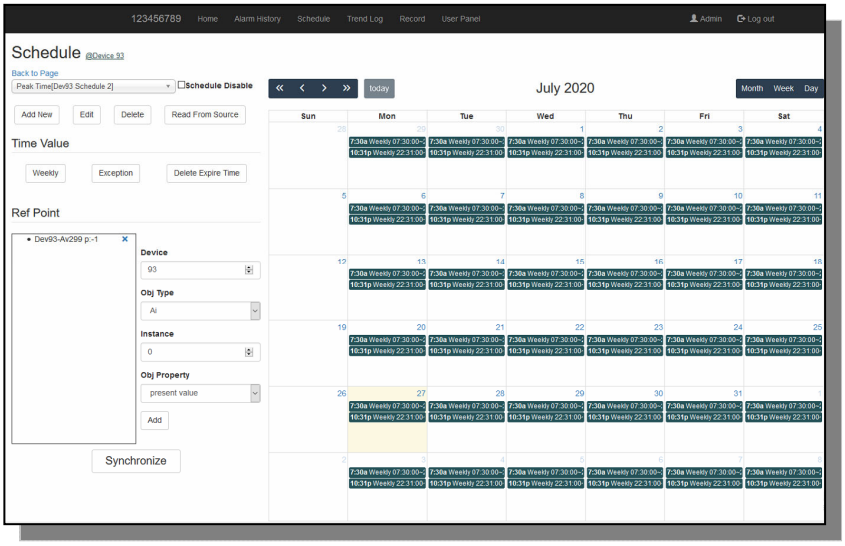
- In order to ensure that the system control is not interrupted, multiple (more than 2) BACsoft can be set up and the database synchronization function can be set. Therefore, the system will not have the problem that multiple BACsoft but their data are different from each other, nor will it lose the operation ability or cannot read the historical data in the abnormal BACsoft database because any BACsoft is abnormal.

- Cluster operation When there are multiple (more than 2) BACsoft systems in the system and external network data integration/operation must be provided, usually each BACsoft must provide its own external IP. However, using the function of cluster operation, the systems of multiple BACsoft can be connected to the outside world through one IP, and the external connection failure will not be caused by the abnormality of any BACsoft. (Cluster operation functions need to be matched with Windows Server operating system).

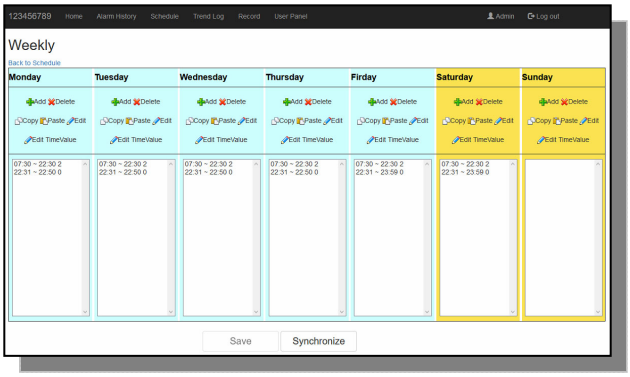
Scheduling

- BACnet standard time schedule object management has the functions of adding, deleting, editing and recording all controller time schedules above B-AAC level in AIRTEK system, and can also process other standard time schedules of equipment conforming to different brands of BACnet communication to meet the requirements of system integration.

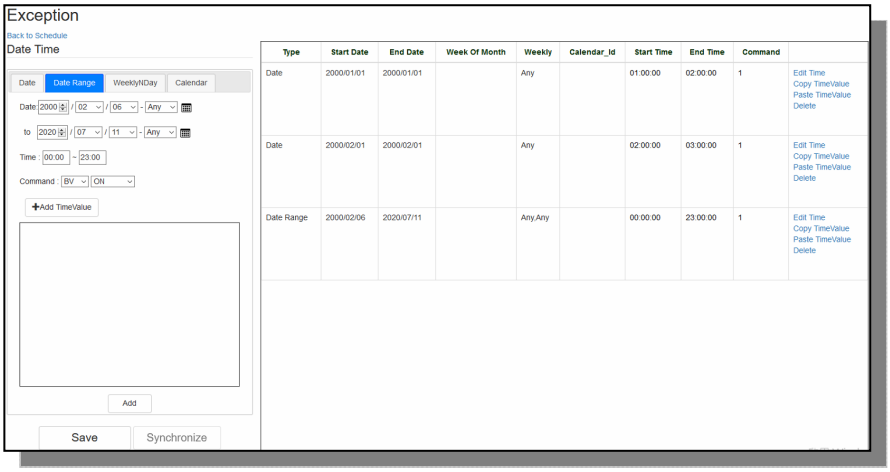
- BACnet Standard Calendar Object Management has the functions of adding, deleting, editing and recording all controller calendars above B-AAC level in AIRTEK system. It can also process the calendar of other BACnet communication equipment of different brands. Through the application of the calendar, the relevant schedule control in the annual calendar does not need to be set repeatedly, thus reducing the time for schedule control management and maintenance.



