USER'S MANUAL

Fanhai Sanjiang

JB-QGL-9100E
JB-QTL-9100E

Fire Alarm Control Panel

USER'S MANUAL

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Preface

JB-QGL-9100E/JB-QTL-9100E is a new generation of intelligent and integrated fire alarm control unit designed by Shenzhen Fanhai Sanjiang Electronics Co., Ltd, following the requirements and spirit of GB 4717-2005 Fire Alarm Control Units and GB 16806-2006 Automatic Control System for Fire Protection, and referring to European requirements of EN 54-2 and EN 54-4 as well.

The fire alarm control unit is of modular design and features with powerful functions, outstanding cost performance and other advantages. The system is equipped with wide LCD screen and a dedicated micro-printer as standard, which can print English character information of all alarms, faults and various operations. It has the capabilities of comprehensive field programming and complex cause&effect settings. It imitates Windows operation interface, which is easy to learn to operate. The maximum capacity of a single equipment reaches 25,920 points.

JB-QGL-9100E/JB-QTL-9100E can be connected (as required) to intelligent fire detectors, input modules, output modules and multi-wire linkage units produced by the company, thus forming an automatic fire alarm system integrated with bus and multi-wire, so as to satisfy the requirements of fire engineering.

Two models of panels are available as appropriate: JB-QGL-9100E for cabinet-type mounting, and JB-QTL-9100E for piano-type mounting. Since the features and operating interfaces of both panels are similar, here we take the JB-QGL-9100E as an example to specify.

Thank you for purchasing the product produced by SHENZHEN FANHAI SANJIANG ELECTRONICS CO LTD!

Please be sure to read this user's manual carefully before using the equipment. After debugging and acceptance, this user's manual should be taken charge of by an authorized personnel and be kept properly for future reference!

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Chapter 1 System Overview

1.1 System introduction

JB-QBL-9116E fire alarm control panel is a new generation of fire alarm control panel issued by Shenzhen Fanhai Sanjiang Electronics Co., Ltd. It is used with other related products of the company to form an integrated and automatic control system, which is perfectly suitable for the application from medium to large-sized fire alarm and fire protection applications.

The fire alarm control system is widely used in high-grade office building, residence community, department store, gymnasium, exhibition room, library, workshop, supermarket, hotels and other medium-to-large scale fire protection projects.

1.2 System Features

- ✧ The latest generation of high-speed microprocessor is adopted making the speed of data processing 100 times faster and the data storage capacity 1000 times larger when compared with traditional techniques.
- ✧ JB-QGL-9100E/JB-QTL-9100E is provided with 10" color display screen (LCD), with a display resolution of 1024×600.
- ✧ The operating interface imitating Windows menus and interfaces thus facilitates to operate.
- ✧ Operation and control are flexible and convenient through the standard USB-interfaced computer keyboard and mouse. Or the touch panel plus buttons might be used to achieve programming on site.
- ✧ Texts can be input easily and freely where required.
- ✧ Smart U disk is optional, which can be used to copy or restore setup file and historical file of the system, thus facilitating the system maintenance.
- ✧ Adopts the non-polarity two-bus intelligent alarm linkage pattern and can connect 324 intelligent detectors or intelligent modules at most. The addresses of module and detectors can be mix-programmed between 1 to 324.
- ✧ Several high-speed CAN bus interface guarantee fast and reliable data transmission.
- ✧ The maximum capacity of single panel reaches 40×2×324=25,920 points.
- ✧ Supports interconnection of 20 units of JB-QGL-9100 (or JB-QTL-9100) making the system capacity up to 20×25,920=518,400 points.
- ✧ Expandable multi-wire control unit with a maximum of 4000 control points.
- ✧ Recording function: 1000 pieces of history fire, fault, feedback, request and operation can be recorded respectively.
- ✧ Equipment type can be defined by customer which facilitates system integration.
- ✧ The concept of virtual loop board is introduced to make more compounded cause&effect equations.
- ✧ Module start/stop function by manual operation is provided to make commissioning simple.
- ✧ Point test for detector/module makes it clear to monitor the working status of the device.
- ✧ Standard micro-printer is provided to print necessary information.
- ✧ Fire indicating panels can be connected in to achieve info display on different floors.
- ✧ Connectable to the Graphic Display Unit of CRT-9000 for displaying the specific locations of fires or faults directly.
- ✧ The system carries out the hierarchy management of multi-level users and the users of different levels are granted with corresponding operating system permissions, which is convenient for system management.
- ✧ It is possible to update the system on field or remotely to ensure the system operates stably and reliably
- ✧ Standard: GB4717-2005 Fire Alarm Control Units
  GB16806-2006 Automatic Control System for Fire Protection

1.3 System diagram

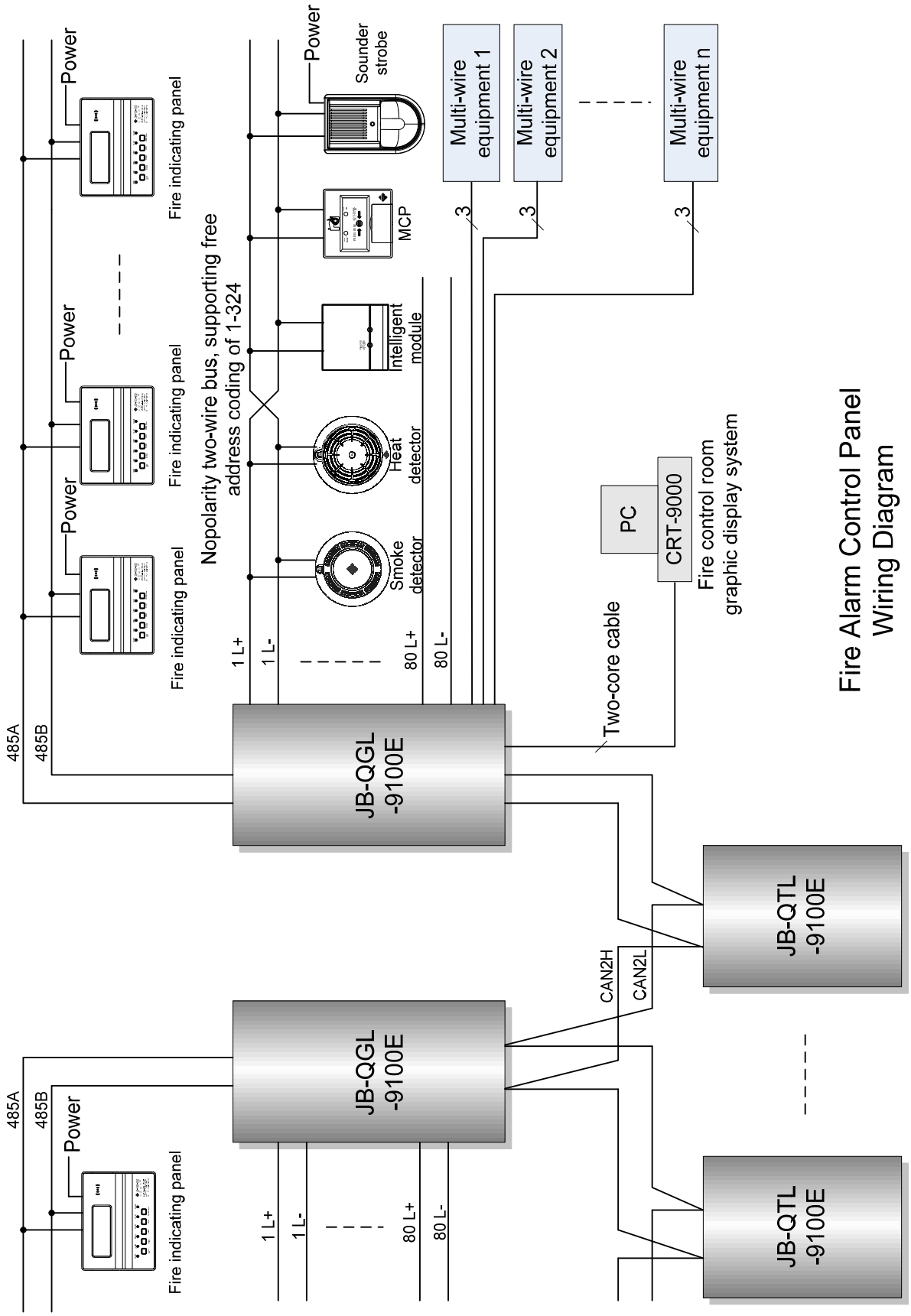


Fig 1- 1 System diagram

1.4 System components

As shown in Figure 1-1, the fire alarm control system mainly consists of the followings:

- **Main control unit**

  The main control unit is responsible for processing and analyzing the data transmitted from other parts, and commanding, based on results of data analysis, other parts in the system to execute accordingly, such as controlling the buzzer to sound for fire.

- **Display component**

  The display component provides main output interface for alarm message and routine maintenance and query interface.

- **Input device**

  The system transplants the computer standard peripheral interface, panel buttons or USB-interfaced keyboard / button as input devices, which brings much convenience for the user to set up and maintain the system.

- **Power supply equipment**

  The power supply equipment is used for all internal equipment in the whole system. The system adopts the special firefighting equipment power with DC 24V output, which can provide alarm or feedback signals, such as main fault, battery fault, battery low-voltage and battery charging, and has good immunity to interference.

- **Loop board**

  The loop board drives the bus of detector/module which includes two loops per single board. And each loop can drive 324 addressable detectors or modules.

- **Fire detector**

  The system can connect in the compatible addressable smoke detector, heat detector or multi-sensor detector, such as JTY-GD-930, JTW-ZD-920, and etc.

- **I/O module, sounder strobe, MCP and fire hydrant MCP**

  The compatible intelligent modules can be connected in the system: JK-952 input module, JS-951 input module, KZ-953 output module, KZJ-956 I/O module, SG-991 sounder strobe, J-SAP-M-960 manual call point (MCP) and J-SAP-M-961 fire hydrant MCP.

- **Manual control unit for bus device**

  Each manual control unit includes 30 buttons, each one corresponds to an I/O module on the bus. When enabled, pressing a button can control an I/O module to start/stop.

- **Multi-wire equipment control unit**

  Each unit of DX900-05A involves 5 points of critical multi-wire equipment, such as, fire pump.

- **Printer**

  The system is equipped with a dedicated micro-printer (hereinafter referred to printer) as standard, which can print alarm, feedback and fault messages for future reference.

- **Fire indicating panel**

  The fire-indicating panel is also called floor-indicating panel and its application is expanded in the system, which can be used as both "building indicating panel" and "floor indicating panel". The model compatible to this system is JB-FSD-982E.

1.5 Technical specifications

1.5.1 Power supply:

Mains power: AC 220V±20%/50Hz or DC24V
Battery: DC24V maintenance-free battery (capacity depends on system requirement)

1.5.2 Operating conditions:

Operating temperature: -10°C～+55°C
Ambient humidity: ≤95% (40°C±2°C, no condensation)

1.5.3 Peripheral devices

Refer to other separate product manuals for specifications of detector, module, sounder strobes and etc.

Chapter 2 Installation and Dimensions

2.1 Product Appearance and Dimensions

✧ JB-QTL-9100E

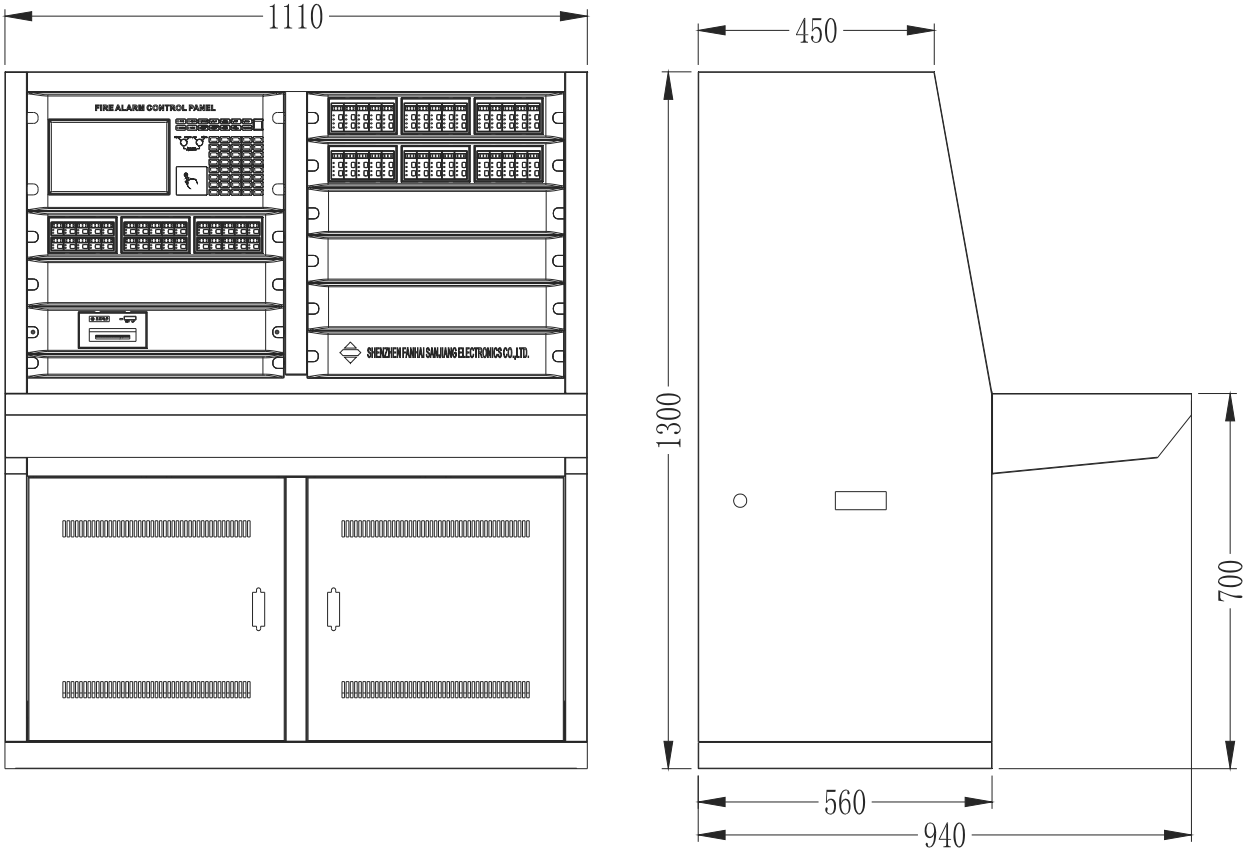


Fig 2- 1 Dimensions of JB-QTL-9100E

✧ JB-QGL-9100E

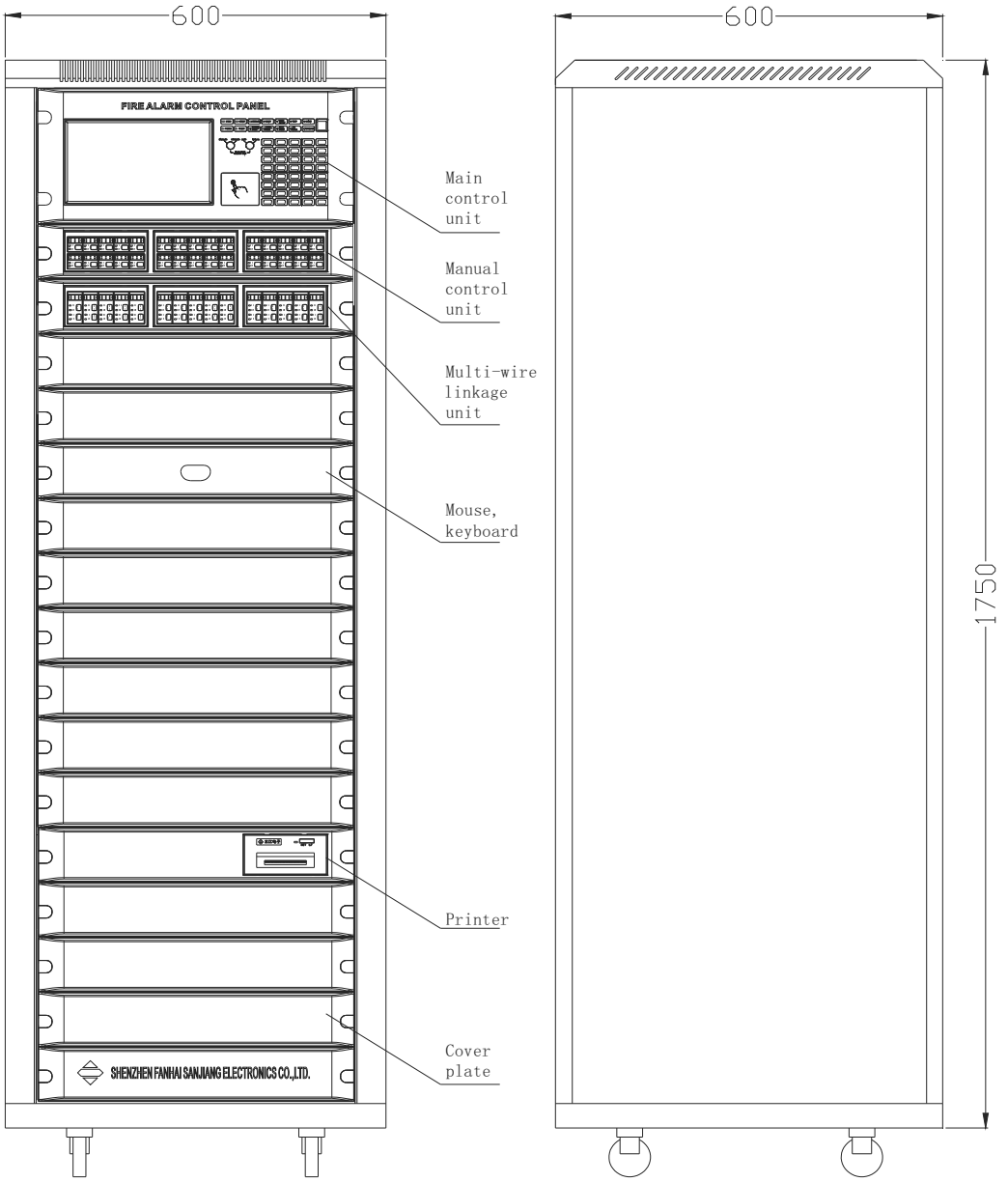


Fig 2- 2 Dimensions of JB-QGL-9100E

2.2 System installation

2.2.1 Items check

Before installation, check the field equipment at first. After opening the packing box, check the items inside one by one according to the packing list including installation and operation instructions, fuse, standby screw and key of the control panel, and then, if necessary, check appearance of the cabinet after verification. Please call the sales personnel of our company immediately in case of any discrepancies found during the check.

2.2.2 Engineering configuration check

Check the packaging list against engineering configuration. The requirements shall match with the design drawing.

2.2.3 Internal configuration and wiring check

Take routine check on the panel's internal configuration, such as number of loop board, number of manual control panels and the connection of power supply. Check if there is any

component drop-off or loose due to shipment.

2.2.4 Power-on test

After above checks, do power-on test as specified in 2.4.2, and verify whether power supply and basic functions (such as button and indication functions) of the control unit operate normally without connecting any peripheral equipment.

2.2.5 External device and wiring check

Check the bus condition connected and measure the insulation resistance between different loops, bus and ground, as well as load condition. Wherein, insulation resistance should be higher than 20MΩ and loop impedance should be lower than 40Ω.

Check the status of loop devices with debugging device, that is, whether device number, coding and operating status comply with the design requirements, to eliminate existing faults and get ready for system connection.

Connect peripheral equipment or connecting line of the system into input terminal of the control panel, and see instructions on the label for definitions of each terminal. The contact shall be good condition. Check with a multimeter that it is free of short circuit or open circuit.

Chapter 3 System Commissioning and Operation

3.1 System commissioning

After connection and verification, the system may be switched on for commissioning, mainly including registering and testing of detector and module, the setup of manual control unit and multi-wire control unit, and cause&effect programming.

3.2 System operations

3.2.1 Panel functions

The front panel layout of JB-QGL-9100E is shown as below:



Fig 3- 1 Front panel layout

The functions of alarm inquiry and control are involved which are explained as below:

Indications:

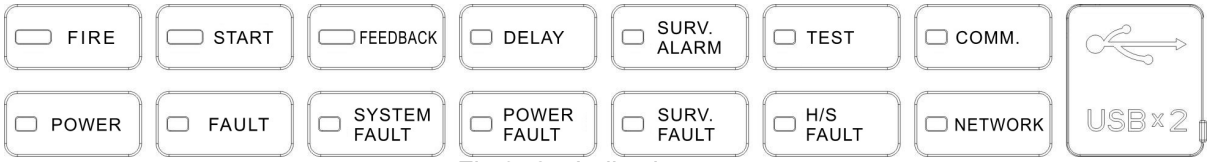


Fig 3- 2 Indications

No	Silk-screen	LED	Description
01	**POWER**	Green	The indicator lights when the main board is normally supplied by the mains power (or battery). Friendly Reminder The illuminating of the indicator does not mean other system components (except for the main board) are normally supplied, that is, the indicator lights as long as the power supply of the main board is normal.
02	**FIRE**	Red	The indicator lights when the system detects any fire alarm.
03	**START**	Red	The indicator lights if the system has sent a linkage request to a certain module.
04	**FEEDBACK**	Red	The indicator lights if the system has received a linkage feedback from a certain module.
05	**FAULT**	Yellow	The indicator lights when the system detects any fault (regardless of fault types).

06	**SYS FAULT**	Yellow	The indicator lights when the panel is in fault or the system is not operating as expected.
07	**SURV. ALARM**	Red	Reserved.
08	**DELAY**	Red	When a cause&effect is triggered during delay period, the indicator lights until the end of the delay.
09	**POWER FAULT**	Yellow	The indicator will light when the system detects the fault of power supply (regardless of fault type the power).
10	**H/S FAULT**	Yellow	The indicator lights when horn/strobe or remote sounder (alarm bell) in the system goes wrong.
11	**COMM.**	Red	The indicator flashes when communication between panels runs well.
12	**SURV. FAULT**	Yellow	Reserved.
13	**TEST**	Yellow	The indicator lights when the panel carries out panel test or single-point test and will go off after completion of the test.
14	**NETWORK**	Yellow	Reserved.

Buttons:

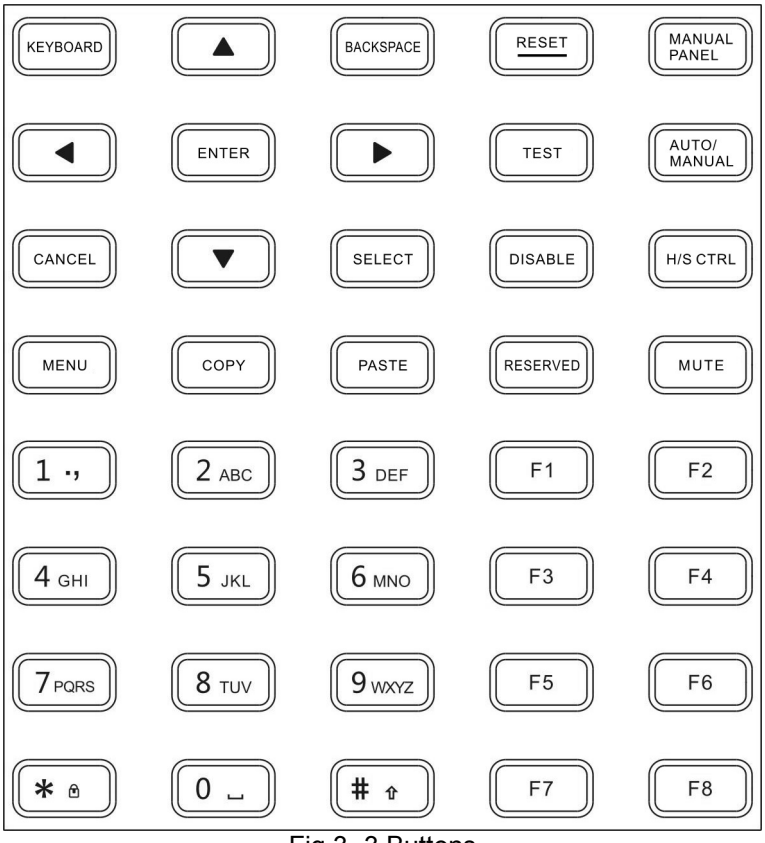


Fig 3- 3 Buttons

1) KEYBOARD (button with light)

The panel buttons are unavailable when power-on firstly, and the indicator of KEYBOARD is off. Press it or the * button, or CTRL+ALT+DEL keys of the USB keyboard and the password input box will prompt on the display, then enter into the password and log in (see User Login for details). The system will enable the panel buttons when correct password is entered and the indicator of KEYBOARD lights. When buttons are available, press KEYBOARD or * of panel buttons or CTRL+ALT+DEL of USB keyboard to disable the keyboard and log out.

Note: When the panel buttons are available, the system will automatically log out the login status and disable the panel buttons if it is inactive for about 10 minutes. Except the MUTE button, other buttons are only available when under active state.

2) AUTO/MANUAL (button with light)

In manual status, pressing **AUTO/MANUAL** to switch to automatic status, meanwhile the button indicator lights; switch to the manual status after pressing again, and the indicator is off. When panels are connected, pressing **AUTO/MANUAL** on No.1 host in the network will change the auto/manual state of all panels; pressing the button at any other host will only change the state of the local one.

3) MANUAL PANEL (button with light)

If the manual panel of the system is prohibited, press MANUAL PANEL to enable all manual control panels of the bus, and meanwhile the indicator of the MANUAL PANEL lights. Press again to return to the prohibited status and the indicator goes off. If hosts are networked, press MANUAL PANEL of No.1 host in the network, and the status of all manual control panels of the bus will be changed simultaneously and stay the same with host 1; if MANUAL PANEL of other host is pressed, only the status of the local host will be changed. The manual control panels of the bus will be saved at power-off, which means the status will be kept even when power off.

4) MUTE

Press MUEL to mute the sounds of internal buzzer, fire indicating panel and graphic display unit in the fire control room. Under mute state, the buzzer and other audible alarm apparatus will be restarted in case of any new alarm. MUTE is the only button without password protection in the system. It will stay valid regardless of on or off states of the panel keyboard.

5) H/S CTRL (button with light)

Press H/S CTRL to mute all the external sounders (alarm bells and horn strobes) in the system. In case of fire alarm, H/S CTRL button can be used to switch off or restart sounds of corresponding sounders. When H/S CTRL is pressed and the sounder is muted, the H/S CTRL indicator lights. In case of new fire alarm in the system and with alarm bell or sounder involved, H/S CTRL indicator turns off and corresponding alarm apparatus will resound. The button can be operated only when the user has logged in the system.

6) DISABLE (button with light)

Pressing DISABLE will isolate all bus equipment (any bus equipment in the networking system) that are under alarm state (fire, feedback or fault state) currently. Once disabled, any alarm launched by the device will not be sent to the host. Fault messages from power supply, printer, indicating panel and host networking cannot be isolated. The button indicator will light in case of any disabled bus equipment existing in the system.

Note: Only the super user has the permission to use this function. The disablement is only valid for information display and the disabled device will operate normally. The button is only used to disable the current alarming device. Checking and canceling disablement are available through menu operations.

7) TEST

Press TEST to get the system into panel test process: light up all indicators for LED testing, try different acoustic modes for buzzer (fire, fault and feedback) and illuminate the pixel matrix on the screen by sequence. It will exit automatically after completion of the test or press TEST again to exit in the meantime.

Note: The system will not receive alarm signals temporarily under testing state.

8) RESET

Press RESET to eliminate all current alarms and reboot the system. The whole process takes 30-60s. If multiple hosts are networked, press RESET of host 1 and all hosts in the network will be reset; press RESET of other host, only the local host will be reset.

Note: If hosts are networked, host 1 is used as the system main host, press RESET, MUTE, H/S CTRL buttons,all regional units (host 2-20) will execute this operation; when the regional unit operates these keys, the state of itself will only be changed. When the regional units in the networking system are under set state, press RESET on the main host, the regional units will response the restore command immediately and the files currently set by the regional units will lose this update, which means the data set since last storage will not be saved automatically! Therefore, if several debuggers operate at the same time, please disconnect the host being set temporarily before large volume of data input!

9) Selection and inquiry on LCD

▲, SELECT, ENTER, ▼ buttons are commonly used at the following situations:

✧ **Alarm inquiry:**	✧ **Password input:**
▲— scroll upward	▲— move cursor upward
SELECT— field selection (Fire, request / feedback, fault)	SELECT— number selection
ENTER— field selection (Fire, request / feedback, fault)	ENTER— confirm
▼— scroll downward	▼— move cursor downward

10) Key switch



Note: The key switch is only effective for the multi-wire linkage unit.
”ENABLED/DISABLED”: Enable or disable the use of the MANUAL PANEL button.
“AUTO/MANUAL”: If the system is in a state of fire alarm, the corresponding device will be started automatically when the "AUTO" is chosen. The device can only be started by manual operation in the condition of fire alarm when the "MANUAL" is chosen.

LCD display interface:

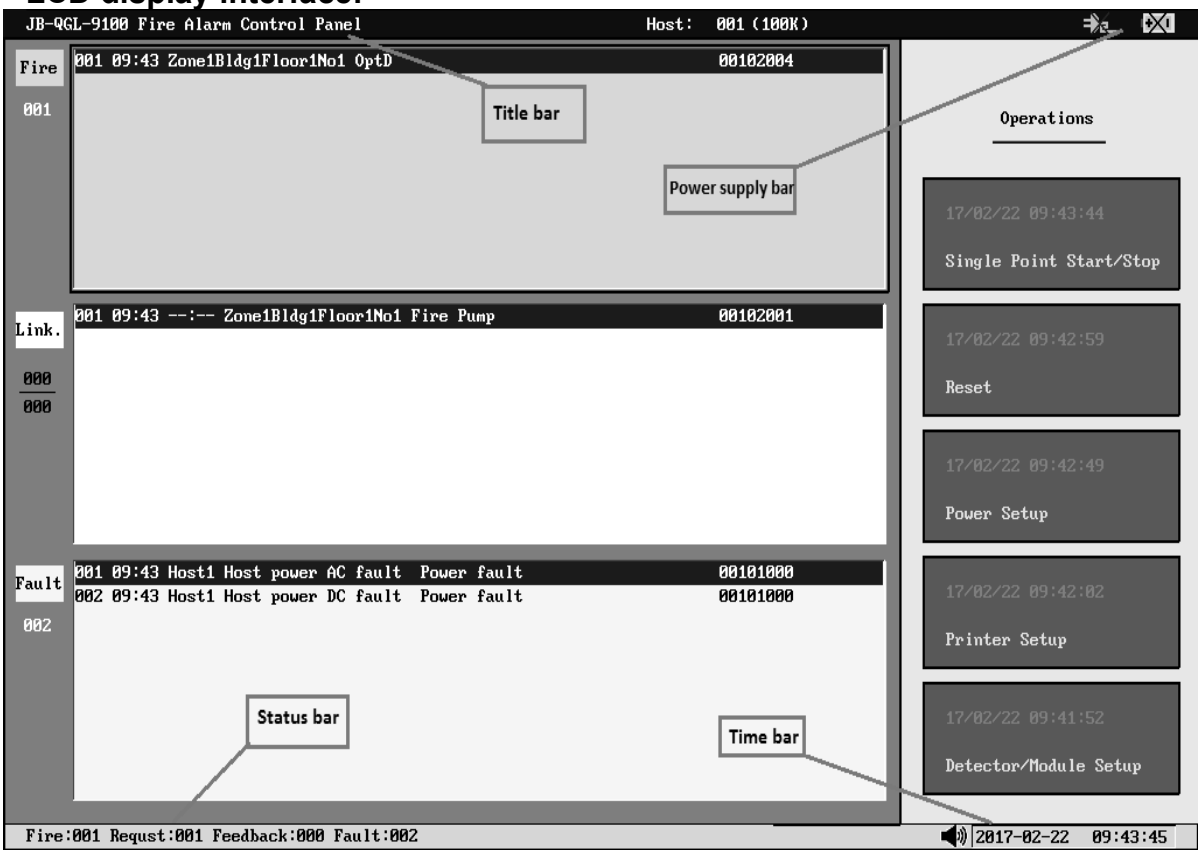


Fig 3- 4 Display interface

The following describes the conventional display bars on the screen, which will be displayed no matter what state the system is in. There are 5 conventional display bars on the screen as shown above.

- **Title bar**
  Display model and name of the host as well as company logo, and host number in the current network.

- **Status bar**
  Main functions:
  - Display the special function buttons available currently
  - Display the total amount of fire, request, feedback and fault under alarm state

- **Time bar**

Display current date and time of the system

- **Power state bar**

  Display the current power state of the host by icon, as shown in the figure:

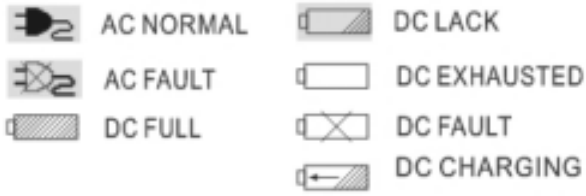


Fig 3- 5 States and meaning of icons

- **System info column at right**

  Display operations applied to the panel.

3.2.2 Panel start-up

The power supply required for normal operation of the system is AC 220V±20%, 50Hz. The equipment must be well grounded. After confirmation of these operating environments, power on and start up. The figure below will display:

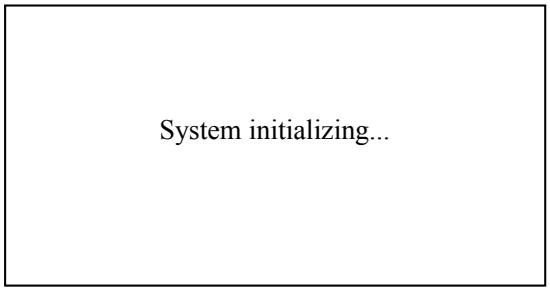


Fig 3- 6 Initializing interface

During the period, the system will check and load the data required for system running and set the external equipment as required. The current initializing steps will be displayed in the status bar. The process will take 10-20s and then it will enter normal state of time display.

Note: 1. Fire or fault condition might be delayed because of the time needed for confirmation and verification algorithm. In this system, the maximum delay for fire is 5s, for fault 100s. Therefore, it may prompt "System running normally" when there exist certain fault or fire at panel start-up.

2. The time needed for initialization depends on the number of external devices connected. When there is much external equipment, the time will increase accordingly.

3.2.3 User login

The users may operate the functions authorized with its identity after logging in.

The users may be divided into four categories based on different operating authorization:

- ✧ **Super user:** designer of the system (8-digital password)
- ✧ **System debugger:** personnel doing commissioning (8-digital password)
- ✧ **System administrator:** personnel for system maintenance (6-digital password)
- ✧ **Staff on duty:** personnel on duty at the fire control room (4-digital password)

Note: The user classification aims to preventing possible mal-operation and facilitating system maintenance and management.

The Staff-on-duty is not allowed to enter the system setup interface but can log in, check and operate through the panel keyboard only.

Caution: The system will record the operation content of each user to facilitate the responsibility tracing; therefore the password shall be kept strictly confidential and carefully managed and be kept away from irrelevant personnel.

3.2.3.1 Login of super user, system debugger and system administrator:

Super user, system debugger and system administrator may log in the system by two ways.

1. Log in through standard USB keyboard. Pop up the login window by pressing Ctrl, Alt and Del keys simultaneously (as shown below).



Fig 3- 7 Example of USB keyboard

2. Press "*" key at the left bottom corner of the panel, and pop up the login window.

✧ Log in

Under logout state, press CTRL、ALT+DEL on USB keyboard simultaneously, or press "*" key at the left bottom corner of the panel, and pop up the password input window (as shown below). Press ENTER key on USB keyboard or "OK" key on the panel keyboard to confirm.



Fig 3- 8 Password input window

Attention: In order to keep confidential, "*" will be displayed in the input box when entering. After login, panel keyboard will be activated at the same time and the KEYBOARD indicator lights.

✧ Log out

Under login state, pressing CTRL, ALT+DEL keys on USB keyboard simultaneously, or pressing "*" button on the panel will pop up the inquiry window. Select ENTER to log out.

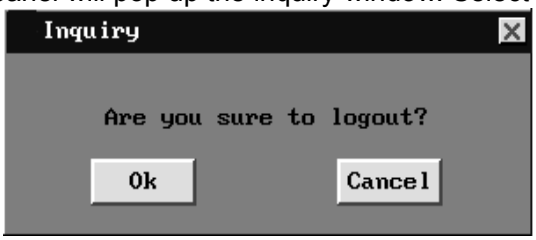


Fig 3- 9 Inquiry window of log out

3.2.3.2 Staff-on-duty login via panel keyboard

The staff-on-duty can log in directly via panel keyboard.

✧ Log in

Under log out state, press Keyboard button to enter the window of password input. The button indicator will light when log in successfully.



Fig 3- 10 Staff-on-duty login interface

✧ Log out

Under login state, pressing KEYBOARD button on the panel will exit the login state and the button indicator goes off.

Attention: Under login state, the system will log out automatically if it is inactive within 10 minutes (no key is pressed and the mouse does not move).

Note: Under logout state, the user may only operate "MUTE" and other operations are not allowed.

3.2.4 Special functional keys

The system adopts the standard USB keyboard compatible with PC and defines the following special function keys. The function keys corresponding to keyboard are set on the panel keyboard and the specific contents are as follows:



Function keys	Shortcuts	Corresponding panel buttons
F1	Switch to main setting interface	MENU
F2	Switch to alarm interface	F2
F3	Switch to disablement inquiry interface	F3
F4	Switch to single-point start / stop interface	F4
F5	Copy cells in the spreadsheet	COPY
F9	Paste cells in the spreadsheet	PASTE
Ctrl+Alt+Del	Switch to login interface or logout interface	*
Ctrl+Space	Switch to input method	#
←	Move cursor left	←
↑	Move cursor upward	↑
→	Move cursor right	→
↓	Move cursor downward	↓
Del	Delete text characters at the right side of the cursor	BACKSPACE
Back Space	Delete text characters at the left side of the cursor	NA

Attention: The above special function keys are not active under all conditions. The main function keys active currently will be scrolled on the status bar (see the panel layout diagram for its position) at the lower end of the main interface.

Attention: The panel keyboard is under digital input state normally. It is switched to phonetic alphabet input state, letter input state in proper order and returned to digital input state after pressing "**#**" key. Refer to the interface prompt box for specific states.

Under fire alarm and feedback state, the system administrator is not allowed to enter into the setup interface. This is because the system decides emergencies have been detected and must be disposed preferentially. At this moment, F1 key is in vain. However, the system debugger and the super user may enter into the setup interface as the system is currently considered under commissioning or maintenance state.

Note: The alarm interface will pop up in case of new alarms (including fire and fault), no matter which user is in the non-alarm interfaces, such as setup interface. Then only the system debugger and the super user may re-enter into the setup interface.

Chapter 4 System Configuration Details

This section will describe operation of the sub-menus related to the system configuration including system setup, bus setup and c&e setup. The following figure is the list of menu setup.

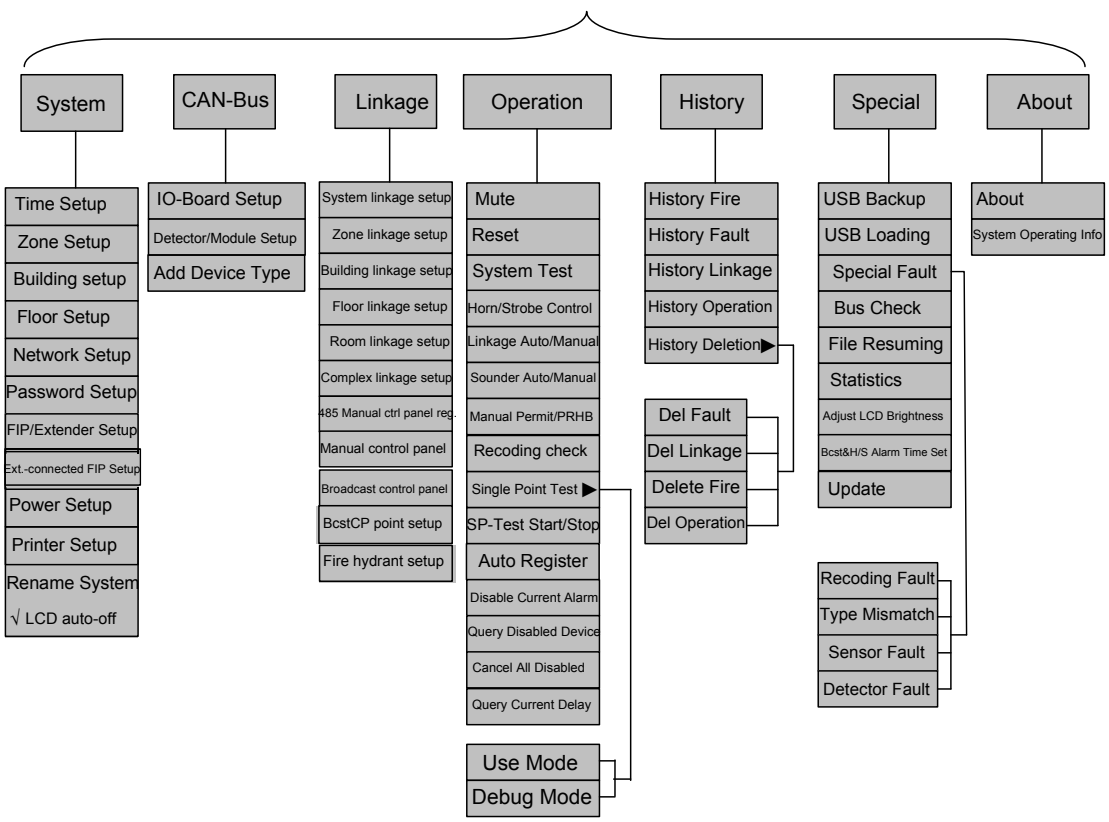


Fig 4- 1 Menu list

4.1 System setup

Click on SYSTEM the sub-menu will be shown as below:

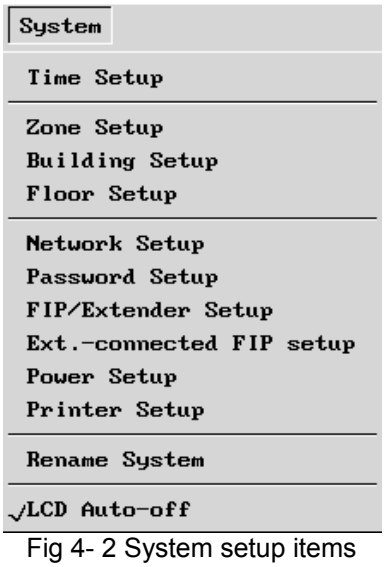


Fig 4- 2 System setup items

4.1.1 Time setup

The time setup interface is as follows: enter into proper date and time, click the OK button, and the system will save the time set by the user.

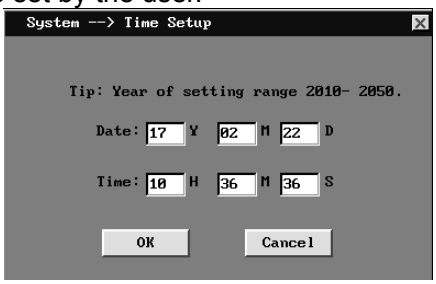
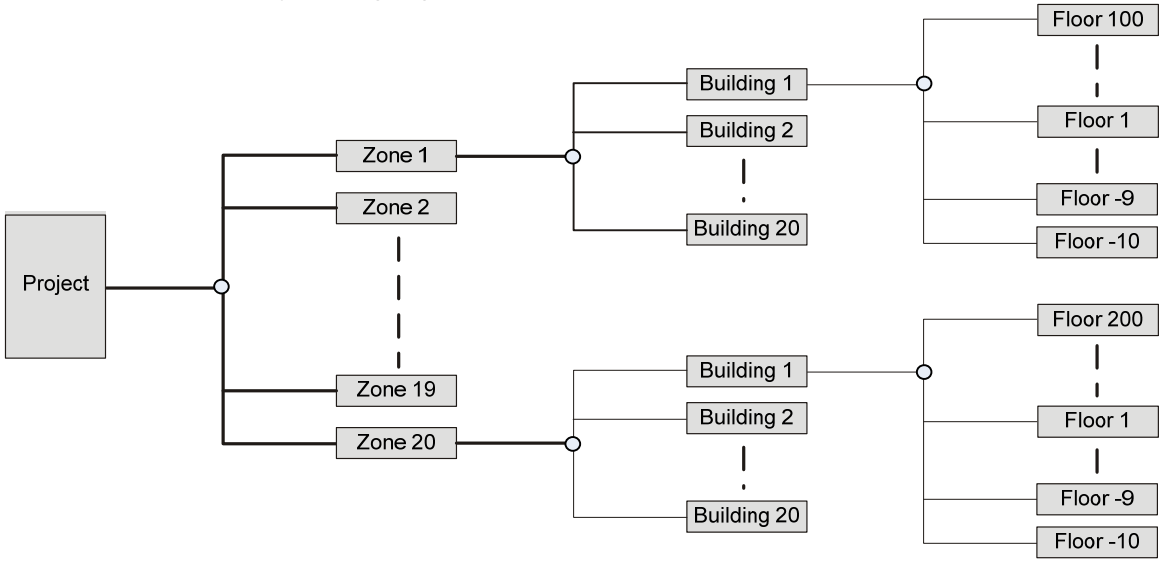


Fig 4- 3 Time setup window

Note: In the networking system of multiple hosts, as the host time is required to be the same, all hosts in the system will take time of the main panel as criterion. This means other hosts will align with the time setup of the main panel automatically and synchronously, the system time will be synchronized to time of the main panel even if other hosts have set the time. Therefore, only the main panel has the effective time setup function in the networking system.

4.1.2 Zone setup, Building setup, Floor setup

The settings for zone, building and floor is to familiarize the system with the application-engineering environment. The whole area governed by the system is logically partitioned as follows by the 3 geographic orientation setup:



The system can manage maximum 20 fireproofing zones, 20 buildings in each zone,,with each building having -10-200 floors. For a certain engineering, effective buildings and floors are required to be registered by clicking on the registration column in the corresponding form; "√" means registered, "×" means unregistered.

Note: The zone, building and floor setup shall be carried out at the beginning of engineering commissioning, as other setups all base on these data. The problem of skip floor can be solved by floor registration, that is, some of the buildings may not have a certain floor, like 4F, thus the registration of that floor can be cancelled and the system will consider 3F and 5F are adjacent and all linkages can be scrolled normally.

- **Zone setup:** the zone can be named in "position description"; the initialization value in the figure is "zone 1-N".



Fig 4- 4 Zone setup window

- **Building setup:** the building can be named in "position description"; the initialization value in the figure is "building 1-N".

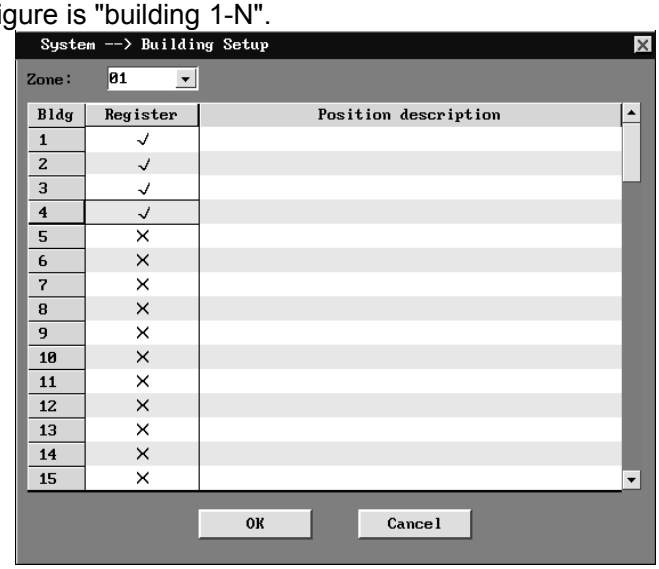


Fig 4- 5 Building setup window

- **Floor setup:** press OK button to save the setup and exit; press cancel button to retain the original setup and exit.

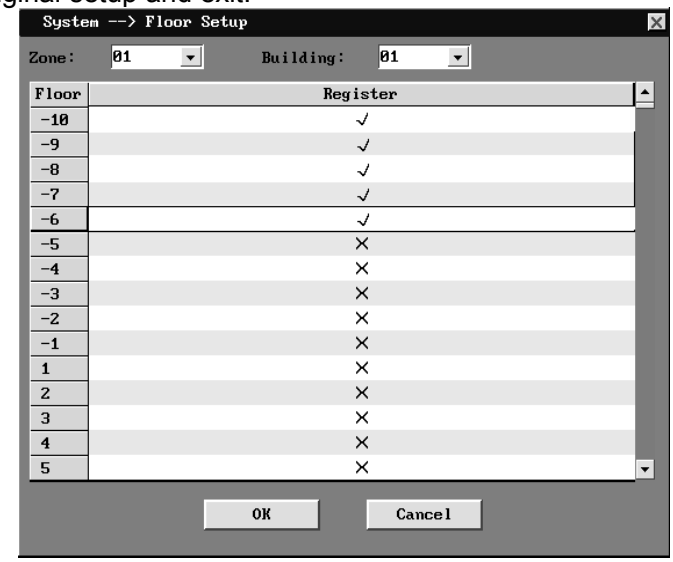


Fig 4- 6 Floor setup window

Prompt: The building can be renamed in the "position description" column in the form of building setup, which makes the alarm message easier to read, for example, if building 1 is named as "science building", the alarm message would be changed as follows:

Fire alarm at room 28, F8, building 1→**Fire alarm at room 28, F8, science building**

If the location information of each detector or module shall be completely independent, the corresponding position description of each detector or module can be entered at the **"detector/module setup"** interface. For specific methods, see the setup description of **"detector/module setup"**.

Note: If a certain floor of the building is used as equipment floor (or mezzanine), it can be ignored during floor setup. The scroll-for-alarm of equipment floor is typically affiliated to an adjacent floor. The detector or module floor at the equipment floor can be entered via position description of detector or module. For example, if an equipment floor is between 2F and 3F of the building and is affiliated to 2F, the location of detectors at the equipment floor can be set as 2F with the position description of "equipment floor between 2F and 3F...".