- In addition to the general list-based time schedule setting interface, the visual interface also presents the overall set time in a visual calendar.

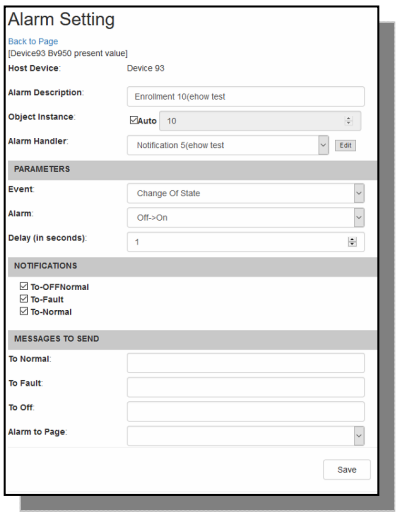


- Multi-style setting can control various time schedules such as weekly, specific day, specific date range, certain day of the week, reference calendar, etc. for various equipment. Controlled commands include changes in state and value.



● Alarm and Event Notification

- BACnet standard event object management has the functions of adding, deleting, editing and recording all controller alarms and events above B-AAC level in AIRTEK system, and can also handle alarms and events of equipment conforming to different brands of BACnet communication to meet the requirements of system integration. Alarm setting can set various different alarms according to different input/output states (BI, BO, BV) and analog input/output values (AI/AO/AV) of each equipment. Each alarm can set independent alarm description text, so that when the equipment operates abnormally, the alarm window pops up through the computer to prompt the user of the abnormal situation on site immediately.



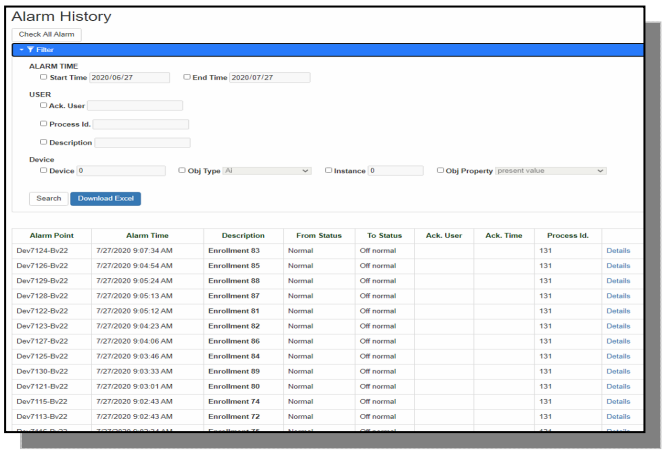
- BACnet standard notification object management has the functions of adding, deleting, editing, recording and receiving all controller notifications above B-AAC level in AIRTEK system, and can also handle equipment notifications conforming to different brands of BACnet communication to meet the requirements of system integration. The application of alarm matching notification enables multiple alarms to refer to the same notification list, personnel, or equipment without repeated setting of individual alarms, thus reducing the time for alarm and event management and maintenance.

- Notification setting can set the sending object, sending condition, classification identification code, etc. in the notification list. [Notice] The object needs to be set with an object with notice. When an alarm occurs, the device as the alarm processor will notify the object or device in the list (usually the device with an alarm display interface), and the user can know the occurrence of the alarm through these devices. If the equipment receiving the alarm supports distinguishing the alarm identification code, it can further determine which kind of alarm needs to be alerted and which does not. Therefore, when there are many kinds of alarms/events in the system, the alarms can be further pointed and notified to the main personnel, and irrelevant personnel will not receive irrelevant alarm event messages, thus reducing the information load of various system maintenance personnel.

- Alarm display and page skipping No matter under what screen the operation terminal screen is placed, when an alarm occurs, an alarm window will appear on the top layer of the screen; Each alarm can be set with an automatic page skipping function, so that when the alarm occurs, the graphic control automatically switches the screen to the graphic control where the alarm occurs, thus saving the operation confirmation time of personnel.



- Alarm History has an alarm recording function, which can record the original occurrence time, status, source, alarm confirmation time, alarm confirmation users and other information of each equipment alarm in the system in a list manner, and provide a search and screening function for various conditions to facilitate users to track and analyze abnormal equipment and conditions.



- E-Mail) BACsoft can send E-mail after receiving the alarm notification from the controller, and individual accounts can set the users in the individual E-mail list. All 3C products can be received online to know the situation immediately.