Caution: The building and floor setup must be carried out prior to other setups, otherwise corresponding alternatives are unavailable at the time of linkage setup and other operation interfaces. The incorrect building and floor setup may cause wrong scroll-for-alarm or linkage.

4.1.3 Network setup

It supports 20 panels to be interconnected by CAN bus. Due to requirements of over-host linkage, the fire alarm message shall be transmitted to the main panel or other regional units in the network simultaneously, so the networking must be carried out. The alarm messages will be only transmitted to the hosts registered on the local panel with passive receiving as the receiving mode, the registered host displays the alarm message it receives.

During networking, time of the main panel (host 1) will be taken as the criterion for the network time. Time of all hosts in the network will be changed as time of the main panel changes.

The transmission rate set for all hosts in the network must be the same, the networked hosts must be acknowledged and the host number shall differ from each other. The Network setup interface is as below:

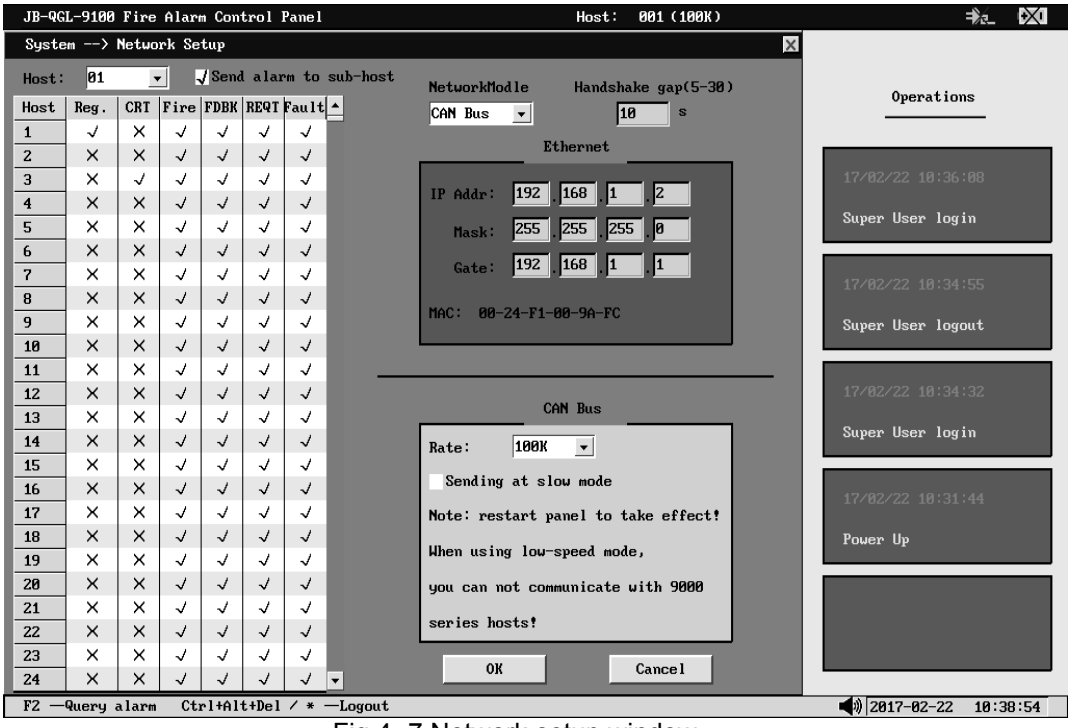


Fig 4- 7 Network setup window

Modifying method: select address of the host in drop-down box of "Host number", click the "Info Share" and the left blank box will display "√", select "CAN " in the Network Md options,then click on drop-down box of "CAN transmission rate" and select the transmission rate of networking bus,

and finally click on the corresponding "Register" column on the networked hosts to display "√". Then press OK button to save the setup and exit, otherwise press Cancel button to retain the original setup and exit.

Note: The transmission rate set for all hosts in the networking system must be the same! After setup of the networking transmission rate, the host must be restarted to take effect!

Prompt: If the host under different rates is connected into the network, no hosts (including other hosts with the same transmission rate) will provide normal communications. Therefore, for the networking system with multiple hosts, the networking bus will not operate normally during the process of setting transmission rate for the hosts one by one and the system networking returns to the normal condition after the same transmission rates have been set for all hosts.

➢ **How to set transmission rate**

10K, 20K, 50K and 100K can be selected as the networking transmission rate. The rate is not the faster, the better and shall be selected based on the following situations:

- ✧ Number of panels in the network
- ✧ Length of networked bus (distance between panels)
- ✧ Type of networking transmission cable

➢ **Number of panels in network**

The greater the number of networked hosts, the larger the volume of transmitted data on the bus. Therefore, if the networked hosts are large in number (generally greater than 5), it is suggested to use a higher communication rate, such as 100K.

➢ **Cable length of networking**

The higher the transmission rate, the smaller the maximum transmission distance of the bus. The lower the transmission rate, the better the transmission interference immunity of the bus, the higher the reliability. It is suggested to use a lower transmission rate for the transmission distance greater than 1000m.

For the application with larger length of networked bus and great number of networked host, that is, length requirement and number requirement are contradictory, it is suggested to give priority to length requirement and use lower transmission rate. If the data reliability cannot be assured, the number of repeated attempts of the system to send data will be increased, which causes the data volume to further increase.

Note: The bus transmission distance refers to the distance between two most remote hosts, as shown in the following figure:

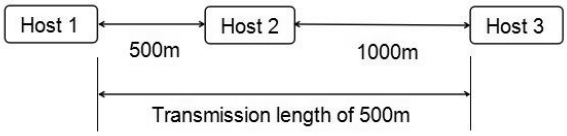


Fig 4- 8 Transmission distance diagram

✧ **Type of networking transmission cable**

The commonly-used connecting lines consist ① shielded twisted pair, ② ordinary twisted-pair, ③ shielded line, ④ common wire and otherwise. By our test, the effective transmission distance of ① and ② under a transmission rate of 100K reaches about 1500m～2000m and 3000m～4000m under a transmission rate of 20K, while the transmission distance of ③ and ④ is only 1/5～1/3 that of ① and ②.Therefore, it is suggested to use the ordinary twisted-pair as the networking line and to use the shielded twisted pair for the applications with more external disturbances (for example, many power cables available inside the cable trough or with high-power radio transmitters nearby).

To sum up, the transmission rate shall be selected properly based on networking distance and host number of the engineering. Then select proper transmission line according to the transmission rate. In normal applications, generally use the twisted pair to connect 2-5 hosts, with a transmission distance less than 1000m and a transmission rate of 20K.

Note: The number of transmit-receive packages on the bus may be observed by the menu of "special operation" – "bus quality inspection". If both numbers differ greatly, it means the

success rate of communications is relatively low, and the transmission rate shall be reduced or the transmission environment shall be improved.

The networking of 20 hosts is achievable on the system. The abnormality of any host in the network will not cause fault of the overall system. All hosts share all alarm messages (including fire alarm, request, feedback and fault) over the network.

Note: As the main panel of host 1 in the network, it will not only provide a time reference, it will also support all network command operations. Therefore, a host must be set as the main panel in the network.

The hosts involved in the network must be registered and each host must be aware of the online hosts over the network.

Caution: The connecting line of networked host must be of serial connection; star connection or ring connection is prohibited! Otherwise, the communication will become abnormal!

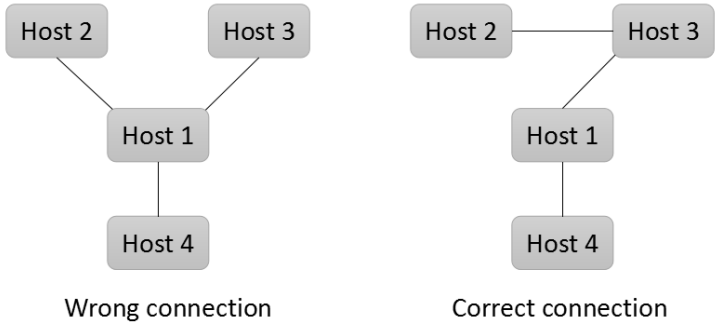


Fig 4- 9 Panel networking diagram

4.1.4 Password setup

The password setup interface is as follows:

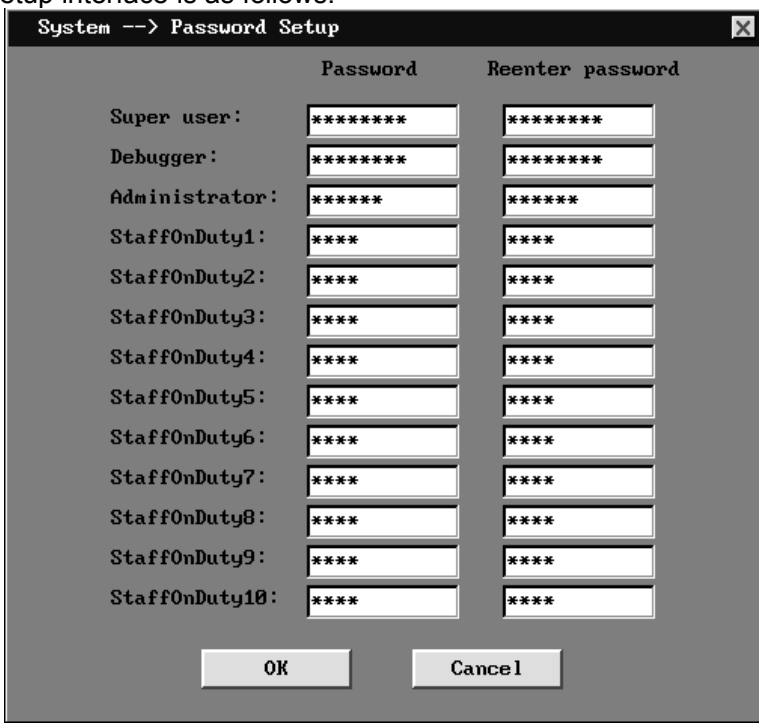


Fig 4- 10 Password setup window

Modifying method: enter into the new password twice in "New password" and "Confirm". Then press OK button to save the setup and exit; press Cancel button to retain the original setup and exit. If the two newly-entered passwords are different, the system will reject the new password and retain the original password setup.

Note: The users of each level may change passwords of the same and lower levels. For example, the system administrator may change its password and the passwords of all watchmen. However, the system administrator is not allowed to change the password of the system debugger. This is to ensure there is a solution in case of personnel turnover or lost password.

Caution: The system will identify the current staff-on-duty by the password entered and record all the operations. The record may be used as the basis of responsibility tracing in case of accidents. Therefore, users of each level must keep the passwords in confidence and from leaking.

Prompt: Initial password for the system administrator is "111111". The 10 groups of initial passwords for staff on duty are "0000", "1111" … "9999". After system delivery, please change these passwords into those easy to memorize by yourself and hard to guess by others. The system administrator is responsible for assigning passwords for the watchmen, which shall differ from each other, to facilitate the identification.

4.1.5 FIP/Extender setup

The fire indicating panel is the terminal display unit of the fire alarm control system. It is divided into two types: 485 bus-indicating panel and detector-indicating panel.

485 bus of the system can be used to manage 99 indicating panel equipment at most. The bus-indicating panel can also be connected on the detector bus; however, it is required to occupy the bus address.

The 485-bus indicating panel setup panel is as follows; refer to instructions on detector module setup for indicating panel setup of detector bus:

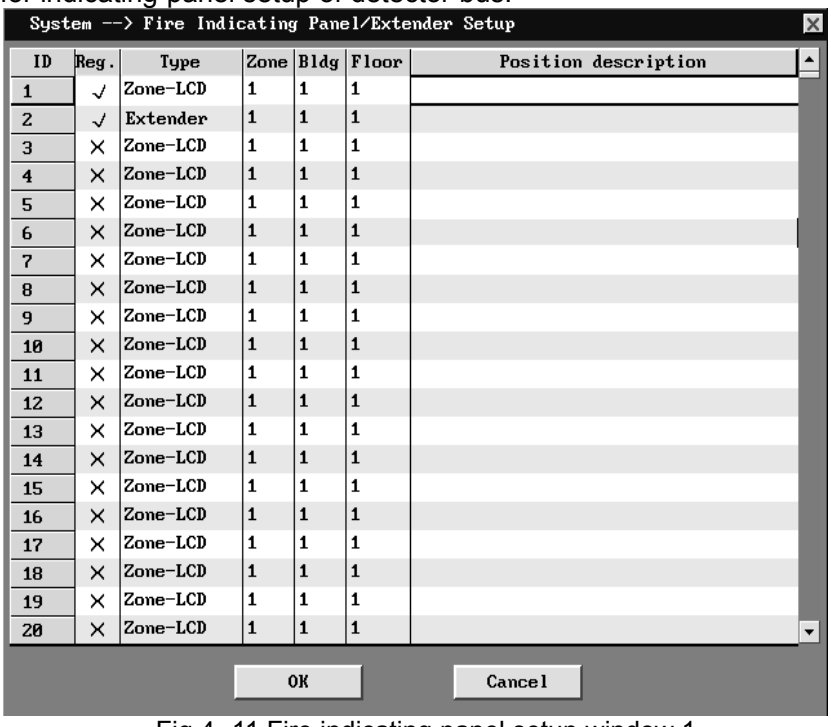


Fig 4- 11 Fire indicating panel setup window 1

Modifying method: Find the extender address when the corresponding 485 equipment is extender. And click on "Register" column to show "√". Double click "Type" to make it “Extender”. When the equipment is extender, the corresponding “zone”, “building” and “floor” are meaningless which can leave blank and add information in the “position description”.

Find the address of the fire indicating panel to be registered when the corresponding 485 equipment is FIP. Click on "Register" column to show "√". Double click "Type", "Building" and "Floor" columns and select type, building and floor in the drop-down box. Enter description information at "position description" column.

Then press OK button to save the setup and exit; press cancel button to retain the original setup and exit.

The setup window is shown below:

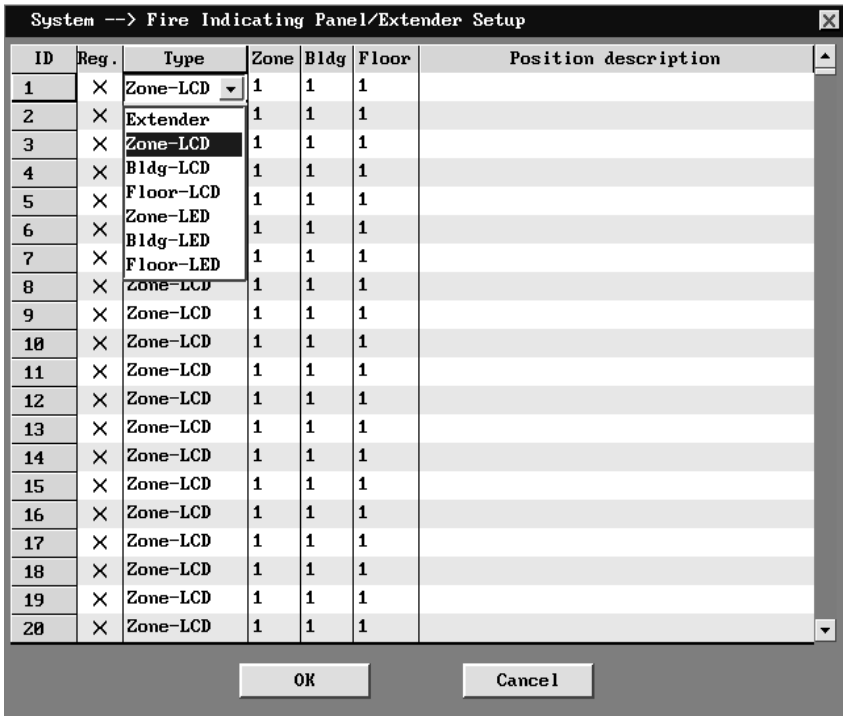


Fig 4- 12 Fire indicating panel setup window 2

The following shall be set up for 485 equipment:

- ✧ **Type** - 485 equipment is divided into the following types:
  - ➢ Extender (Extender for FIP)
  - ➢ Zone-LCD (zone indicating panel in characters)
  - ➢ Bldg-LCD (building indicating panel in characters)
  - ➢ Floor-LCD (floor indicating panel in characters)
  - ➢ Zone-LED (digital zone indicating panel)
  - ➢ Bldg-LED (digital building indicating panel)
  - ➢ Floor-LED (digital floor indicating panel)

The indicating panels can be divided into building indicating panel and floor indicating panel by working mode that is a certain indicating panel can display all alarm messages of the whole building. It expands the function of floor indicating panel (JB-FSD-982 fire indicating panel).

✧ **Position description** - each indicating panel/expansion box can enter position description information independently, as the location display at alarm. The position description can contain 20 Chinese characters or 40 English characters.

✧ **Zone, building and floor** - if the type of indicating panel is “zone indicating panel", the building and floor information can be deemed as location display information only when there is not fault alarm of position description.

If the fire indicating panels are large in number or long in connection, it is suggested to use the twisted-pair with large diameter and to use the shielded twisted pair for the applications with more external disturbances. The negative wire of 24V power supply of the fire-indicating panel shall be connected to 24V negative wire of the control unit to ensure normal and reliable communication. The joint shall be welded as much as possible. The specific wire diameter shall be determined per the construction environment. If the indicating panels are small in number and short in connection, the ordinary connecting line can be used.

4.1.6 EXT.-connected FIP setup

The setup window shows below:

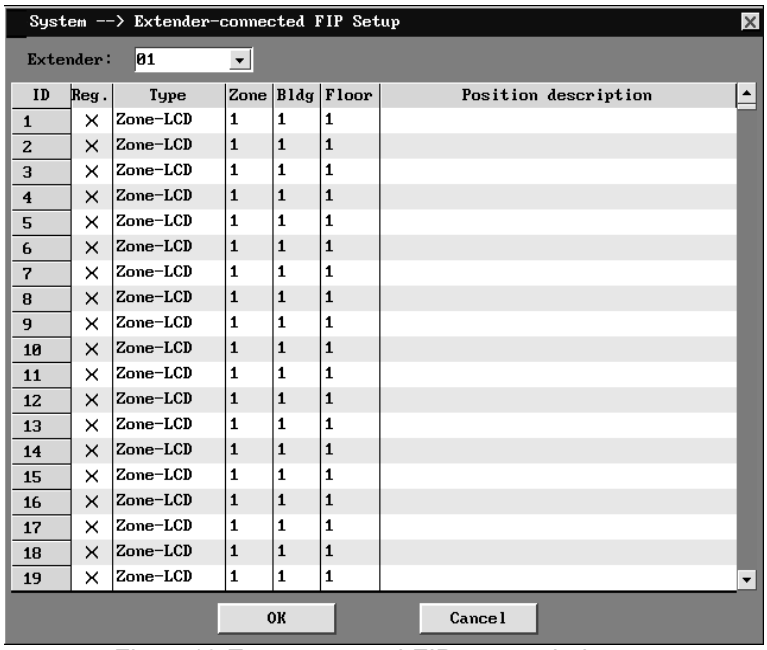


Fig 4- 13 Ext.-connected FIP setup window

Modifying method: Register the extender under the “FIP/Extender setup” window. Choose the corresponding extender at the window above and find the address of the FI to be registered and click on the "Register" column to show "√". Choose “type”, “zone”, “building” and “floor” respectively and add information in the “position description”.

Then press OK button to save the setup and exit; press cancel button to retain the original setup and exit.

4.1.7 Power setup

The system can monitor 2 sets of power supply and specifies their application for supporting the panel or external linkage equipment. The power setup interface is as follows:

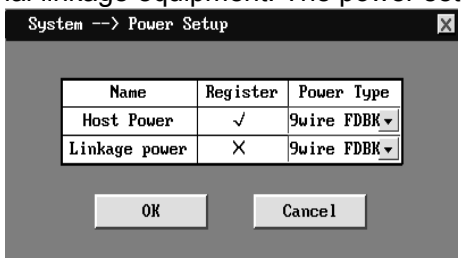


Fig 4- 14 Power setup window

Modifying method: click on "Register" column of the corresponding power to show "√", Choose the power type introduced in accordingly. Press OK button to save the setup and exit, otherwise press Cancel button to retain the original setup and exit.

4.1.8 Printer setup

The setup window shows below:

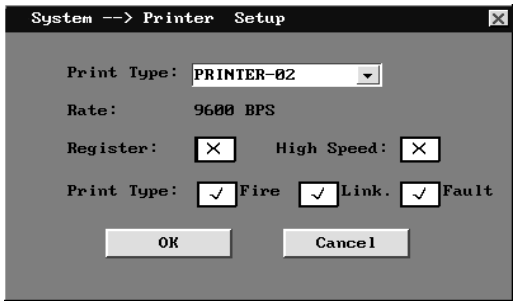


Fig 4- 15 Printer setup

Modifying method: the transmission rate of printer is fixed to 9600. Click on "Register" to

show "√". Press "OK" button to save the setup and exit, otherwise press "Cancel" button to retain the original setup and exit.

Prompt: ”SPRT-01” is a stylus printer defined by the system while “SPRT-02” is a thermal one. Default transmission rate for the thermal printer is 9600BPS while 2400BPS for stylus printer.

4.1.9 Rename system

The name of the system can be changed:



Fig 4- 16 Window of renaming system

4.1.10 LCD auto-off

If choose this function (" ✓ "is shown in front of the sub-menu), LCD will turn off automatically after 5 minutes without system operation. Any key pressed or any move of the mouse, LCD will turn on again.

This function is to assure the lifespan of LCD, so it’s advised for the user.

Note: If the system is in alarm (whether it’s fault or fire), LCD Auto-off function will become invalid and LCD latches on. So dispose abnormality ASAP to ensure the longevity of LCD.

4.2 CAN-Bus setup

The sub-menus show as below:

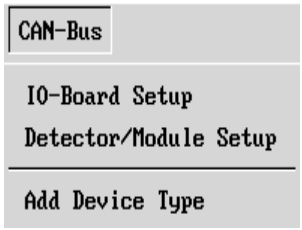


Fig 4- 17 CAN-Bus setup menus

4.2.1 IO-Board setup

The setup window is as below:

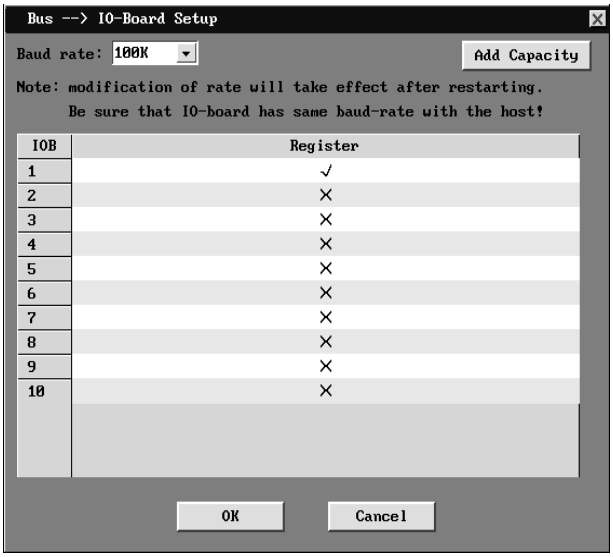


Fig 4- 18 IO-Board setup

Detectors and modules are connected to the system through IO-Board. The panel can manage up to 40 IO-Boards in total. With 2 loops per board and 324 points per loop, the maximum capacity of the system can reach to 25920 points.

Choose IO-Board to be registered and click in "register", " ✓ " is shown. Press "OK" to save the setup and exit, or press "Cancel" to save the original and exit. They system will report IO-Board communication fault once unconnected board is registered.

4.2.2 Detector/module setup

All detectors and modules in the system can be configured under this setup window by completing the corresponding options.