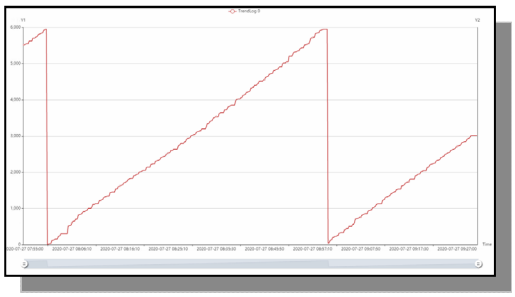
- After receiving the alarm notification from the controller, BACsoft can set to send SMS through the twilio (network service), and individual accounts can set individual phone number lists. In addition, when there is no Internet, it can also be matched with a Short Message Processing Controller (DACSMSB) to send SMS short messages. In addition to transmitting alarm messages, it can also immediately use mobile phone short messages to control equipment on site.

- After receiving the alarm notification from the controller, the communication software send (Line/Telegram) BACsoft can set to send Line and Telegram notification through the network service, and each group of accounts can set a corresponding group of Line accounts.

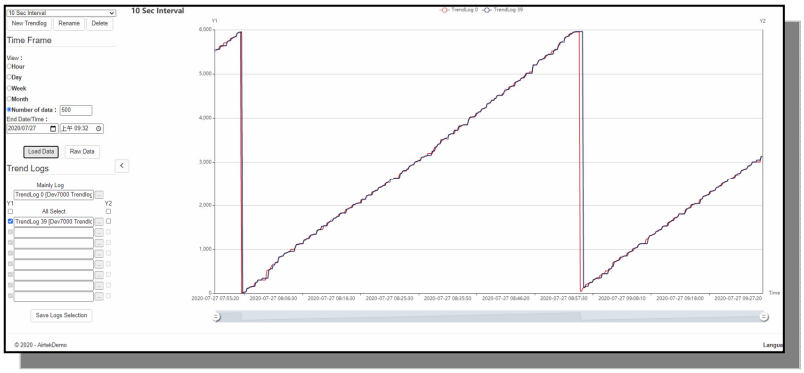
- Sending Screening: The individual E-mail/SMS numbers/Line and Telegram mentioned in the above-mentioned sending function can set independent alarm identification codes, source devices and other trigger conditions respectively, making BACsoft a powerful alarm screening and distribution machine, enabling different system/area managers to accurately receive alarms related to them without being disturbed by irrelevant information.

- **Trendlog and Report**

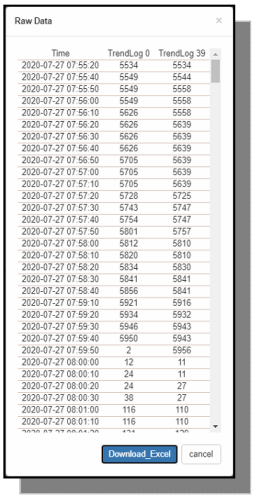
  - BACnet standard trend record object management has the functions of adding, deleting, editing, recording and receiving all trend record objects above B-AAC level in AIRTEK system, enabling users to complete trend record setting of each equipment in the simplest steps; It can also handle trend record objects of equipment conforming to different brands of BACnet communication to meet the requirements of system integration. The recorded information can be presented in the form of a list or a graph to understand the long-term operation of various equipment.

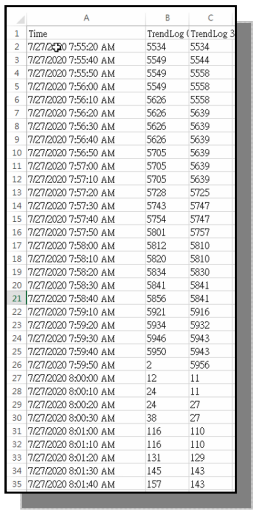


  - Multi-stroke display can be set to display up to 9 recording curves at the same time, the color of each recording curve can be set by the user himself, and each curve can be switched between display and non-display at any time during viewing. When there are many records in the system, a simple search column is also provided to select the required records. In addition, the X/Y axis range of the records can be viewed by using the mouse to control Zoom In/Out at any time, and the selected trend chart can also be directly saved as a picture for printing. The types of chart files that can be stored include EMF, PNG, GIF, JPEG, TIFF, BMP, etc., so as to facilitate comparison of the differences of various records in different time ranges.



  - Each record of manual and automatic remitted report can be presented as trend chart or report. The report function also supports the related functions of multi-stroke display. The set report can be manually remitted to the computer as PDF or Excel (CSV) files, or automatically remitted to the PC as Excel files at regular intervals.