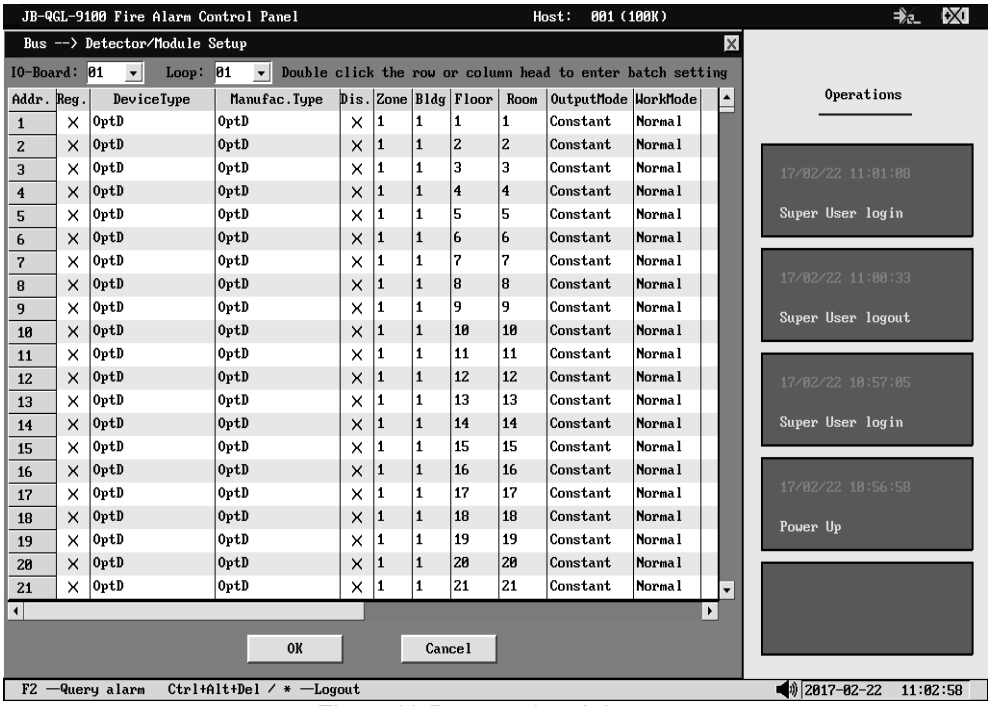


Fig 4- 19 Detector/module setup

Set IO-Board number and loop number:

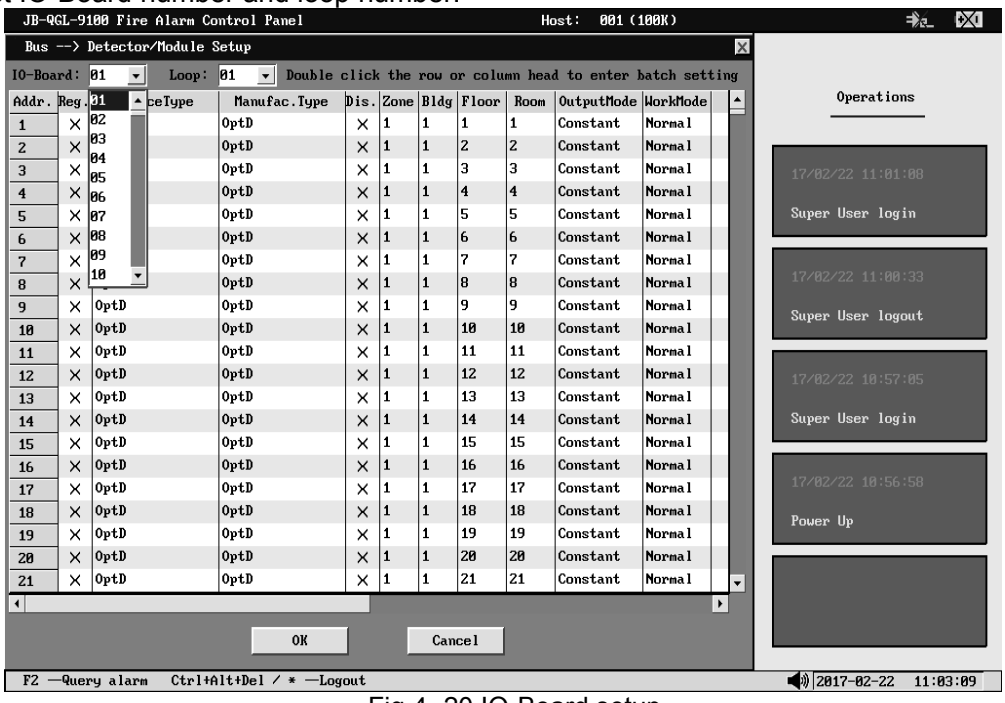


Fig 4- 20 IO-Board setup

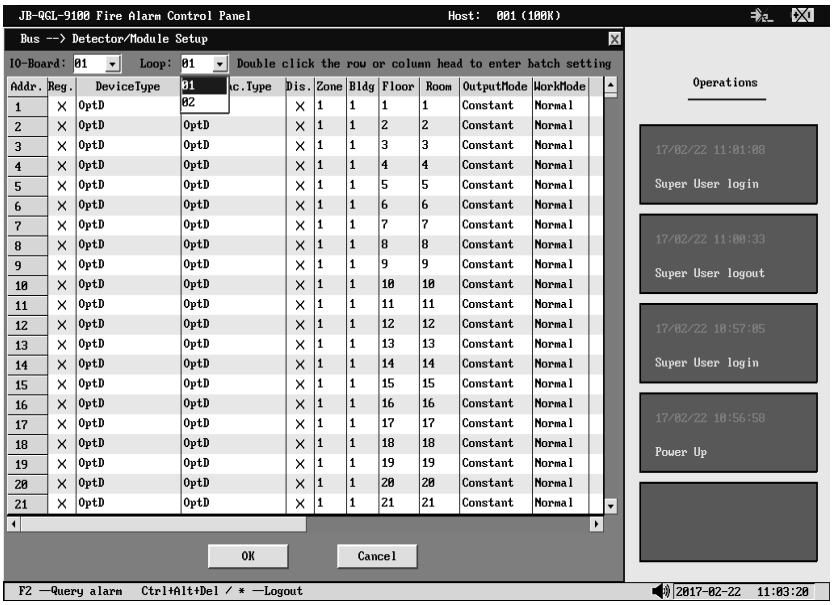


Fig 4- 21 Loop number setup

The following section describes the line-by-line sheet setup of detector/module. As setup of the system imitates the spreadsheet of Windows operation interface, most of the operations are completed by the mouse, which operates drop-down box, horizontal scroll bar and vertical scroll bar. The spreadsheet allows the setup of detector/module to be simple, unified, intuitive and easy to understand.

Operating methods of the spreadsheet are exactly the same and similar to those of the microcomputer; therefore this manual will not describe each setup one by one in detail.

The figure below shows manufacturing type setup of detector/module:

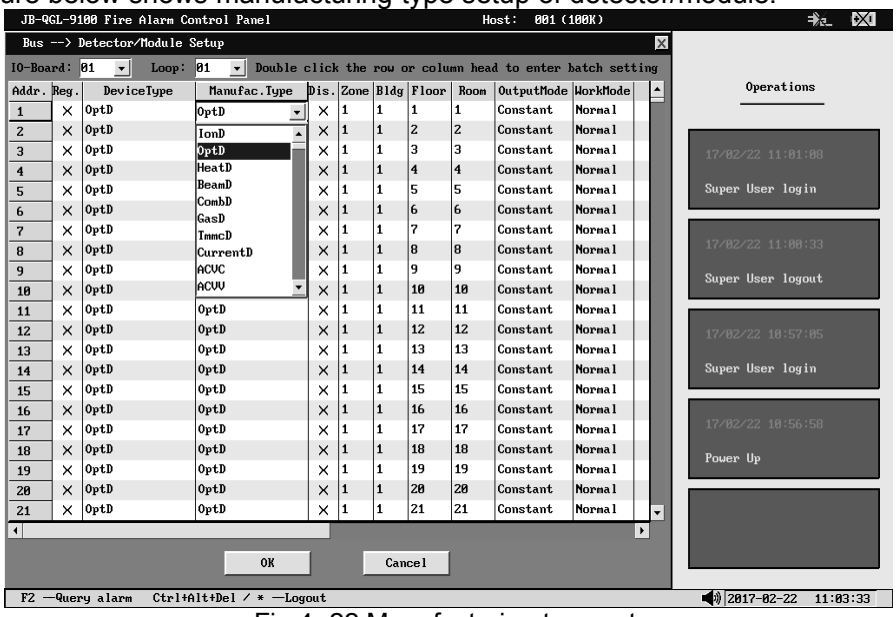


Fig 4- 22 Manufacturing type setup

Since the Manufacturing Type is an inherent attribute of a field device, the optional types provided in this system are listed as follows:

Ion detector	Photoelectric detector	Heat detector
Infrared detector	Combination detector	JS input module
JK input module	Output module	I/O module
KZJ-LD	Manual control button	Manual call point
Fire hydrant MCP	Horn strobe	Horn
Strobe		

The figure below shows device type setup of detector/module:

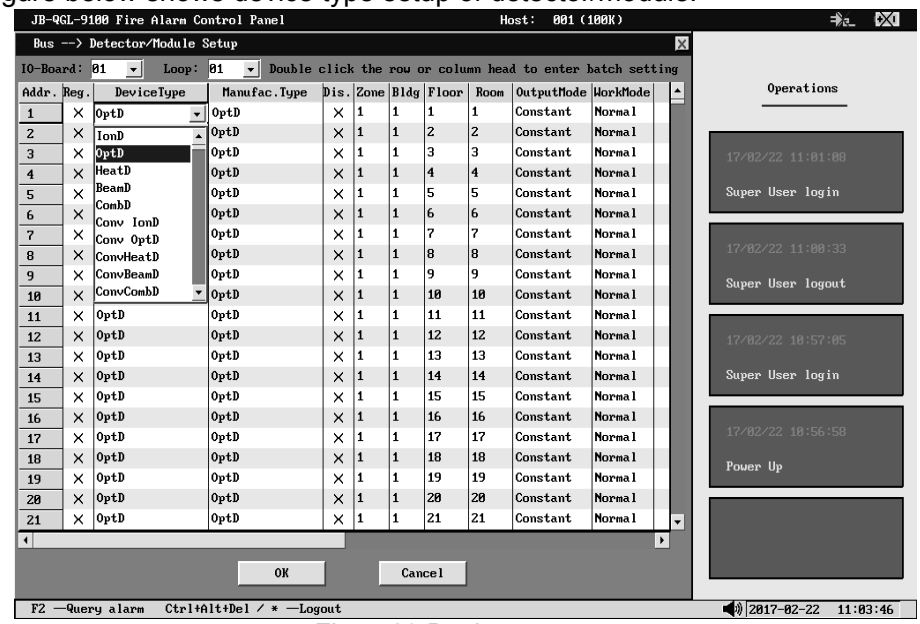


Fig 4- 23 Device type setup

For detectors, the Device Type and Manufacturing Type are generally the same. For modules, the Device Type and Manufacturing Type are usually different, except for the six special modules of manual control button, manual call point, fire hydrant call point, sounder strobe, sounder and strobe whose Device Type and Manufacturing Type are kept the same as detectors.

Check Annex 1 for Device types provided by this system. If any type not involved which is required by the customer, the “Add device type” function is available to add up new customized type.

The Output Mode of modules is set as follows:

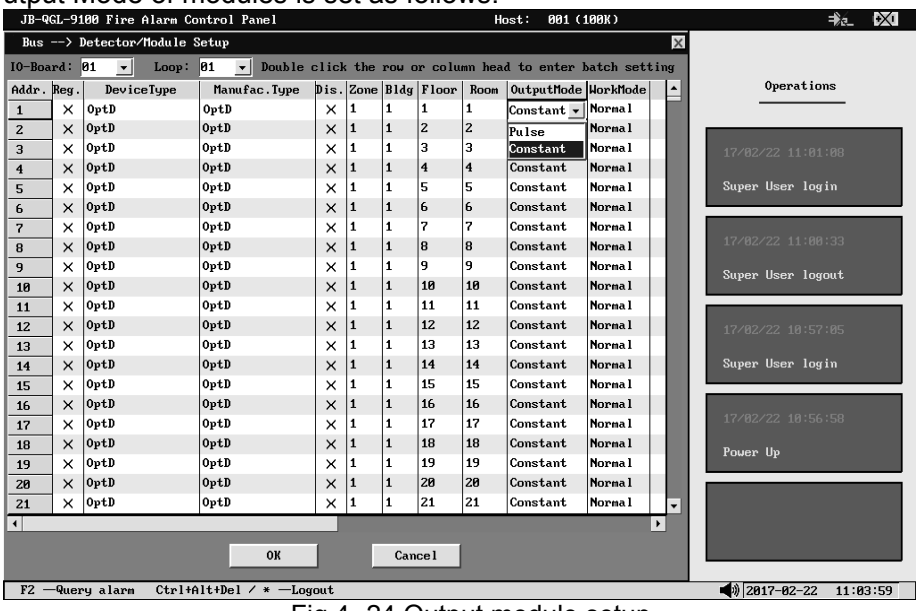


Fig 4- 24 Output module setup

The Output Mode refers to the control mode of an output type module when transmitting signal to its following device. Thus, this option is ineffective to detectors or input type module. When Pulse is chosen, the output driver signal of the module will cut off after 5-10s. When Constant is chosen, the driver signal exists continuously.

Zonal setup of detector/module is shown below:

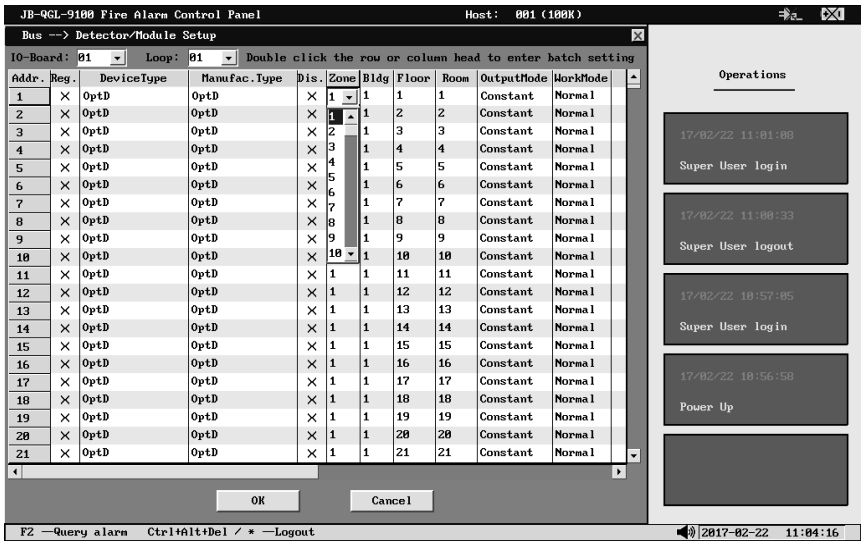


Fig 4- 25 Zone, building, floor, room number setup

Working mode setup of detectors shows below:

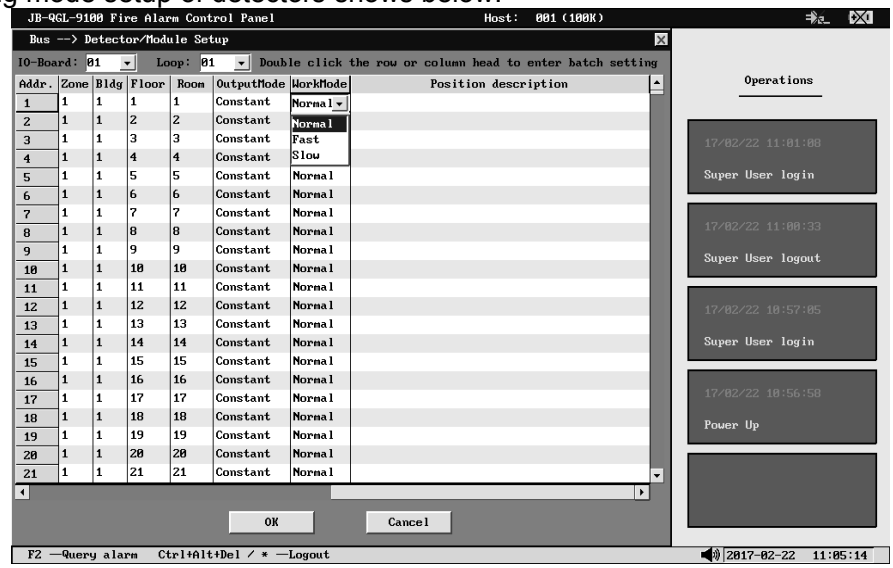


Fig 4- 26 Work mode setup

There are three Work Modes for detectors: Normal, Fast and Slow. It is recommended to use the Normal mode since Fast and Slow modes are adopted under some special applications.

The location descriptive information of detector/module is as shown in the following figure. As can be seen from the figure, the system initializes position description of each detector/module to blank and the user shall add or revise it as required.

If the position description has not been set, "zone name + building name + floor number + room number" will be displayed at alarm; the user may revise the position description, like "Middle Section of Corridor, East Side, 3F, Science Building, Guangcai Xintiandi", which will be displayed at alarm.

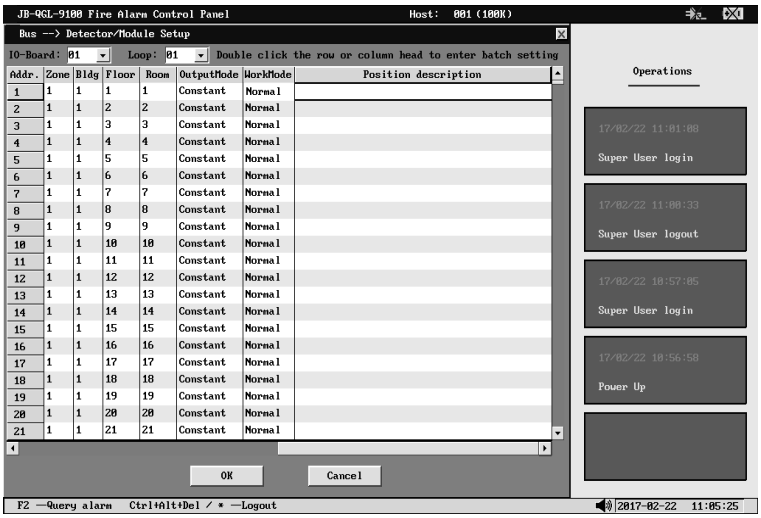


Fig 4- 27 Position description setup

After "detector/module setup" is completed, press "OK" button to save the setup and exit, or press "Cancel" button to retain the original setup and exit. In case of error operation, if data has been altered when pressing “Cancel”, a prompt pops up:

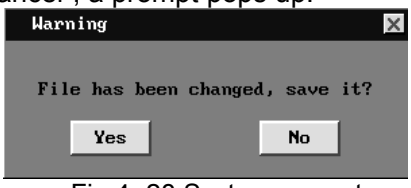


Fig 4- 28 System prompt

If several devices with consecutive addresses have same features to be set, an alternative to configuring them all individually is to make a batch set. Double-click the option title to be set or press direction buttons to select one column or row and press ENTER, the setup window then pops up.

a. Row batch setup

Row batch setup refers to use of a selected row as the template and batch setting of equipment with consecutive address number, that is, the equipment at multiple consecutive addresses share the same equipment type, as follows:

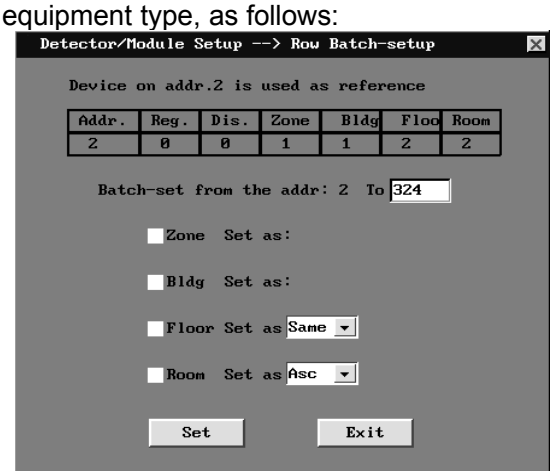


Fig 4- 29 Row Batch setup

First, set the address end number required for batch setting on the template window; the start address is provided with the number of the address of the selected row (address 1 in this example); only zone number, building number, floor number and room number can be changed and set in the template window, equipment type and other property items shall keep the same as those of address 1; if zone number, building number, floor number and room number are not checked (boxes before them are not ticked), it means the original setting is not changed; if zone number is checked (box before it is ticked), it means the zone number is the same as that of address 1;if building number is checked (box before it is ticked), it means the building number is the same as that of address 1; if floor number and room number are checked (boxes before

them are ticked) and are set according to floor number and room number of address 1 and options selected in the drop-down list after it (i.e. "same", "ascending order" and "descending order"; "same" by default); if ascending order is checked in the drop-down list, the floor number of equipment at address 1 is 2, the floor number of equipment at address 2 is 3 and the floor number of equipment at address 3 is 4, and so on, which is also suitable for the room number. The issue of boundary value shall be noticed. If the floor number in ascending order reaches 200 and it is followed by equipment, then the floor number for subsequent equipment is 200. If the floor number in descending order reaches -10, then the floor number for subsequent equipment is -10. This is because the floor number is between -10 and 200. The boundary of room number can be disposed with the same method; the room number lies between 1 and 254. Confirm each parameter is correctly configured and then click on "Setup" button to update the list configuration information of detector/module setup. Click on "OK" button to save batch setting data, otherwise click on "Cancel" button.

b. Column batch setup

Column batch setup is supplementary to batch setting row, which refers to the batch setting of a single column; double-click column header requiring batch setting to generate window interface of batch setting column, as shown below:

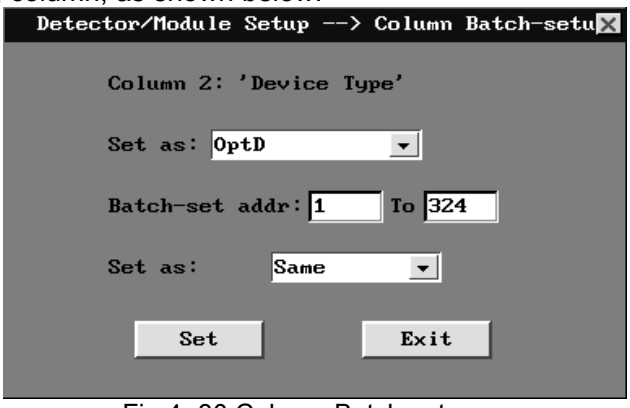


Fig 4- 30 Column Batch setup

4.2.3 Add device type

Check Annex 1 for Device types provided by this system. If any type not involved which is required by the customer, this function is available to add up new customized type.

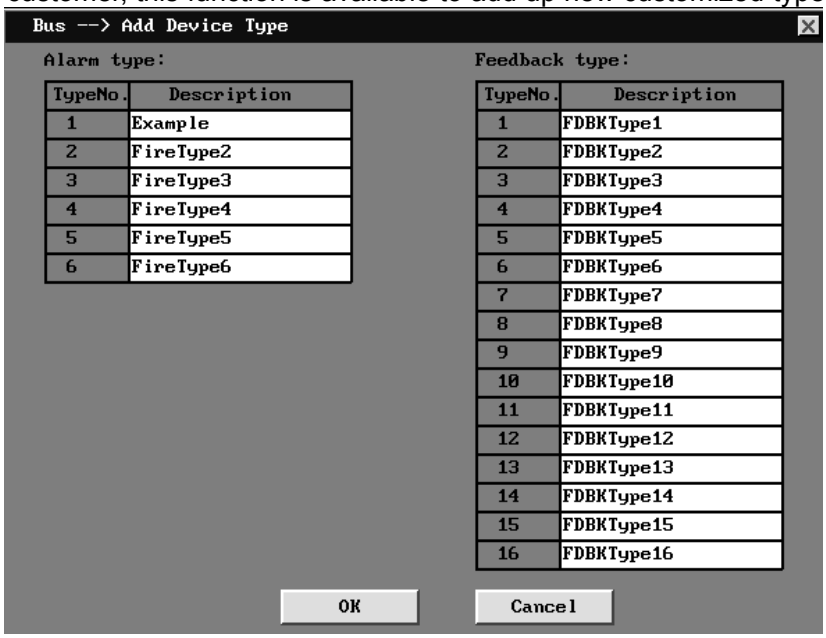


Fig 4- 31 Device type setup window

6 expandable types for alarm and 16 for feedback signal are available in this system and the default name is “Fire type **” and “Feedback type **”. Adding method: input type name at the “Description” filed and press “OK” to confirm and save the setup.

4.3 Linkage c&e setup

The sub-menus under this category show as below:



Fig 4- 32 C&E setup menu

4.3.1 System linkage setup

The following section gives a brief description of common issues of linkage setup with the system linkage as an example. The setup window is as follows:

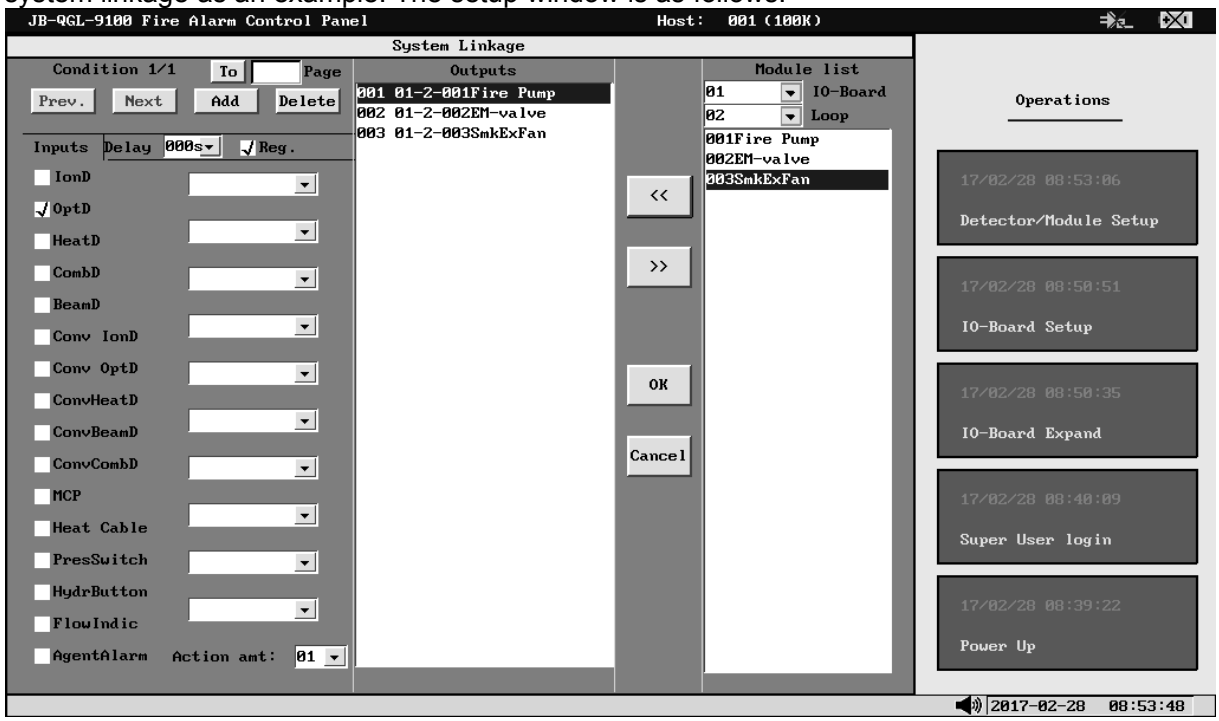
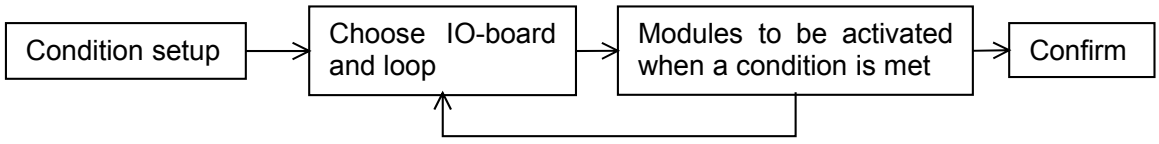


Fig 4- 33 System linkage setup window

The setup interface is divided into 3 areas: condition area, output area and area of optional activation devices.

Each page corresponds to a c&e equation. The setup flow of a c&e equation is as follows:



Step 1: Condition setup

Four buttons (Prev, Next, Add and Del) and a text input box are set above the condition setting area, which are used for inquiring, adding or deleting linkage conditions.

- ✧ Adding a linkage condition: click on Add button
- ✧ Deleting a linkage condition: click on Del button
- ✧ Viewing or editing the linkage condition on the previous page: click on Prev
- ✧ Viewing or editing the linkage condition on the next page: click on Next
- ✧ Viewing or editing a certain linkage condition: enter serial number of the linkage condition into the text box before "Pg", enter or click on to.

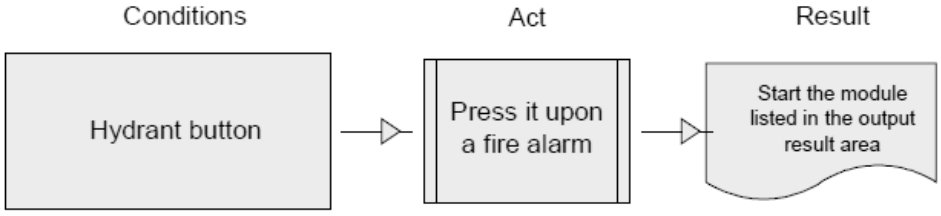
The system will display another linkage condition when any of the above operations is carried out. "Cond. 1/3" at top left corner of the display means currently there are 3 system linkage conditions and the first one is displayed at the moment. If the linkage conditions are large in number, enter into the page number to skip. If the corresponding modules of a linkage condition are multiple, the page switching may take 2-5s.

The edit area for current linkage condition is set below the condition setting area.

- ✧ "Delay": select the time interval between condition satisfied and action of module;
- ✧ "Reg": check the option to activate the linkage action on this page;
- ✧ "Input type": composed of check box at the left side and drop-down box at the right side. The relation between input type is "or";

"Fire QTY": the number of fires required to satisfy a condition. For example, 01 means the conditions are satisfied when the alarms is generated at any 1 point. The system can achieve composite functions of multiple arbitrary alarms and the maximum composite number is 99.

Therefore, the linkage conditions in the above figure are as follows



Step 2: Select the number of IO-Board and the number of Loop

When the target IO-Board and Loop are chosen, the output devices available will be listed to choose from.

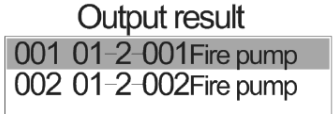
Step 3: Select the module required to be started when conditions are satisfied

Click on a certain module in the list box and click on << button, to add this module into the result list area. Except for "manual control panel linkage setup", a linkage condition can be used to start multiple modules, therefore step 2 and step 3 can be repeated to add multiple output results.

The modules started by a condition are limited in number and a condition can be used to start 200 modules at most. If the number exceeds 200, the user must set another different number with the same conditions, to correspond to modules with numbers exceeding 200.

Check a module in the "Result list" and click on >> button to delete the module from the result list.

The display of result output column in the figure is as follows:



If it is indicated that the linkage condition is true, two modules (module 1 and module 2) will be requested for action. The two modules control fire pumps.

Note: In the linkage interface, only the module address number can be selected, the equipment controlled by the module shall be set at the detector/module setup form.

Step 4: Confirm

Press Confirm button and the system will save the linkage condition and exit the linkage setup interface. Press Add, Next or Prev to switch to another linkage condition setup interface to proceed. At switching over, the system will save the linkage conditions set just now.

The setup of a linage relation is completed after conducting the above 4 steps. The following section will present respective diagrams.

The operation of "delay" drop-down box is as shown in the following figure:

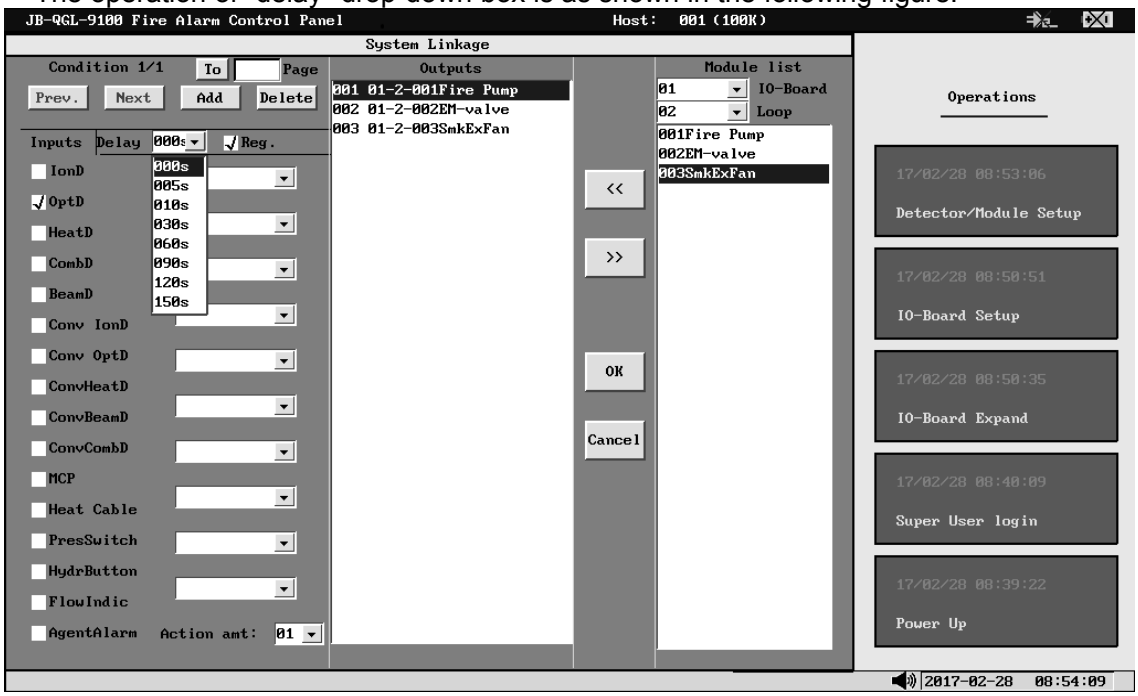


Fig 4- 34 Delay setup

There are 8 time selections for delay: 0s, 5s, 10s, 30s, 60s, 90s, 120s and 150s.
Selection of input type, as follows:

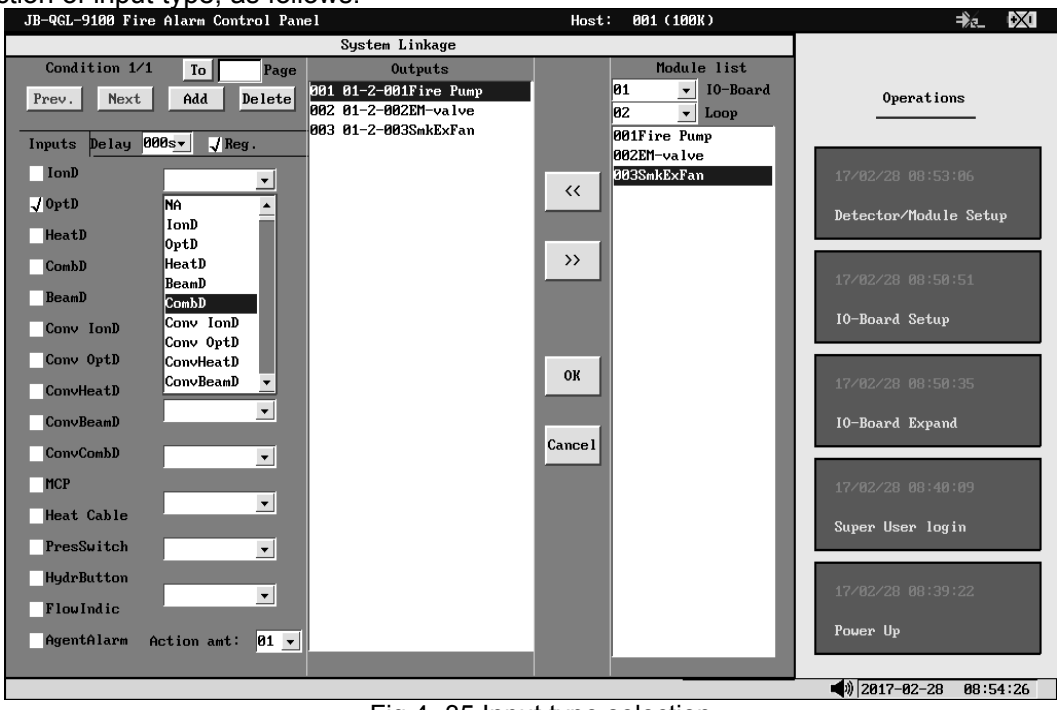


Fig 4- 35 Input type selection

The 5 types commonly used by the system are presented by check boxes and 4 drop-down selection boxes are given for selection of any equipment type. If the types to be selected exceed 9, a linkage condition can be set additionally, pointing to the same output results.

The selection of linkage alarms is as shown in the figure below:

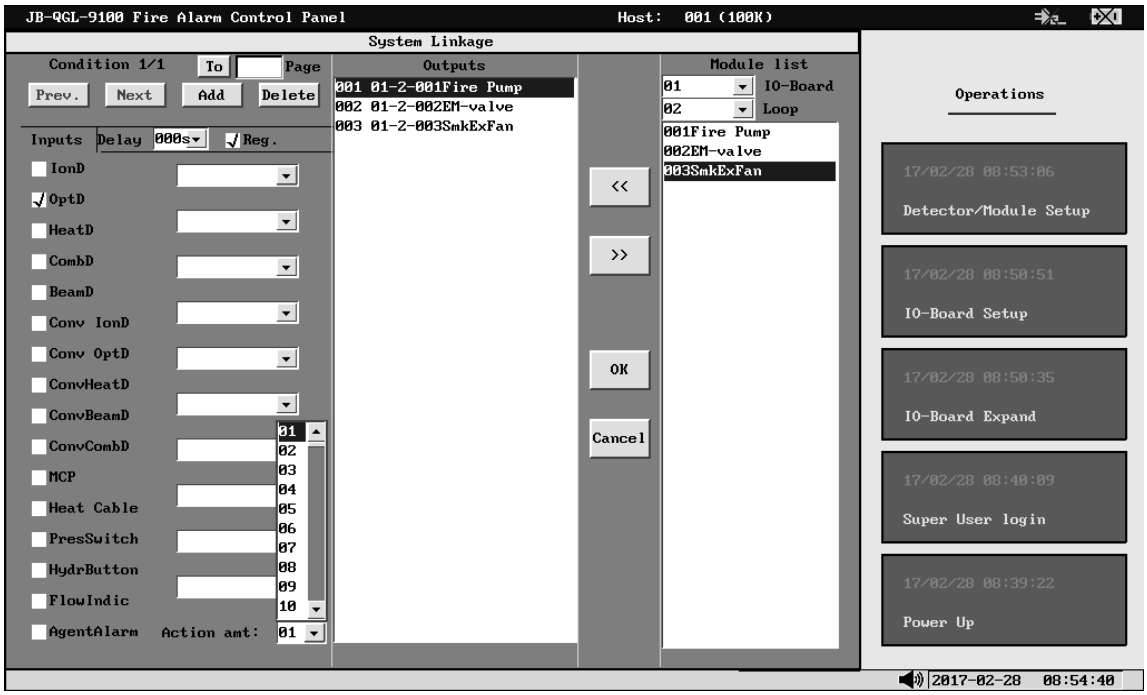


Fig 4- 36 Fire quantity selection

The default value of linkage alarm is 01, which means the condition is satisfied when any one equipment reports alarm. In some applications, the following linkage relations may be possible due to high reliability requirement of linkage action:



At this moment, set the linkage alarm number as 02 and consider the module controlling "fire pump" as the output result, after that, the linkage relation is completely set. The system supports complex linkage of any 99 points at most.

IO-board selection under the area of optional activation devices:

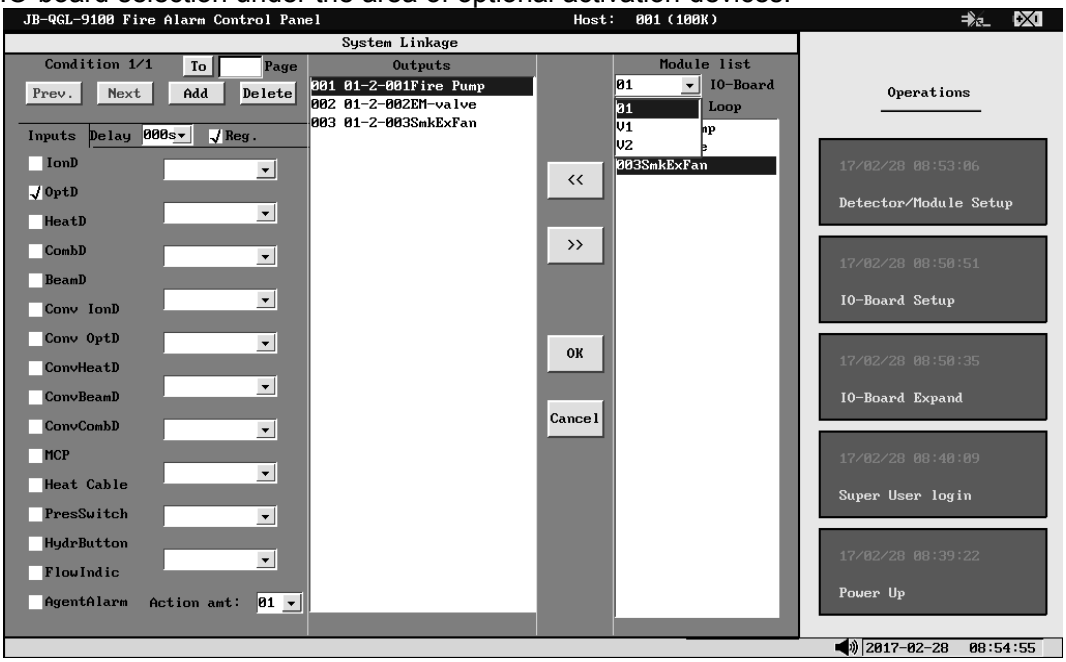


Fig 4- 37 IO-board selection

As shown above, except for the registered IO-board, there is another optional IO-board of V1. V1 refers to a virtual IO-board. The system provides 2 virtual IO-boards which need not be registered and are only used for complex linkage correlations.

The usage of virtual IO-board is described below.

A complete linkage condition must include the following element:

- ✧ A complete zonal condition (for example, the room range must be included in a linkage)
- ✧ At least one type of device should be chosen at the condition area
- ✧ Delay time
- ✧ At least one device should be chosen to activate when a linkage condition is met.

If the user input these elements incorrectly during setup, the system will deny and present corresponding prompt when OK button is pressed.

Note: *For secondary trigger of linkage:*

Two equipment types will be triggered secondarily according to actual application requirements of the system:

- *Remote alarm equipment*
- *Equipment connected to the multi-wire linkage unit.*

The so-called "secondary trigger" means that when an activated module is stopped manually and the linkage condition is satisfied again due to new fire alarm, the module is requested for the second time.

The setup of other linkage types in the system is identical to that of system linkage. The difference is the input box for other information is added in the linkage condition setup. The following section gives a brief description based on the illustration.

4.3.2 Zonal linkage setup

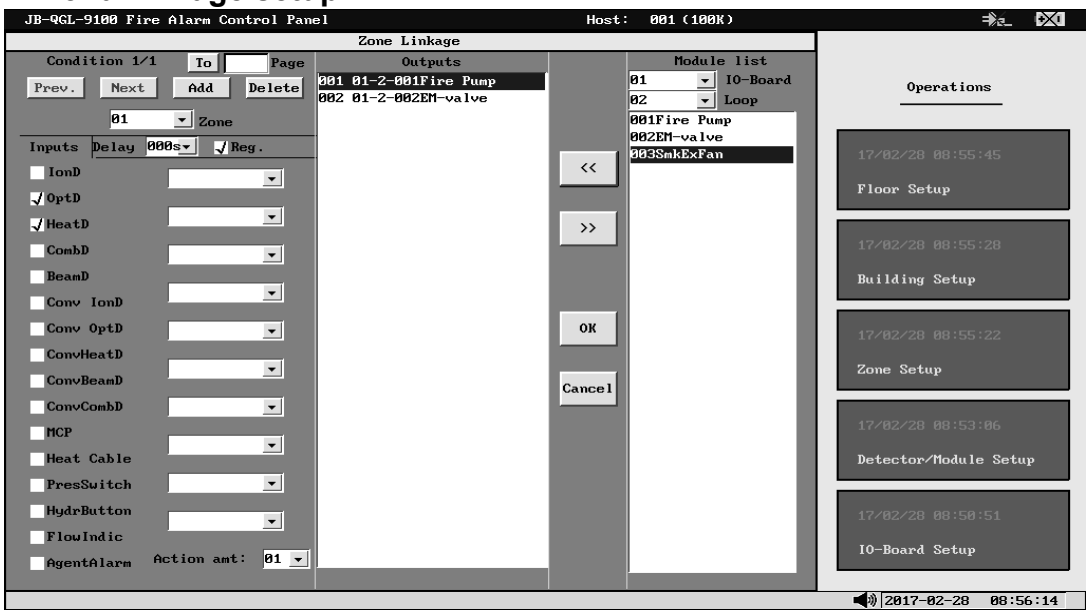


Fig 4- 38 Zonal linkage setup window

A field of zone selection is added compared with the system linkage setup. The equation above represents the following:

> If any one of optical smoke detector or heat detector or MCP is triggered, the module of no. 232 and 233 from Loop 01 of IO-board 02 will be activated immediately.

4.3.3 Building linkage setup

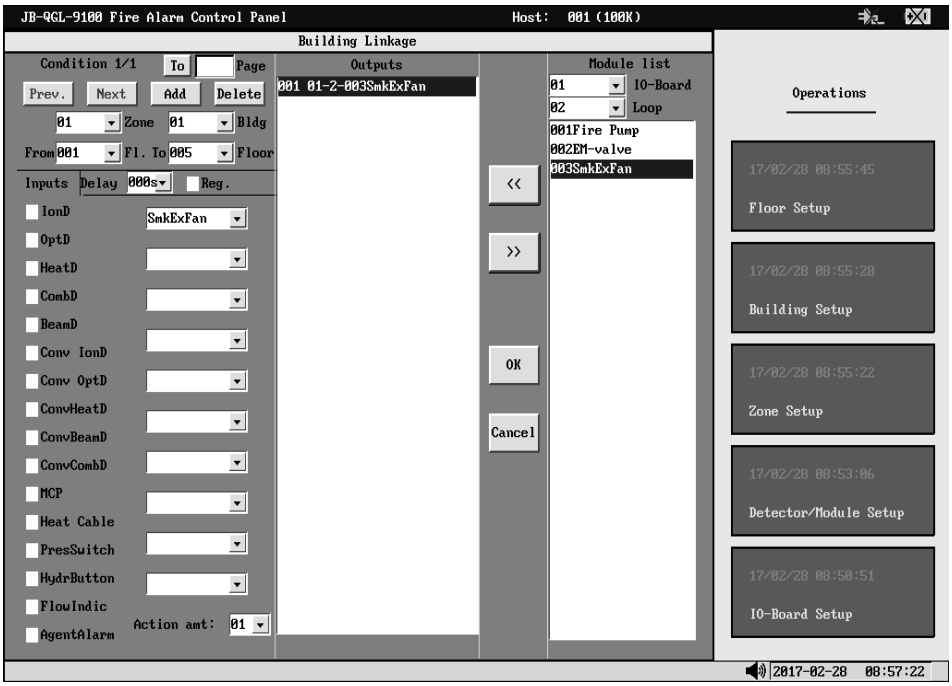


Fig 4- 39 Building linkage setup

The drop-lists of zone, building, floor range are added. The equation above represents the following:

Condition	Result
In building 1 of zone 1: When the following happens at floor -1 to 23: ● Any one of smoke valves activated	⇒ The smoke exhaust fan connected to the No.5 module in loop 1 of IO-board 1 will start without time delay.

4.3.4 Floor linkage setup

The floor-related linkage conditions in the system include two types: type output and point input.

The figure below presents the floor linkage setup of type output, floor options are unavailable in the condition setup, a check box "scroll" is added only and a certain or some equipment types can be selected in the optional module list.

The floor linkage linkage of type output means: when detector or module of any specified type at any floor gives an alarm, the equipment of a certain type or some types at the floor will carry out actions completely. If "scroll" is selected, the equipment of same type at adjacent floors will carry out actions in the meantime.

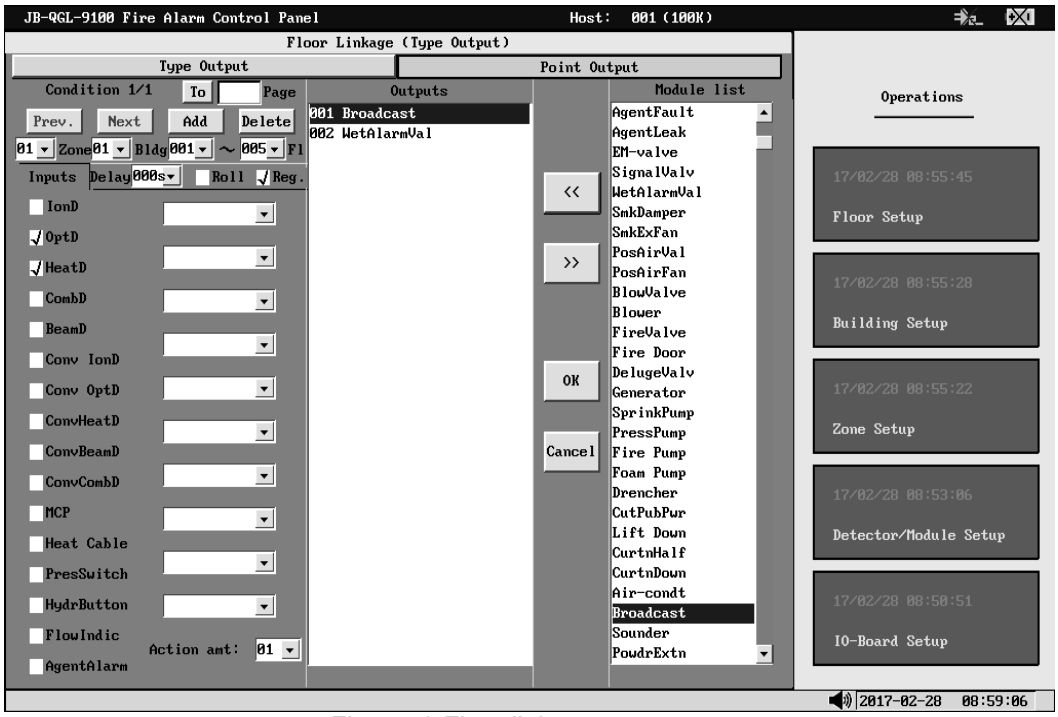


Fig 4- 40 Floor linkage - type output

The equation above can be explained:

If any one of optical smoke detector or heat detector or MCP is triggered, the broadcast and remote alarm devices at the same or immediately above/below floors with the detector or MCP will all be activated.