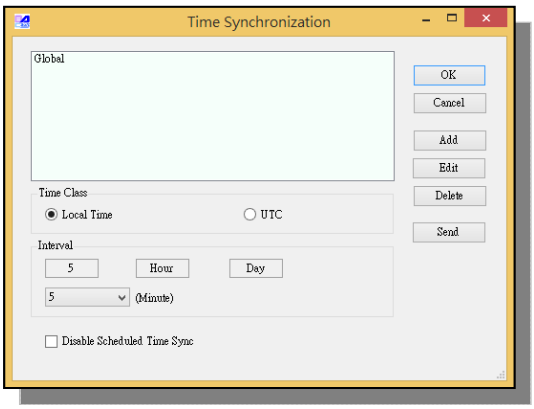




- **Time Synchronizer (UTC)**

  - Time synchronization provides the time synchronization function of BACnet UTC monitoring system, which can send time synchronization signals and synchronize all BACnet devices in the system to obtain the consistency of system control, and can be applied in coordination with daylight saving time function.

  - Standard Time If the Internet is connected at all times, the monitoring computer can set the international standard time synchronization, then the software will automatically retrieve and synchronize the system, and the system time can be maintained accurately.



- **Power demand control**

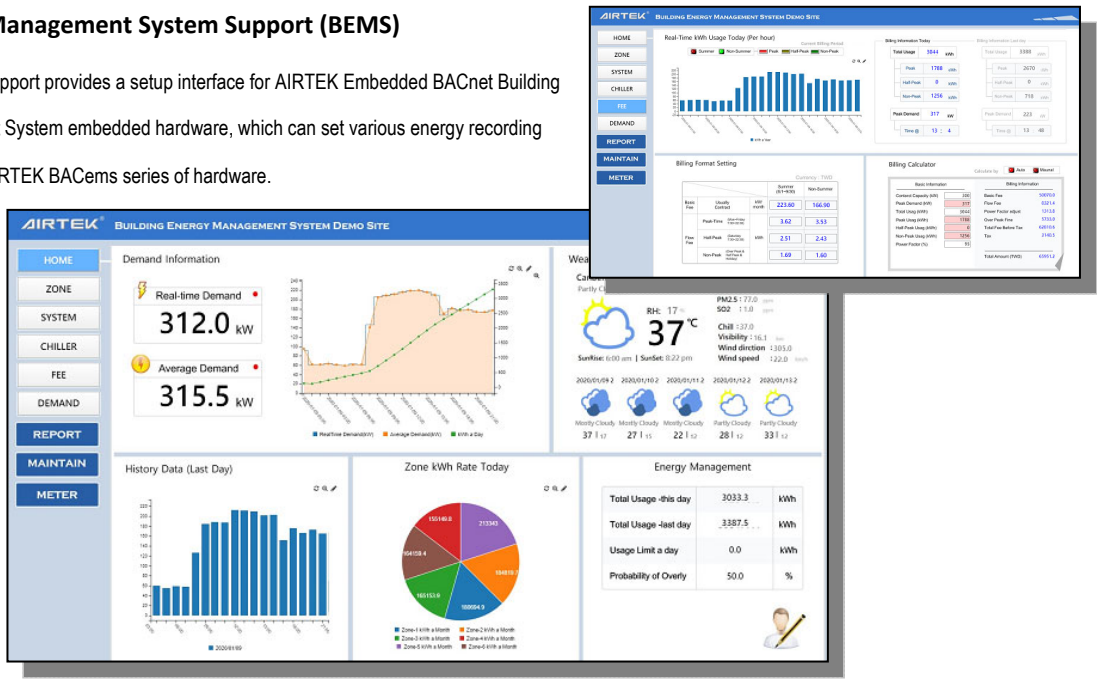
  - Demand data has the function of accessing BACnet Trending standard trend record data, can use the same database data, and can also synchronously process the data of all other equipment conforming to different brands of BACnet communication. With on-site controller, the overall demand control of the system can be easily met.

  - Rolling calculation adopts rolling calculation, which monitors the usage of demand from time to time and ensures that the contractual capacity will not be exceeded according to various calculation methods.



- **Building Energy Management System Support (BEMS)**

  - BEMS Embedded support provides a setup interface for AIRTEK Embedded BACnet Building Energy Management System embedded hardware, which can set various energy recording requirements with AIRTEK BACems series of hardware.



- **Report**
  - The output mode can be selected as computer files, screen display, printer, automatic E-MAIL sending, etc.
  - Multi-function reports provide operation records, operator operation reports, trend record reports and database reports.
  - Multi-style reports can be made into daily reports, weekly reports, monthly reports, annual reports and other forms of reports.