Note: *For the Type Output mode, no time delay is allowed.*

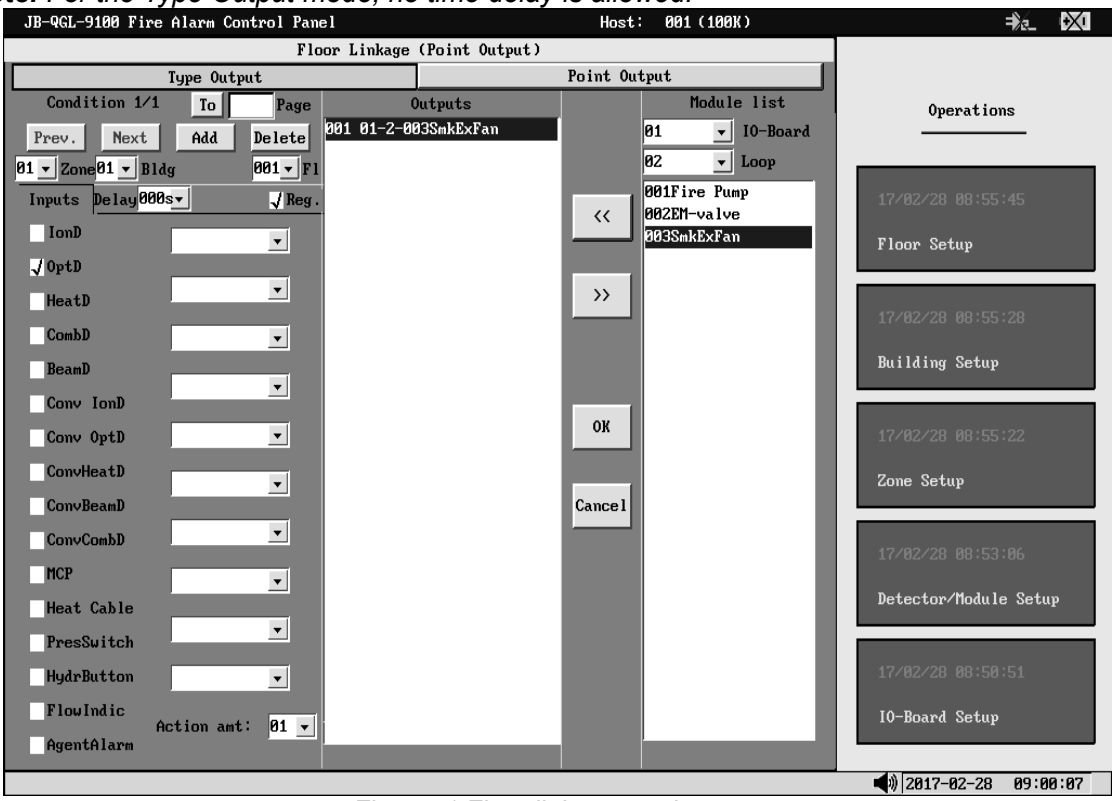


Fig 4- 41 Floor linkage - point output

The figure shown above is the floor linkage of point output type and certain floor in the system can be selected by drop-down box, which means The alarm of detector or module of any specified type at the floor will cause the modules listed in the result list to act.

4.3.5 Room linkage setup

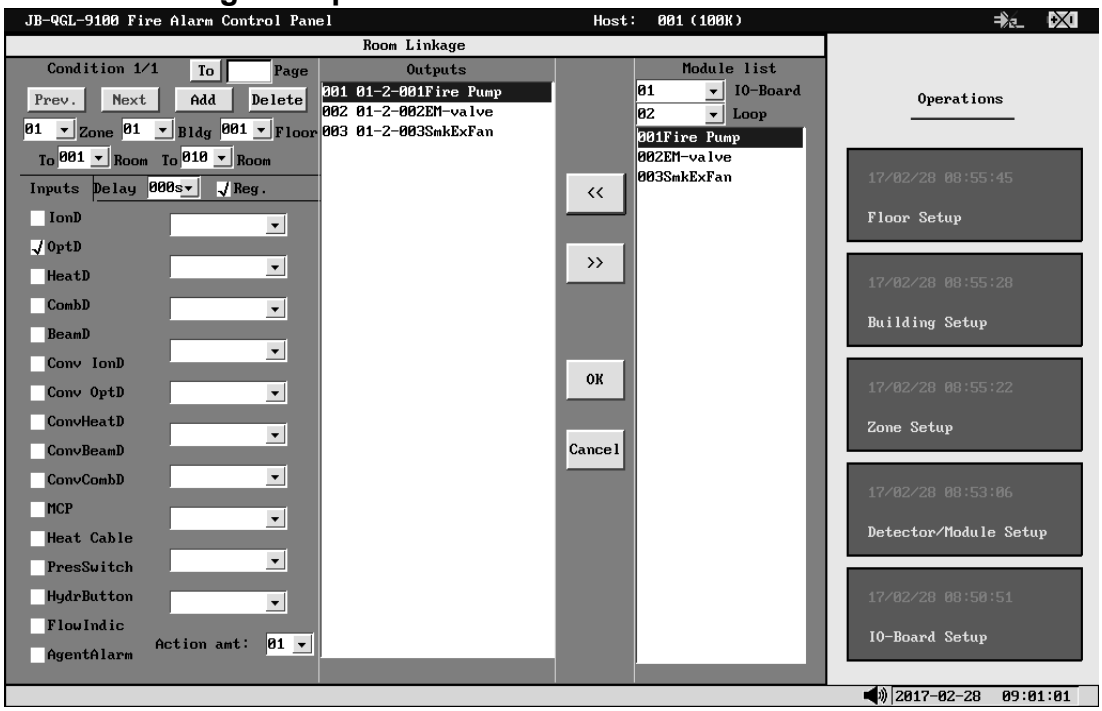


Fig 4- 42 Room linkage setup

For room linkage, start room number and end room number at a certain floor can be selected by drop-down box, which means: When detector or module of any specified type at all rooms with a number between start number and end number at the floor gives an alarm, all modules listed in the output result list will be activated.

4.3.6 Complex linkage setup

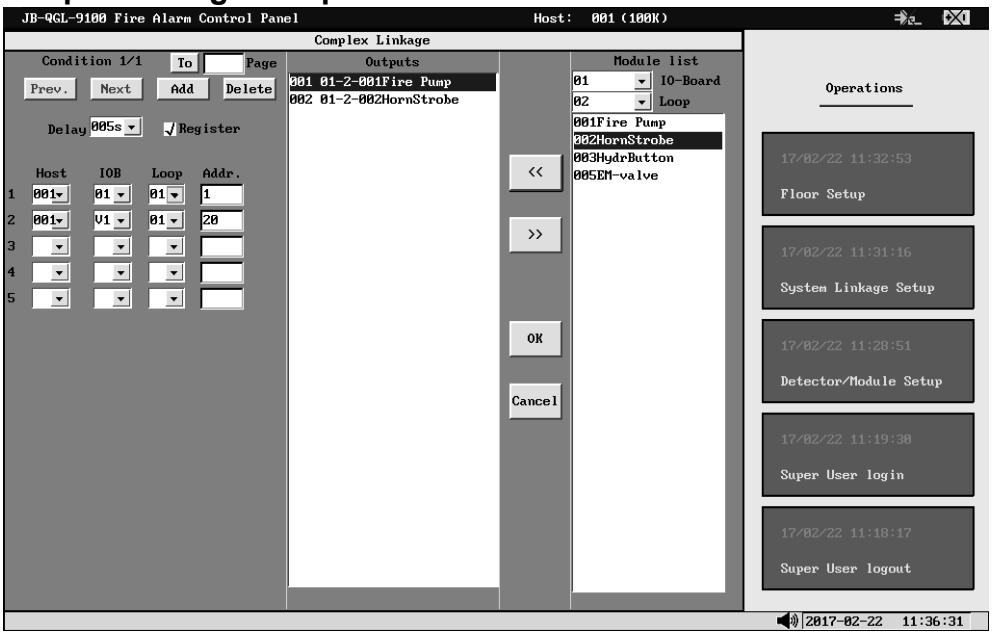


Fig 4- 43 Complex c&e setup window

The complex linkage setup differs greatly with the above linkage relations and the specific addresses of 1-5 detectors or modules can be set in the condition column. The meaning of combined linkage: **start all modules listed at the result list when all the set detectors or modules generate alarms.**

Note: The host number can be set in the condition column, which means detector or modules participating in the compound operation may come from any host in the networking system! Less than 5 detectors or modules can be set in the condition column and the remaining input columns must be kept empty if the number is less than 5. If the user requires more than 5 detectors or modules, dummy modules can be used for setup.

4.3.7 Manual control panel setup

Manual control panel setup is completely different from other linkages. It connects a direct control button with a module in the loop. The integrated meaning is: direct control button corresponds to a module selected completely controls the start/stop of the module listed in the result list.

The corresponding relation between control button and module is one-to-one, so only one module address can be added in the result list of manual control panel setup.

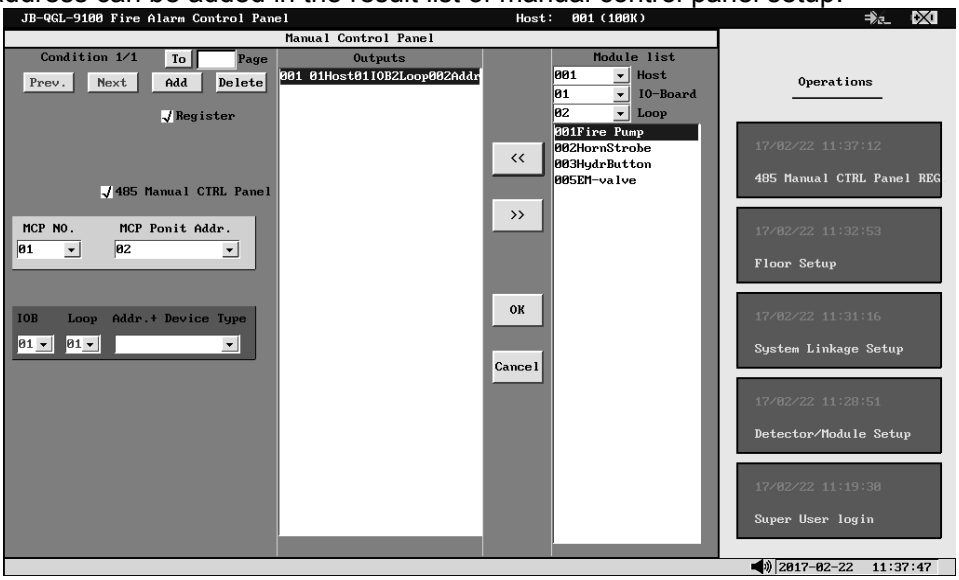


Fig 4- 44 Manual control panel setup

The settings above can be explained:

The Button 1 on the manual control panel of Loop 1of IO-board 1 controls the no.238 module on Loop 1 of IO-board 2 of Host 2.

4.3.8 Broadcast control panel setup

The setup window shows below:

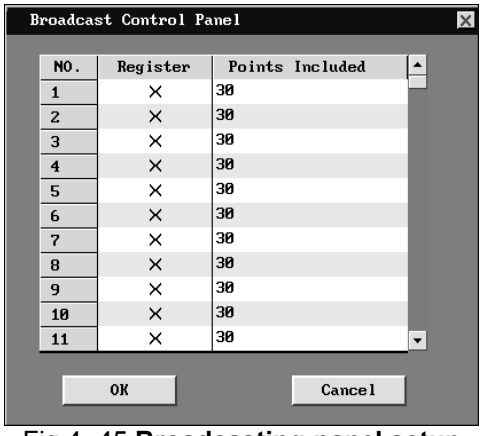


Fig 4- 45 **Broadcasting panel setup**

The broadcasting panel is a brought-in product which can be connected to our host through 485 port. The maximum capacity is 90 controllable points.

Once registered on the host, it can communicate with the host and the number of controllable points can be configured among 30, 60 and 90.

4.3.9 Broadcasting point setup

The setup is similar to setup for manual control panel. The function is independent of the fire alarm control panel manually controlling the corresponding broadcast module. The broadcast controlling button selected will sheerly start/stop the module chosen on the output list.

Note: register the broadcast panel before using this function.

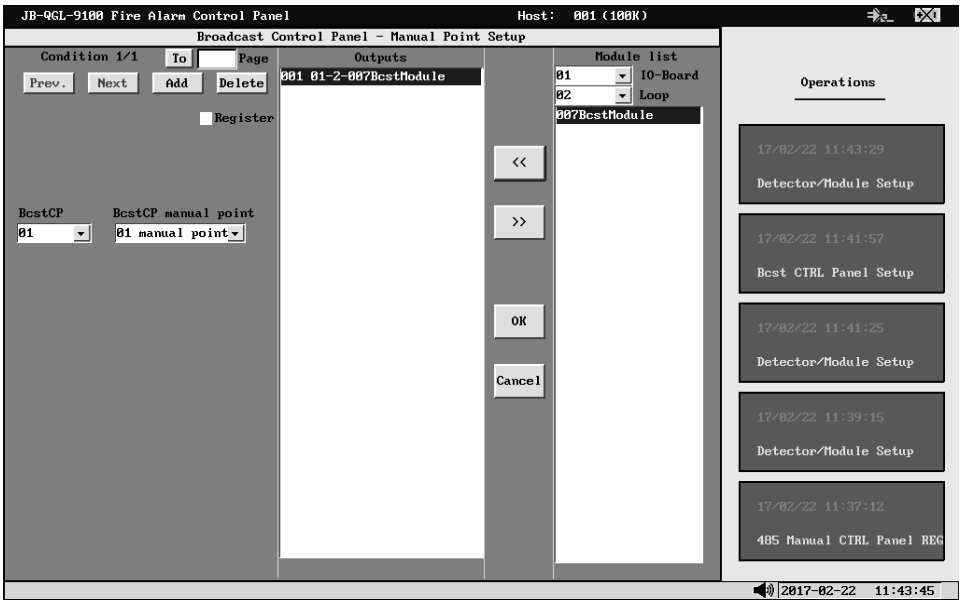


Fig 4- 46 Broadcast control panel - manual point setup window

4.3.10 Fire hydrant setup

The four/six-wire fire hydrant produced by our company can be used as four-wire fire hydrant and is compatible with the functions of old six-wire fire hydrant. When used as four-wire fire hydrant, the corresponding relation between water pump shall be set by the setting function. The goal is to reduce the difficulty of actual installation and debugging of six-wire fire hydrant.

Thick linkage means: **When the water pump selected at the condition setting column starts or stops and "all fire hydrants" are chosen as the output result, then all fire hydrants in the loop will have the corresponding optical signal indication. Otherwise, the fire hydrants displayed at the output result list will have the corresponding optical signal indication.**

Note: The corresponding fire hydrants only will generate optical signal indication with this function, and thus they will not displayed at the alarm interface and the historical information.

The corresponding relation of this type shall be provided with at least one output result, therefore at least one data shall be added in the output result list as the result, even though all fire hydrants have been selected as the output result.

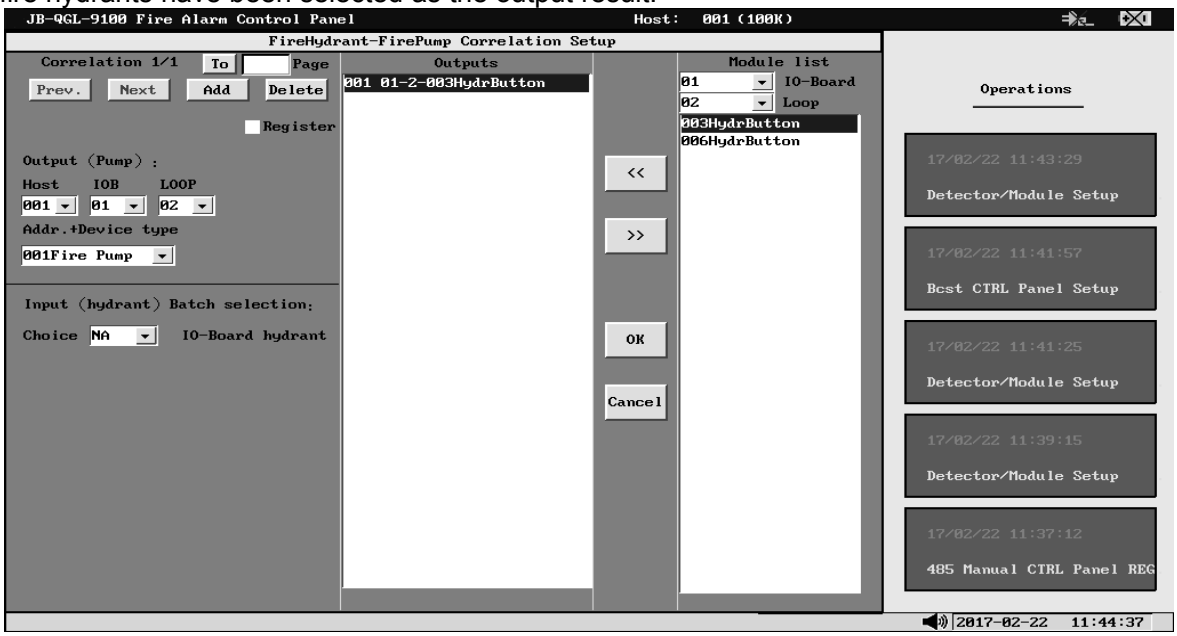


Fig 4- 47 Fire hydrant - fire pump correlation setup

4.4 Operation

The sub-menus under this category show as below:

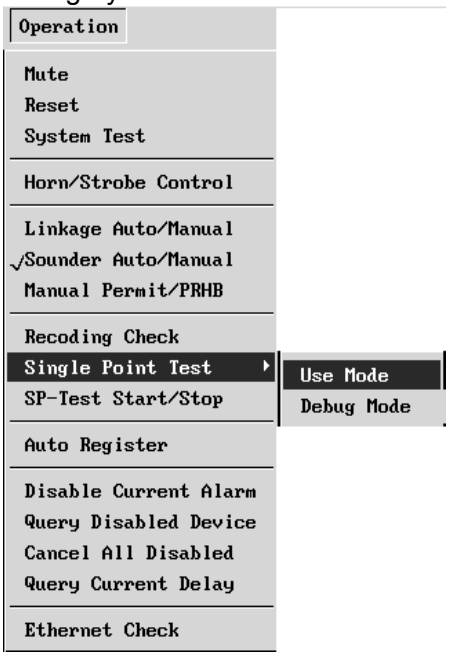


Fig 4- 48 Sub-menus of Operation

4.4.1 Mute

4.4.2 Reset

4.4.3 System test

The operation of the above three functions are same with using the functional buttons on the front panel. Refer to the section of “Panel functions”.

4.4.4 H/S control

Same function with the button of “H/S CTRL”.

4.4.5 Linkage auto/manual

4.4.6 Disable/enable manual control

The above 2 functions are the same with operating the buttons on the front panel. When enabled, a “√” shows in front of each item.

4.4.7 Sounder auto/manual

When auto is set, a “√” shows in front of the item, and the sounder will start automatically when a fire is reported. Click this item to switch the state. If several hosts are networked, this change of the sounder will apply to all hosts in the network with the same state as host 1; if this change takes place on a local host, it only change itself.

4.4.8 Re-coding check

This check aims to checking out the repeated address number of devices in the loop.



Fig 4- 49 Re-coding check window

Select "Check" to carry out the repeat address check. Now, "Check" and "Back" buttons are disabled.

When the check is completed, all repeated addresses in the loop will be displayed. Now it can check again, or exit the repeat address check by pressing "Back". The time-out error will be displayed if repeat value and stop command have not been obtained within 120 sec, and the test shall be carried out again.



Fig 4- 50 Timeout error

4.4.9 Single point test

The single point test can be used to test operating state of detector/module on site and is generally used for debugging or fault diagnosis. This document does not describe it in detail. Click on "Single Point Test" —> "Use Mode"/"Debug mode" menu items, the address selection dialog box will pop up on the screen, as shown below:

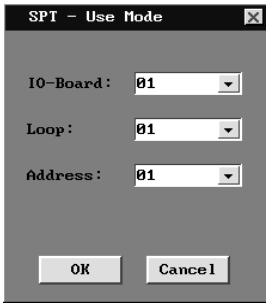


Fig 4- 51 Single point test - commissioning mode

Enter IO-Board number,loop number and the bus address point requiring single point test and click on "OK" button to start the relevant test, and the screen display is as follows:

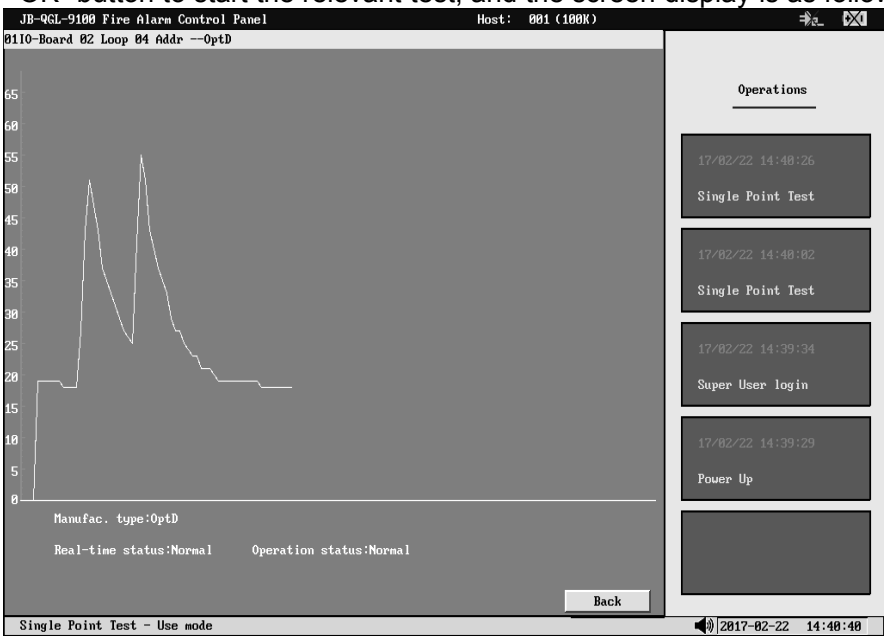


Fig 4- 52 The result of the single point test

The curve in the figure represents current state of detector/module. The scale is marked on vertical coordinate at the left side of the screen, from which the information return value can be read. The user may click on "Exit" button at the right bottom corner of the screen at any time, to exit out of the single-point test state. The figure above shows the smoke blowing test of photoelectric smoke detector and the changing process of smoke concentration value can be seen from the figure.

The lower section displays the following contents:

Manufacturing type: indicating actual manufact type of detector/module being tested.

Current state: indicating the state of detector/module being tested, such as normal, short-circuit, alarm and fault.

On-line state: indicating whether detector/module being tested has repeated address on the loop. If repeated address is shown, detector/module being tested might be in error state and the returned value is invalid.

Background value, alarm value and drift value: shown only when the photoelectric smoke detector is under test, indicating the corresponding background value, alarm value and drift value.

Note: As the alarm function of the system will be lost temporarily during single-point test, the modes are divided into USE MODE and DEBUG MODE. UNDER THE USE MODE, the single-point test state will be exited automatically within 60s of the single-point test; under the DEBUG MODE, the system will return to normal monitor state from the single-point test state after 20 minutes of single-point test.

4.4.10 Single point start/stop

Click the sub-menu or press F4, a window pops up to set:

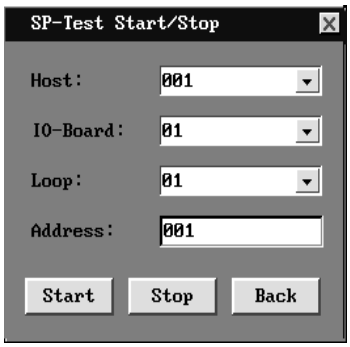


Fig 4- 53 Select the point to start/stop

The user may select one of the module host number, loop number and addresses by drop-down box and click on Start or Stop to carry out corresponding operations; click on Exit button directly to exit out of the dialog box without performing any operation.

Click on drop-down button of address number and the system will list addresses of all output or input modules for selection by the user.

Note: The module with reported line fault will not be listed. When selecting the module, the address of local machine can be selected only, which means the function of point start/stop can be used to control any output or I/O module of the local machine.

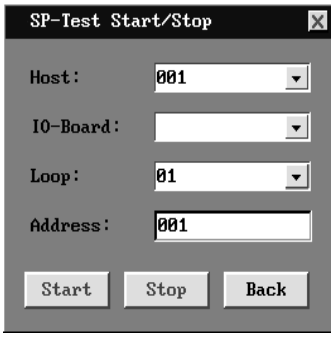


Fig 4- 54 Point start/stop

4.4.11 Auto register

The auto register refers to registering detector and module data on the registered loop. The register items include whether to register and the manufact type of the device. Press OK button for auto register. The auto register will take about 120 sec.

After registering successfully, the system will provide comparative results of auto register. The user may start detector/module setup interface, and now the auto register program changes two properties (register bit and manufact type) of the data in the original detector/module setup form. The debugger may change, save data or cancel the auto register at discretion.

If register fails or time is out, the system will indicate fault or time-out information.

The following figure is the system interface of auto-register:

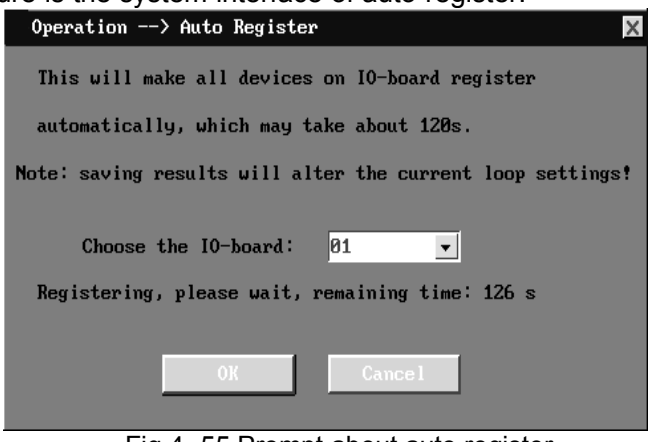


Fig 4- 55 Prompt about auto register

The following figure shows comparative results given by the system after auto register:

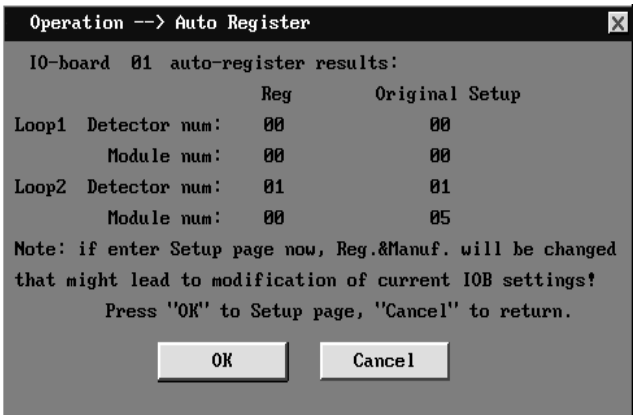


Fig 4- 56 Register result

The above figure shows that 5 detectors are registered in the original setting, but only 2 detectors are on-line currently; 10 modules are registered, but only 7 modules are on-line. The figure also prompts warning messages, such as "Press OK to enter setup interface" and "register and manufact type address will be changed", to prompt the user to make choice.

When auto register is in process, the time countdown will be displayed at the bottom of the screen. If current interface board is under communication, time-out error will occur when counting down to 0, and the system prompt is as follows:



Fig 4- 57 Timeout error

Caution: System configuration might be overwritten after auto register, so take care about this before you continue with it!

4.4.12 Disable current alarms

Same function with the “DISABLE” button on the front panel.

4.4.13 Query current disablement

The following window will pop up after selecting this menu item:

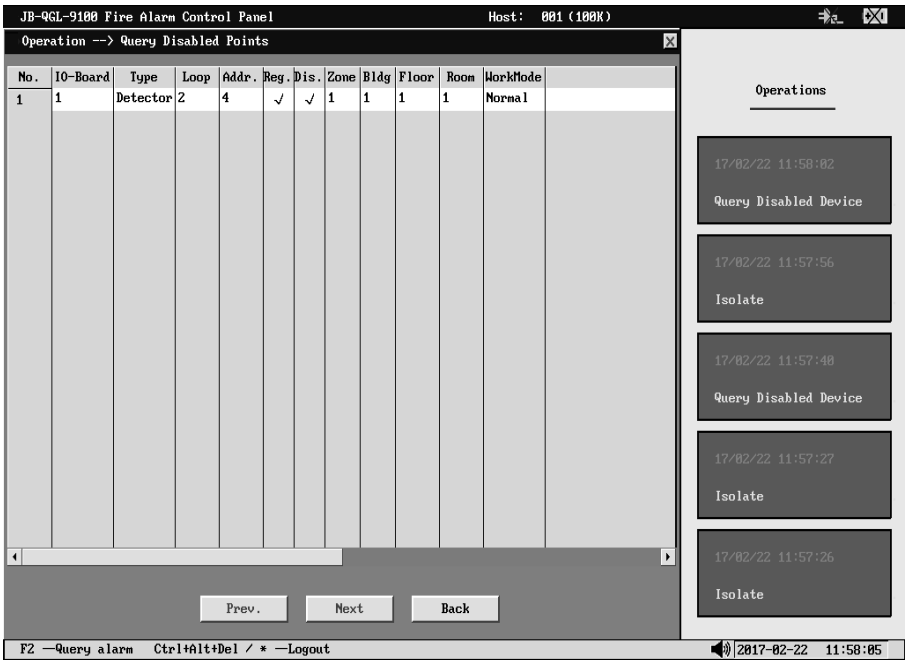


Fig 4- 58 Current disablement query

The entire screen can display 16 disable points; if the total number exceeds 16, click on Prev. and Next to turn page and inquire. Click on Back button to exit the isolation query interface.

The disable device query interface is for the user to acknowledge current disable condition of the equipment; the interface is not provided with rewriting function. It means the properties of detector/module cannot be changed at this interface.

4.4.14 Cancel all disablement

Click on this menu item and the system will cancel the disabled devices. The system will automatically search for all disabled devices and cancel all disabled marks.

This function offers a convenient way for the user to cancel disabled setting. If the disablement of individual point is required to be canceled, enter into detector/module setup interface and rewrite corresponding disabled marks in the form.

4.4.15 Query current delay

In case of linkage, if the linked equipment is provided with delay time and is during the delay time, the linkage modules delaying at current can be inquired with this function. The delaying list will be empty when inquiring after all delays end.

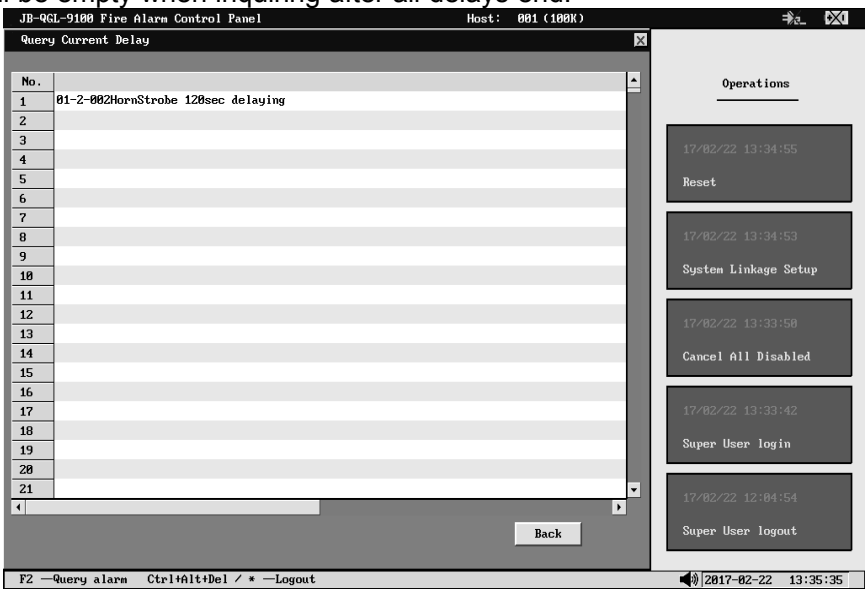


Fig 4- 59 Query current delays

4.5 History query

The query function of this system can be used to inquire various historical messages, which include the sub-items below:



Fig 4- 60 Sub-menus of History

Each sub-item can access 1000 historical records at most. If historical messages total more than 1000, the system will update automatically and overwrite.

Prompt: *The system does not keep historical records in real time, which means certain historical messages will not be saved in case of sudden system power-down or mandatory reset. Generally, this situation will not occur under normal operating state.*

4.5.1 History fire

The format of each historical fire alarm is as follows:

No	Time (Year/Month/Day/ Hour/Minute)	Company Code	Fire Description	Equipment Type Fault Type
1	16/03/17 10:16	00102001	Zone1building1floor1No1	OptD

The following figure is the query interface of historical fire alarms:

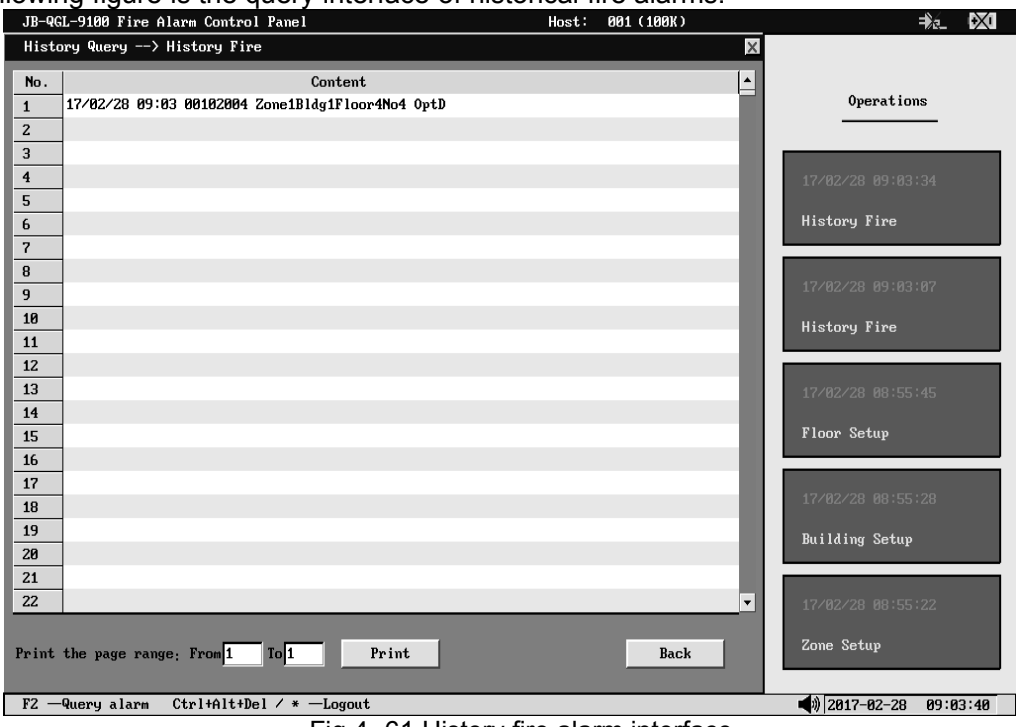


Fig 4- 61 History fire alarm interface

To use print function of historical fire alarms, enter start number and end number of the historical fire alarm to be printed at the print column in the lower left corner. Click on Print to proceed through host printer.

4.5.2 History fault

The format of each historical fault is as follows:

No	Time (Year/Month/Day/ Hour/Minute)	Company Code	Fire Description	Equipment Type Fault Type
1	16/03/17 10:18	00101000	Host1 power AC fault	power fault

Query interface of historical faults is similar to that of historical fire alarms.

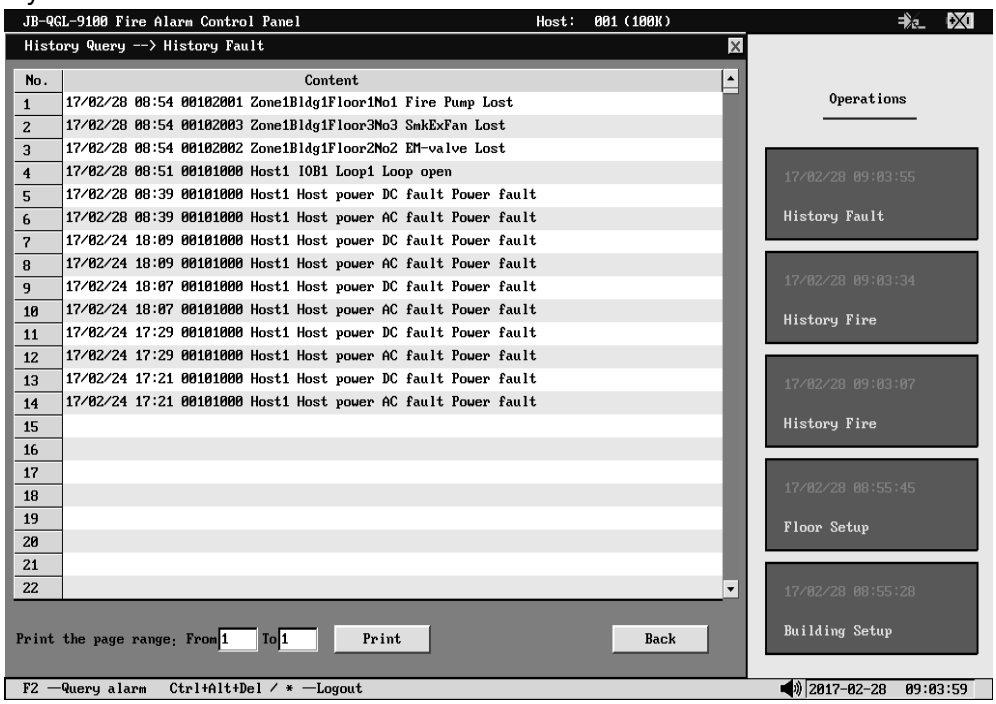


Fig 4- 62 History fault interface

4.5.3 History linkage

The format of each request/feedback information is as follows:

No	Time (Year/Month/Day/Hour/ Minute)	Company Code	Linkage	Equipment Type
1	16/03/17 10:14	00101001	Zone1building1floor1No1	Fire Door

Its interface is similar to that of historical fire alarm, which lists request time and feedback time, as follows:

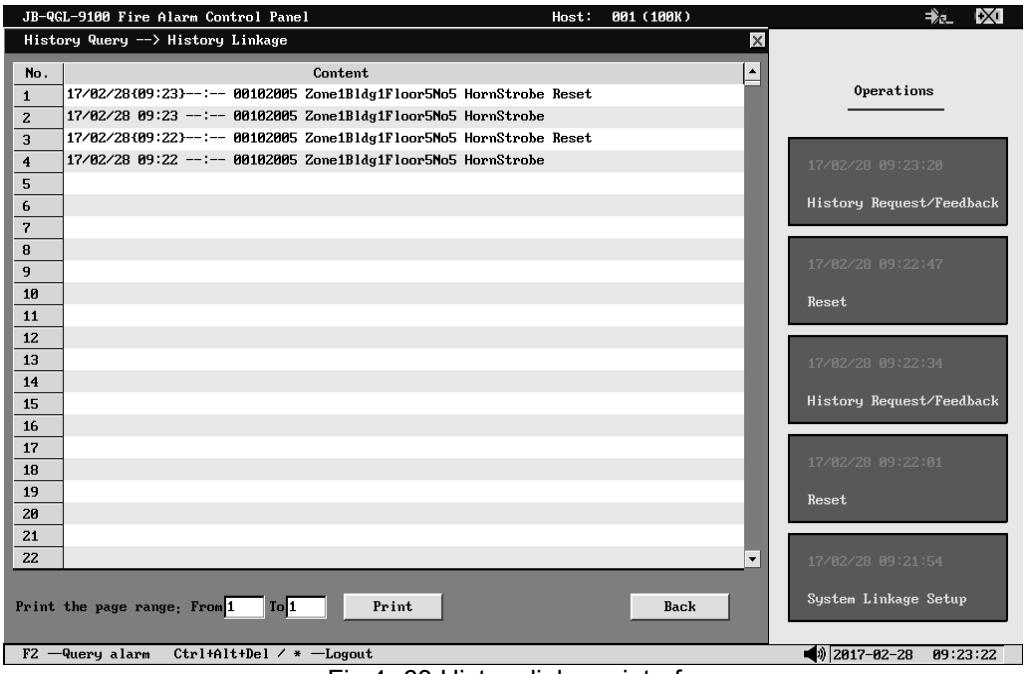


Fig 4- 63 History linkage interface

4.5.4 History operation

Historical operations include the operations carried out on the system by the user, such as login, reset and muting. The sub item can be used for inquiring information of the latest 1000 historical operations, with the format of each historical operation as follows:

No.	Date	Time	Operation description
1	16/03/17	10:20:36	Super user login

The query interface of history operation is as shown in the following figure:

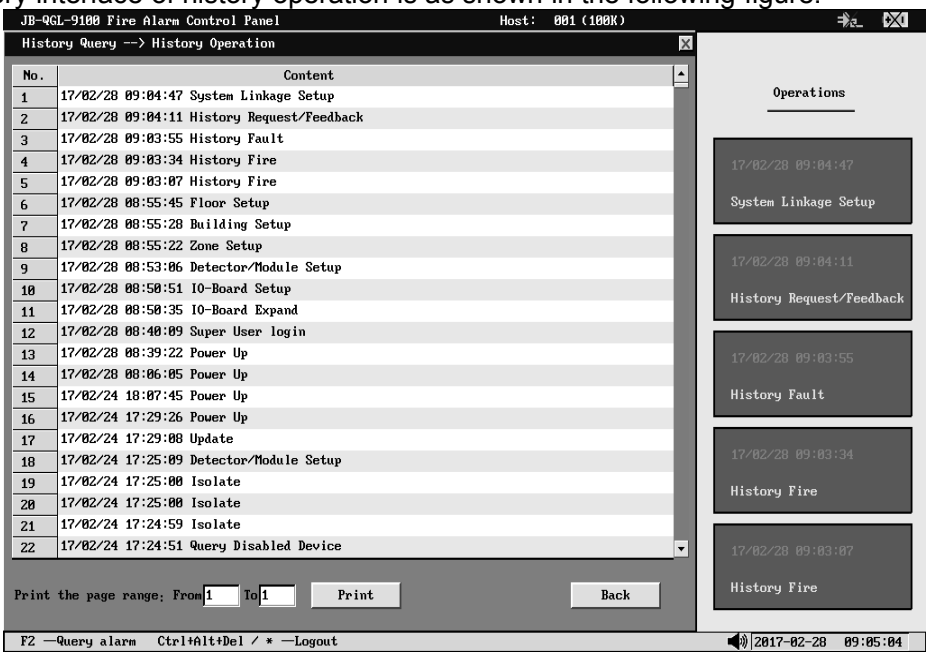


Fig 4- 64 History operation interface

4.5.5 History deletion

4 sub-menus are included:



Fig 4- 65 Sub-menus of history deletion

The historical deletions can be used to remove historical faults, historical linkage, historical fire alarms and historical operations, and this historical information can be deleted by selecting relevant option.

Prompt: Barring special circumstances, the user is not suggested to delete historical records. As important materials required for system maintenance, the historical records are kept circularly and the latest 1000 records will be saved.

4.6 Special

The menu of special operations is shown below:

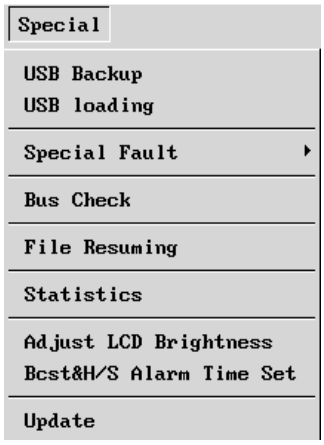


Fig 4- 66 Menu of special operations

Note: The special operations are only for system debugging and maintenance. Therefore, they are restricted to developers and debuggers of our company. The menu options of Special are not optional (gray) when logging in the system as the system administrator.

4.6.1 USB data backup

Back up the system data into U disk. U disk is a standard device and the standard USB interface is available on the system. Please format U disk by a card reader on a standard PC before usage. The capacity of U disk for data backup shall be greater than 2M. The system prompt is as follows:



Fig 4- 67 Prompt of USB data backup

If U disk is inserted incorrectly, the system prompt will be as follows:

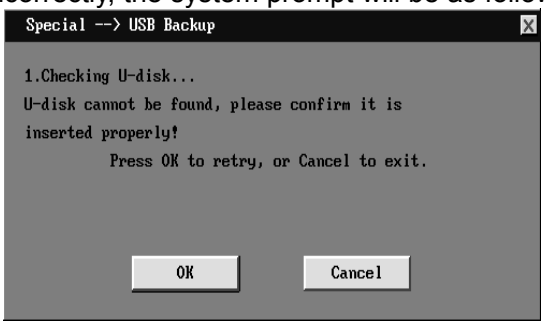


Fig 4- 68 Prompt when U disk is not inserted

If U disk is inserted correctly and the remaining storage capacity satisfies the requirement, the system will proceed to copy setup data and historical data into U disk.

The system will indicate successful backup after all data are processed completely and the whole process will take 30-60sec.



Fig 4- 69 USB data backup complete

Note: The data of multiple hosts with different number can be backed up into a single U disk. If the host number is identical, the original document will be overwritten during data backup.

4.6.2 USB data loading

Download the data in U disk into the system host. The host will search for all system files automatically and copy them into data Flash of the host. The operation needs to be reconsidered, as setup data of the host will be overwritten (note: historical files are copied during data backup, but ignored during data load). The system prompt is as follows:

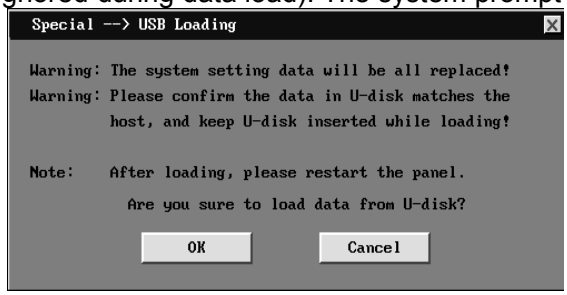


Fig 4- 70 Prompt of USB data loading

The system prompt is as follows after completion of data load:

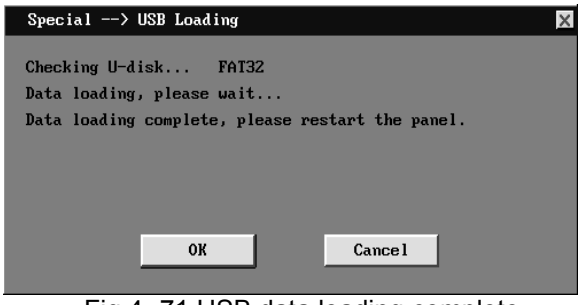


Fig 4- 71 USB data loading complete

Note: The newly-loaded data will take effect only after the system is re-electrified after loading the data!

4.6.3 Bus check

Monitor the communication line of the host. Number of sending data packages and number of receiving data on the networked bus will be shown. Number of receiving data packages is relevant to bus communication quality, and meantime number of sending data packages and number of receiving packages on the corresponding bus will differ greatly in case of host fault. Normally, send data packages and receiving data packages of each bus shall be roughly same in number.

The interface of bus quality check is as follows:

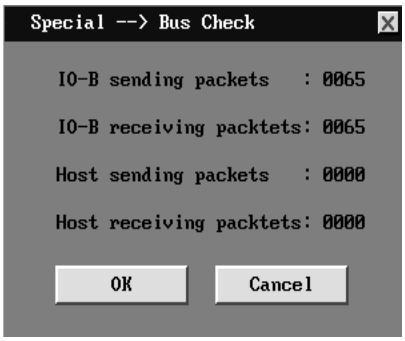


Fig 4- 72 Bus quality check

Paraphrasing from the example in the figure: operation of the buses is basically normal, while the bus data is different slightly.

4.6.4 File reset

Clear all system setup and all data will be lost after the operation; therefore, File Resuming is dangerous. This function is used for production test only. The system prompt is as follows:

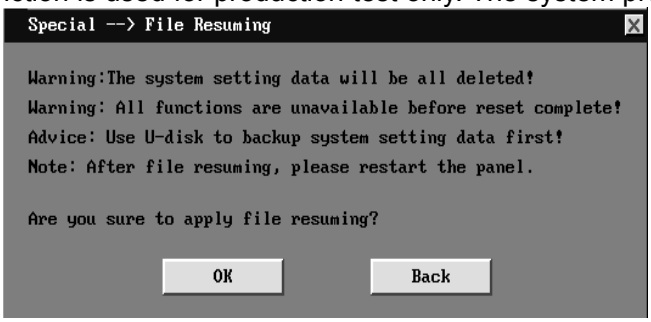


Fig 4- 73 File reset

Caution: To prevent important configuration information from losing due to mal-operations, this function can only be used after login by "super user" and ordinary users are not allowed to use this function.

4.6.5 Statistics

The statistical function is used for counting registered number of zones, buildings and floors in the system and registered number of detectors and modules of each type set on the interface board. All information will scroll up and down on the display screen. The function is aimed to offer assistance to system debugging. Example of system prompt:

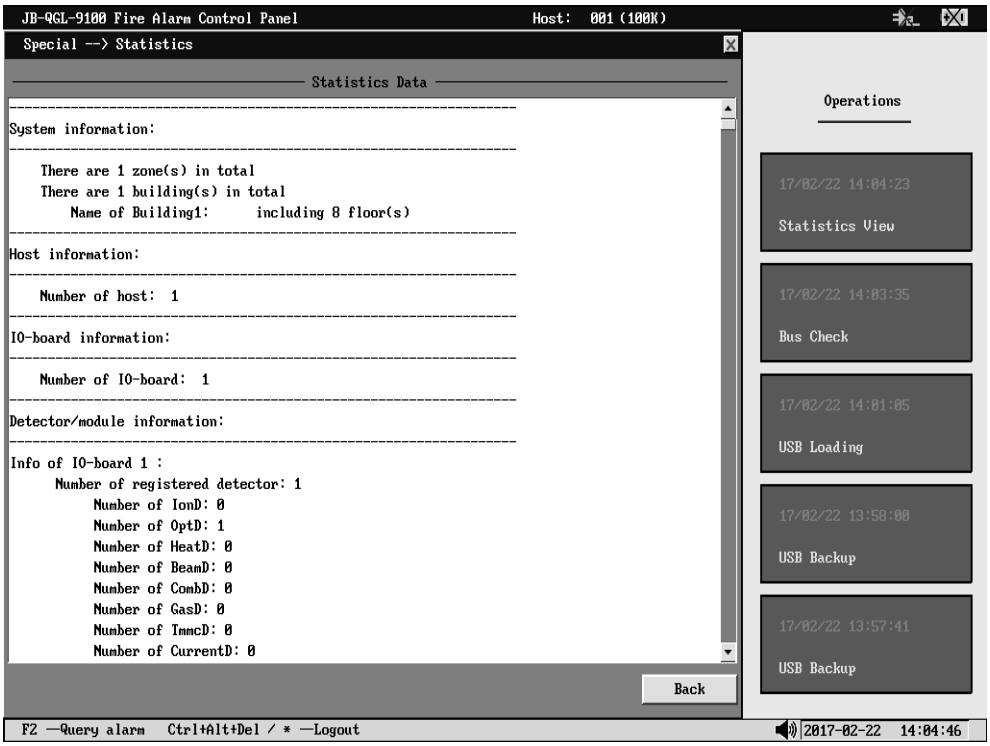


Fig 4- 74 Statistics interface

4.6.6 Adjust LCD brightness

Remind the methods of modifying LCD brightness dynamically and display current LCD brightness. The brightness control via panel must be carried out in this window.

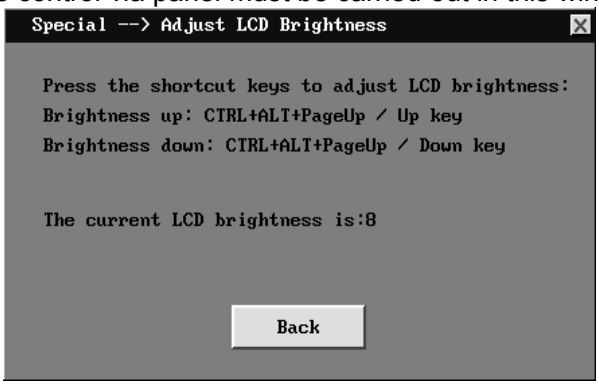


Fig 4- 75 Adjust LCD brightness

4.7 About

Sub-menus under About show as below:

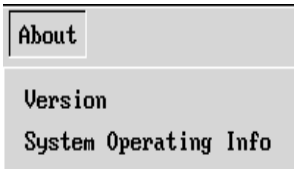


Fig 4- 76 About menu

The “About” item will show information as below (example):

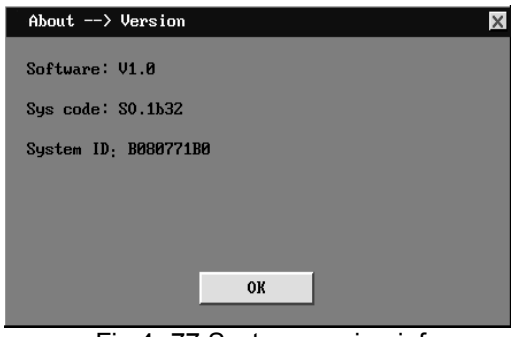


Fig 4- 77 System version info

The current version number shown in the dialog box.

The system version can be updated on site. Our company will continuously improve the system, add new functions and be responsible for the real-time version upgrading of projects that have signed maintenance contracts with our company.

The operating info of the system shows below:

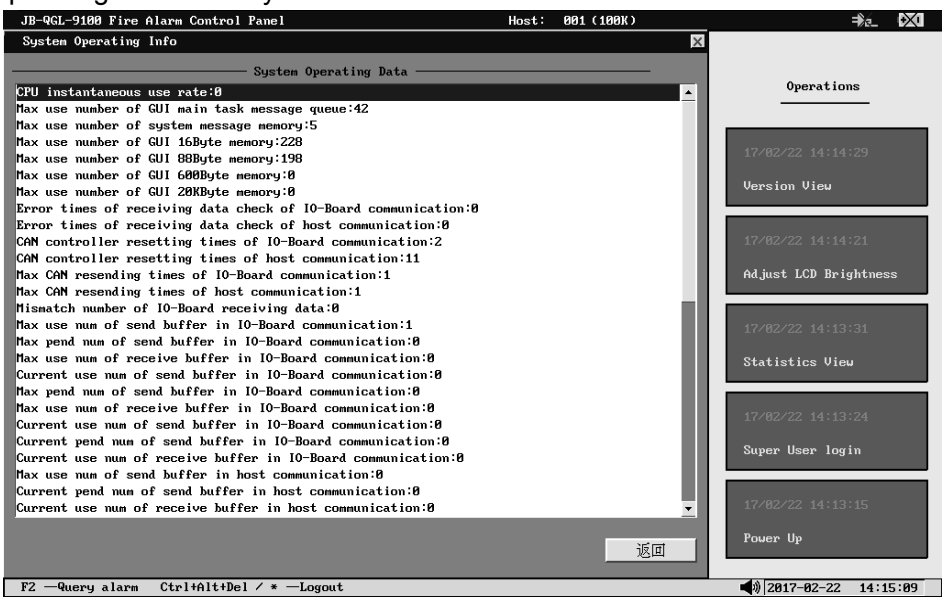


Fig 4- 78 System running info

This info is only used for system fault diagnosing by system development personnel. Personnel on site should necessarily record the information as required.

Chapter 5 Alarm Function

Alarm is the main function of the fire alarm linkage control equipment. The system can recognize, control and drive our company's bus devices and multi-wire devices, including intelligent detectors and modules. The alarm functions mainly include fire alarm, device linkage and handling and display of various faults.

For correct fulfillment of alarm function of the host, please ensure the followings:

- ✧ Bus devices needed in the engineering such as detectors and modules are in place and the engineering wiring is completed and correct;
- ✧ Address codes of detectors and modules are compiled (using the special encoder provided by our company) and no detectors or modules share the same address code;
- ✧ Device properties of every one of the host's detectors and modules are correctly set, such as building, floor, room, position description, work mode, manufact type, equipment type etc.
- ✧ All kinds of linkage information are correctly designed and set as per the engineering requirements;
- ✧ Correctly set bus manual control panel and multi-wire linkage unit;
- ✧ Correctly set printer, indicating panel and CRT-9000 fire control room graphic display system;
- ✧ Correctly set multiple hosts in the networking system.

On the premise of completing the above mentioned settings, the system can perform a full set of fire alarm functions.

Alarm messages are from below:

1. **Fire:** all kinds of detectors (such as ion, photoelectric, temperature, infrared, compound detectors etc.), manual alarm apparatus, interface module, monitoring module, fire hydrant button etc.
2. **Linkage:** output module, input/output module, manual control panel of ZX900-10A, multi-wire linkage unit of DX900-05A.
3. **Fault:** breakdown of detectors and modules, short circuit or open circuit of loops, communication fault of indicating panels, communication faults of the host, power faults, printer faults.

The following is the introduction of alarm interface and related information. The system's alarm interface is as followed:

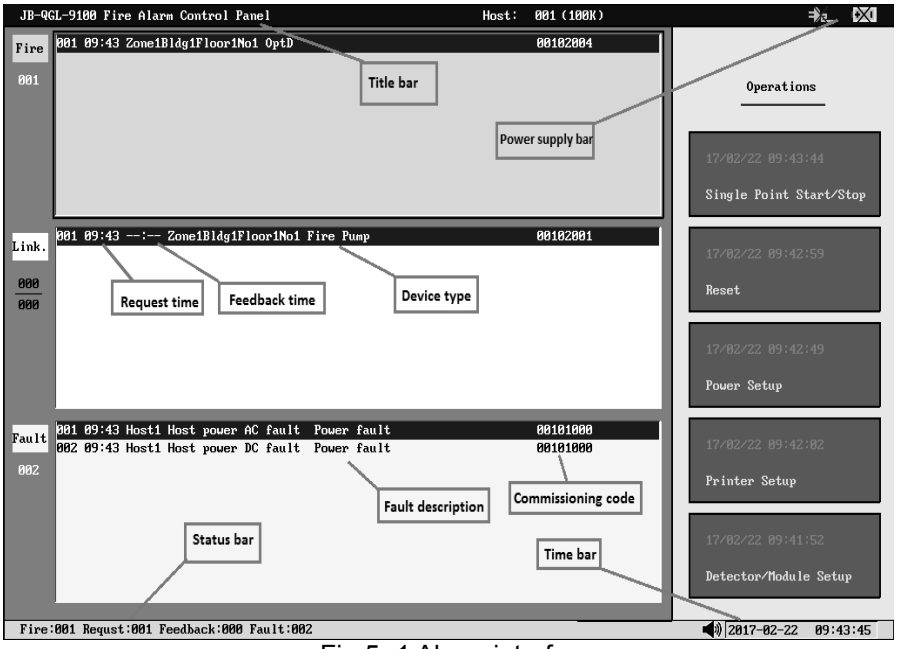


Fig 5- 1 Alarm interface

When a certain device in the system detects an alarm signal, the signal will be processed in the host for confirmation and linkage operation. The corresponding results will be displayed on

the host screen with corresponding acousto-optic instructions simultaneously given by the indicator light and the buzzer.

The alarm interface locks the first alarm message of each alarm type (always exhibits in the first line, not participates in the scroll display). Alarm messages following the first one are in the circular scroll display with an interval of 5 seconds. The message stops scrolling for 15 seconds when the user chooses to view and the message will resume scrolling after 15 seconds.

Apart from the status information bars at the top and the bottom of the alarm interface, the other section is divided into three parts: fire information display, request/feedback information display and fault information display. In each part, the left side shows alarm message prompt and its corresponding entry number, while the right side shows the message's specific information.

Description of the information on the alarm interface:

1 . Number of entries

Indicate number of alarms of all types occurred after system resumption. If current alarm is not silenced, its corresponding entry number will flash to prompt. It will stop flashing when the silencing action is performed. However, when a new alarm of a certain type is generated after silencing, the alarm entry number of that type will flash again until silenced.

2 . Entry number

Indicate the sequence number of this alarm message in its alarm type.

3 . Alarm time

Indicate when the alarm is generated. For the request/feedback alarm, the first time quantum indicates occurrence time of device request action, while the second time quantum indicates feedback time of device's action. If the quantum is shown as "--:--", the device performs no request or feedback action at present.

4 . Location or description

For fire alarm and request/feedback alarms, this zone indicates where alarm message occurred. The geographic location information can be set on the property setup interface of the detector module.

For the fault alarm, information displayed in this zone is relatively complicated. If a fault happens in detector, module, bus manual control panel or multi-wire linkage unit, the display information will be the geographic location of the fault. For other faults, information of fault types will be displayed, such as short-circuit loop of the detector bus, communication fault of the host, communication fault of the indicating panel, communication fault of the printer and power fault.

5 . Device type

Indicate the type of the device to which the alarm message belongs. The device type can be set on the property setup interface of the detector module. See appendix for code number of device types.

6 . Manufacturer commissioning code

The manufacturer debugging code is used for system installation and debugging by the engineering debugger and is a kind of reference data. This zone consists of 8 digits with the following specific meanings: the first two three digits are the number of the host with alarm message; the next two digits are IO-Board number and loop number ;the last three digits are detector or module address.

7 . Fault description:

The fault description indicates the specific fault type. Specific fault types include:

Loss	Open circuit	Short circuit
Repeated code fault	Device fault	Type mismatch
Sensor fault	Sensor pollution	Short-circuit loop
Open-circuit loop	Communication fault of the indicating panel	Communication fault of the host
Power fault	Printer fault	

8 . Activated alarm box

Activated alarm box is used to show which type of alarm messages in the alarm interface is under activated status and only such allows manual query operation.

Operations can be performed on the alarm interface:

a. Alarm information query:

1 . Activate the alarm type needed to query (fire alarm, request/feedback and fault information). There are three methods to choose from:

- ◆ Use the mouse to click on the area of the alarm type needed to view;
- ◆ Press the Left and Right keys on USB standard keyboard;
- ◆ Press the Select key on the host panel keyboard.

2 . Drag the scroll bar of the alarm message list. There are three methods to choose from:

- ◆ Use the mouse to click on or drag the scroll bar on the right side of alarm type area;
- ◆ Press the Up and Down keys on the host panel keyboard.

b. Disabling current alarm:

Two ways to disable current alarms:

- ◆ Press the DISABLE button on the front panel
- ◆ Click the sub-menu of Disable under the category of Operations

c. Sound silencing:

- ◆ Press MUTE key on the host panel;
- ◆ Click on sub item of MUTE menu on Operation menu;

Note: After silencing operation, the alarm will still sound if new alarm message occurs in the system and the entry number of its corresponding alarm type will flash to prompt.

d. Reset:

Restore the status when the system just powered on. All alarm information will be erased and the alarm interface will be switched to normal running status of the host. There are two ways to choose from:

- ◆ Press Reset key on the host panel;
- ◆ Click on sub item of Reset menu on Operation menu;

Chapter 6 Instruction of Manual Control Panel

Several manual control panels (also known as Fireman Panel) can be included in the system for customer to directly take the control of equipment manually. Each panel (2U panel) includes 30 manual points with 2 LEDs per point: one LED for request to start and one LED for feedback signal from the equipment.

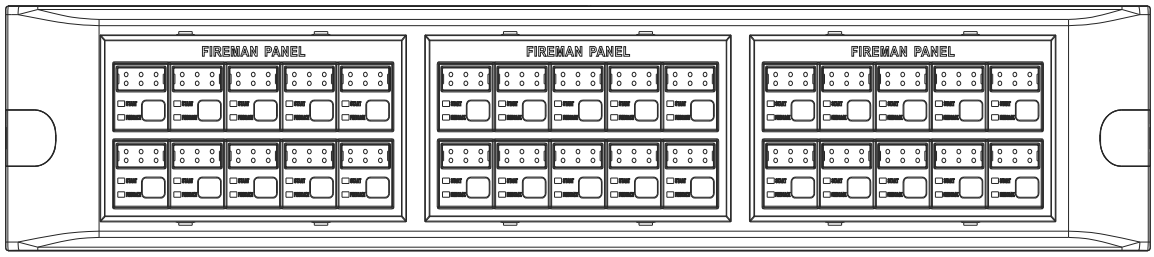


Fig 6- 1 Manual control panel

Each manual point will take up an address, thus each panel will take up 30 addresses in sequence. The panel number that can be included depends on how many IO-boards in the system. There are 11 choices as the starting address: 1, 31, 61, 91, 121, 151, 181, 211, 241, 271 and 301. The address setup can be achieved through the four jumpers of JP1, JP2, JP3 and JP4 on the circuit. See the table below for reference.

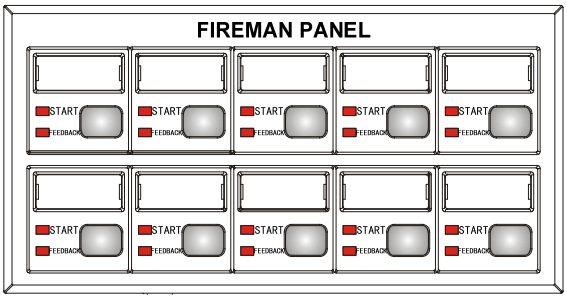


Fig 6- 2 Detail diagram (10 points)

JP4	JP3	JP2	JP1	ADDR
0	0	0	0	1-30
0	0	0	1	31-60
0	0	1	0	61-90
0	0	1	1	91-120
0	1	0	0	121-150
0	1	0	1	151-180
0	1	1	0	181-210
0	1	1	1	211-240
1	0	0	0	241-270
1	0	0	1	271-300
1	0	1	0	301-324
1	0	1	1	
1	1	×	×	

Note: the panel is designed with 30 points, thus 30 more points will be added every time to extend the manual points.

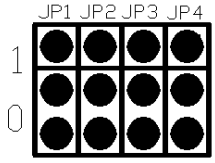


Fig 6- 3 Address setting diagram

More details please check the separate manual for the ZX900-10A panel.

Chapter 7 Instruction of Multi-wire Linkage Unit

Several linkage units can be included in the system. Each unit includes 5 control points and each point includes the following:

- Start button
- Stop button
- Start indicator
- Feedback indicator
- Normal state indicator
- Fault state indicator

The figure shown below is three units mounted on this fire alarm control panel, 15 points in total:

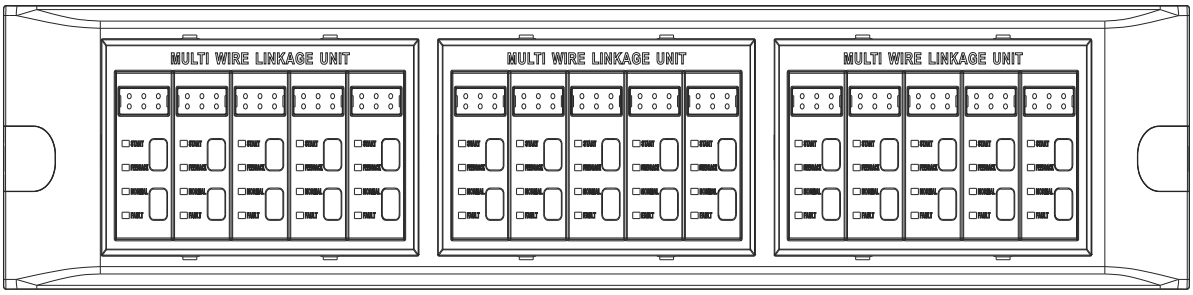


Fig 7- 1Multi-wire linkage unit

The panel number that can be included depends on how many IO-boards in the system. Each panel takes up 5 addresses on the bus and includes 5 multi-wire output.

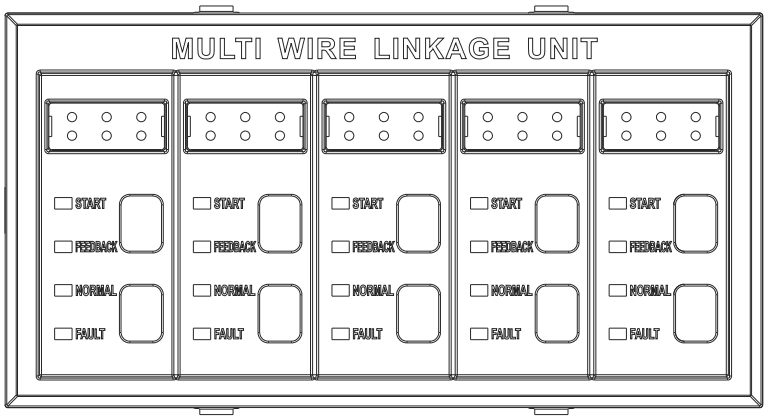


Fig 7- 2 Detail diagram (5 points)

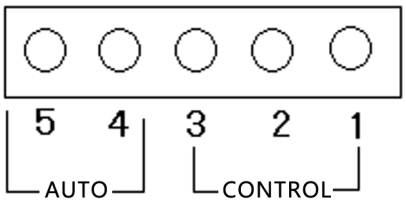


Fig 7- 3 Wiring (one part)

Note: the panel is designed with 5 points, thus 5 more points will be added every time to extend the linkage points.

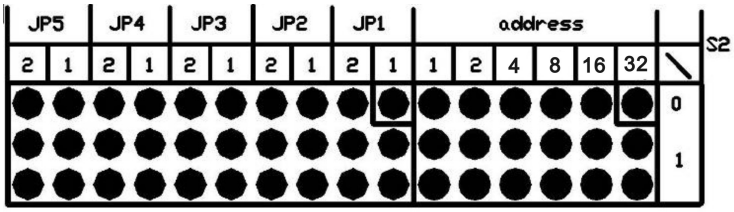


Fig 7- 4 Address coding diagram

More details please check the separate manual for the KZJ-LD5-03 panel.

Chapter 8 Troubleshooting

✧ Problem: No action from alarm bells or horn strobes when the system reports a fire.

Possible reason and solution:

a. Please check whether the H/S indicator on the panel has been lit.
b. Whether there is fault message about that alarm bell or horn strobe on the LCD.
c. Whether 24V has been supplied to alarm bell or horn strobe.
d. Whether the control module type of the alarm bell is set as alarm bell or horn strobe.
e. Whether there is output of alarm bell/horn strobe in linkage setup.

✧ Problem: No action request to linkage device when the system reports a fire.

Possible reason and solution:

a. Please check whether the AUTO/MANUAL indicator on the panel has been lit.
b. Whether there is linkage setup data or the "register" item in linkage setup is not checked.

✧ Problem: No action request or action from the multi-wire linkage unit when the system reports a fire.

The premise of automatic action of the multi-wire linkage unit are the followings:

a. The control switch of the “ENABLE/DISABLE” is set to ENABLE.
b. The control switch of the “AUTO/MANUAL” is set to AUTO.
c. The “AUTO/MANUAL” indicator is lit.
d. There should have linkage setup data and the “register” of the setup should be checked.

✧ Problem: After reporting a fire, there is a request for device action but no action from the field device is shown.

Possible reason and solution:

a. The field device is not under auto mode; therefore, it cannot be controlled by the module and fails to start.
b. The device has started but the feedback signal line disconnected.
c. The field device is not connected to the power supply.

✧ Problem: The host reports faults of main power and standby power at the same time.

Possible reason and solution:

a. Whether the main power feedback cable of the host is well connected.
b. In the Power Setup, whether the power feedback type matches that of the power used.
c. Main power breaks down and standby power is in under-voltage condition.

✧ Problem: The printer prints messy code at the time of alarm.

Possible reason and solution:

a. The printer type set is not consistent with that of equipped printer.
b. The setting of the printer's communication rate is not correct. Normally, it is set as the thermal printer when delivery, with a rate of 9600BPS. The communication rate of the printer can be obtained through its self-test and the operations are as follows: press left button first to turn off the power light and then press right button and press left button immediately, the printer starts self-test. The printed self-test result contains the communication rate.

✧ Problem: When two or more hosts are networked, host 2 can receive the alarm message from host 1, but host 1 cannot receive data from host 2.

The networking of 9100 series host adopts a non-master-slave mode, which means no master or slave distinction between networking machines. The alarm message of one host can be transmitted to the other through the networking line only when they have registered each other’s host number. The fact that host 2 can receive the alarm message from host 1 indicates the networking line has been connected and host 1 has registered host 2 in its networking setting; The fact that host 1 can’t receive alarm message of host 2 only indicates that host 2 fails to register host 1.

✧ Problem: When the host is networking, with small

communication distance and low rate, the data packages received are far less than the ones sent during bus quality check, and the host networking is abnormal.

The networking of 9100 series host adopts a relevant advanced CAN BUS protocol at the current, which requires serial connection of networked hosts only and prohibits star connection. Besides, the protocol asks for the setup of a 120Ω terminal resistance at both the beginning and the end of the networking without too much terminal resistance in between, to ensure a high-speed and reliable networking bus.

- **Problem: The host reports short/open circuit of Loop XX of IO-board XX.**

The 9100 series host will automatically report short/open circuit of Loop XX of IO-board XX if it really exists. There are 4 LEDs on the IO-board, the green one for power indication lights normally; the red one flashes to indicate CAN communication; two yellow ones indicate open/short circuit of loop 1 and loop 2 respectively. Two phenomenons for open circuit: open circuit of the entire loop, and partially open. The evident for partially open is that there are 20 points missing in one loop.

Chapter 9 Annex

Annex 1: Device type

Type/ of alarm equipment:

1. IonD	(Ion smoke detector)
2. OptD	(Photoelectric smoke detector)
3. HeatD	(Heat detector)
4. BeamD	(Infrared detector)
5. CombD	(Composite detector)
6. ConvIon	(Interface ion detector)
7. ConvPhoto	(Interface photoelectric detector)
8. ConvTherm	(Interface heat detector)
9. ConvBeam	(Interface infrared detector)
10. ConvCombn	(Interface composite detector)
11. Callpoint	(Manual button)
12. Heat	(Heat cable)
13. PresrSwith	(Pressure switch)
14. Hydrant	(Fire hydrant button)
15. FlowWater	(Water flow indicator)
16. Gasalarm	(Gas alarm)

Type of feedback equipment:

1. AgentSprnk	(Gas spraying)
2. AgentFault	(Gas fault)
3. AgentLeak	(Gas weightlessness)
4. EMvalve	(Electromagnetic valve)
5. SignlValv	(Signal gate valve)
6. WetA-Valv	(Wet alarm valve)
7. SmkDamper	(Smoke exhaust valve)
8. ExhaustFan	(Smoke exhaust fan)
9. PositiValv	(Positive pressure air valve)
10. PositiFan	(Positive pressure fan)
11. BlowValve	(Blow valve)
12. Blower	(Air blower)
13. FireValve	(Fire damper)
14. Fire door	(Fire door)
15. DelugeValv	(Deluge valve)

16. Generator (Alternator)
17. SprinPump (Spray pump)
18. PresrPump (Stabilizing pump)
19. FirePump (Fire pump)
20. FoamPump (Foam pump)
21. Drencher (Water curtain pump)
22. CutPubPwr (Municipal electricity cut-off)
23. Lift-Down (Elevator forced landing)
24. CurtnHalf (Curtain semi-drop)
25. CurtnDown (Curtain full-stop)
26. Air-condt (Air conditioner)
27. Broadcast (Radio)
28. Sounder (Sounder)
29. PowdrExtn (Dry-chemical fire extinguisher)
30. EmrgncyLit (Emergency lighting)
31. EvacuSgnl (Evacuation light)
32. Return (Back)
33. Horn/Strob (Audible and visual alarm)
34. Horn (Sounder Alarm)
35. Strob (Visual Alarm)
36. ManualCtrl (Manual control button)
37. B-module (Broadcast Module)
38. FIP (Fire Indicating Panel)
39. PowerBox (Power Box)

Statement: This manual has gone through careful check to strive for correctness of the content. Any changes to the product due to the upgrading will not be further notified and the physical product may prevail. The newest version can be required freely from our company. Shenzhen Fanhai Sanjiang Electronics Co., Ltd. possesses the rights of final interpretation and modification!