Fire Alarm Control Panel (Linkage Type)

ATL-9000 SERIES
ATL-9000-2
ATL-9000-4
ATL-9000-6

Preface

The ATL-9000 fire alarm control panel (linkage type) complies with the requirements and spirit of the national standards for Fire Alarm Control Units (GB 4717-2005) and Automatic Control Systems for Fire Protection (GB 16806-2006), and the related requirements of European standards EN 54-2 and EN 54-4.

The fire alarm control panel has a modular design and is characterized by great functions, large capacity flexible configurations and an excellent price-performance ratio. The system has a large screen supporting Chinese display and a standard special mini printer that can print all the alarms, faults and operations of the system into Chinese. The system can realize comprehensive on-site programming and solve complicated linkage relation settings. The system simulates the operating interfaces of Windows and is therefore easy to learn, use and realize Chinese input. Each fire alarm control panel has a maximum capacity of 25,920 bus alarm linkage control points.

The ATL-9000 intelligent two-bus alarm and linkage control panel may be used with intelligent fire detectors, input modules, output modules, manual control panels and multi-line linkage control units to form an integrated fire control system combining buses and multiple lines to meet the needs of fire protection projects.

Thank you for using our quality products.

Please read this User's Manual carefully before operating the

equipment. After the debugging acceptance, this User's Manual

should be properly kept by a special person for future reference.

Chapter one: System overview

1.1 System introduction

The ATL -9000 fire alarm control panel (linkage type) (fire alarm control panel) is a new generation product launched by ATL, In order to adapt to the needs of engineering design, the fire alarm control panel is designed with a linkage control function that enables it to be flexibly used with other related products from ATL to form a fire alarm and linkage integrated control system. It is particularly suitable for applications in large and medium-sized fire alarm and linkage integrated control systems. The fire alarm and linkage control system is extensively applied in high-grade office buildings, big residence communities, department stores, gymnasiums, exhibition halls, libraries, factory buildings, supermarkets, hotels and other large and medium-sized fire protection projects.

1.2 System characteristics

✧ It adopts new generation high-speed microprocessor technology that has a data processing speed and a data storage capacity 100 times and 1000 times higher than that of conventional technology respectively.

✧ It has a 7.4″16-grey-scale LCD Chinese-supporting display and with a display resolution of 640×480.

✧ Its operating interfaces simulate the menus and interfaces of Windows and therefore ensure operation habits similar to that of computers and is easy to learn.

✧ It uses a flexibly and conveniently controllable standard PS/2 computer keyboard and mouse as on-site programming devices.

✧ It provides a Chinese Pinyin input method and a Chinese section-position code input method and can therefore realize Chinese input freely and easily.

✧ It can copy or restore both setting files and historical files through a CF intelligent storage card (optional), making system maintenance convenient.

✧ It adopts a non-polarity two-bus intelligent alarm linkage mode and has a total of 324 intelligent detectors or modules for a single circuit. The addresses of the intelligent detectors or modules may be hashed with No.1 to No.324.

✧ It is equipped with multiple high-speed CAN-bus interfaces, ensuring quick and reliable data transmission.

✧ It has super high single-machine capacity (maximum single-machine capacity: 40×2×324=25,920 alarm points).

✧ It supports the networking of 20 ATL-9000 fire alarm control panels. It has a maximum capacity of 518,400 alarm points (20×25,920) after networking.

✧ It can be connected with a multi-line linkage control unit and has a maximum capacity of 4,000 points for a standalone linkage control unit.

✧ It can store the historical information of system operation, including 1,000 pieces of historical fire alarm information, historical request information, historical feedback information, historical fault information and historical operation information respectively.

✧ Users can customize the equipment type, making system integration convenient. It introduces the concept of a virtual interface board to realize the linkage operations of general semantics, thus realizing the most complicated system linkage relations easily.

✧ It has manual single-point start and stop functions for modules, making on-site debugging
✧ and tests convenient.

It has a single-point test function for detectors or modules, making the operating conditions and test data of detectors intuitive.

✧ It has a standard special mini printer, enabling it to print various operating conditions in a real-time way.

✧ It can be accessed to a zone display panel, a building display panel or a floor display panel to send the information displayed on it to locations like corridors.

✧ It can be connected with the ATL-982 graphical display device (optional, ATL-982 for short) in the fire control room to display the specific locations of fires and faults intuitively.

✧ It executes administration by different levels for users of multiple levels and grants the users

✧

✧

at different levels the corresponding system operation authorities, making system administration convenient.

✧ It can realize local or remote software upgrades, thus enabling it to operate stably and reliably.

✧ Executive standards: Fire Alarm Control Units (GB4717-2005)，Automatic Control System for Fire Protection (GB16806-2006)

1.3 System schematic diagram

Powersupply

Fire display panel

Powersupply

Intelligent horn/strobe

Multi-line linkage equipment 1

Multi-line linkage equipment 2

Multi-line linkage equipment n

Two non-polarity buses, mixed compilation allowed, address code: 1-324

Intelligent manual alarm

Powersupply

Fire display panel

Intelligent module

Powersupply

Fire display panel

Intelligent heat detector

Powersupply

Overall Wiring Diagram of the

Fire Alarm Control System

Fire control graphic display device

CRT-9000

PC

Fire display panel

Intelligent 80 L+ smoke detector

485A 485B

1 L+ 1 L-

80 L-

Two-core power line

3

3

3

CFT-QGL -9000

CFT-QTL -9000

CAN2H CAN2L

CFT-QGL -9000

485A 485B Powersupply

Fire display panel
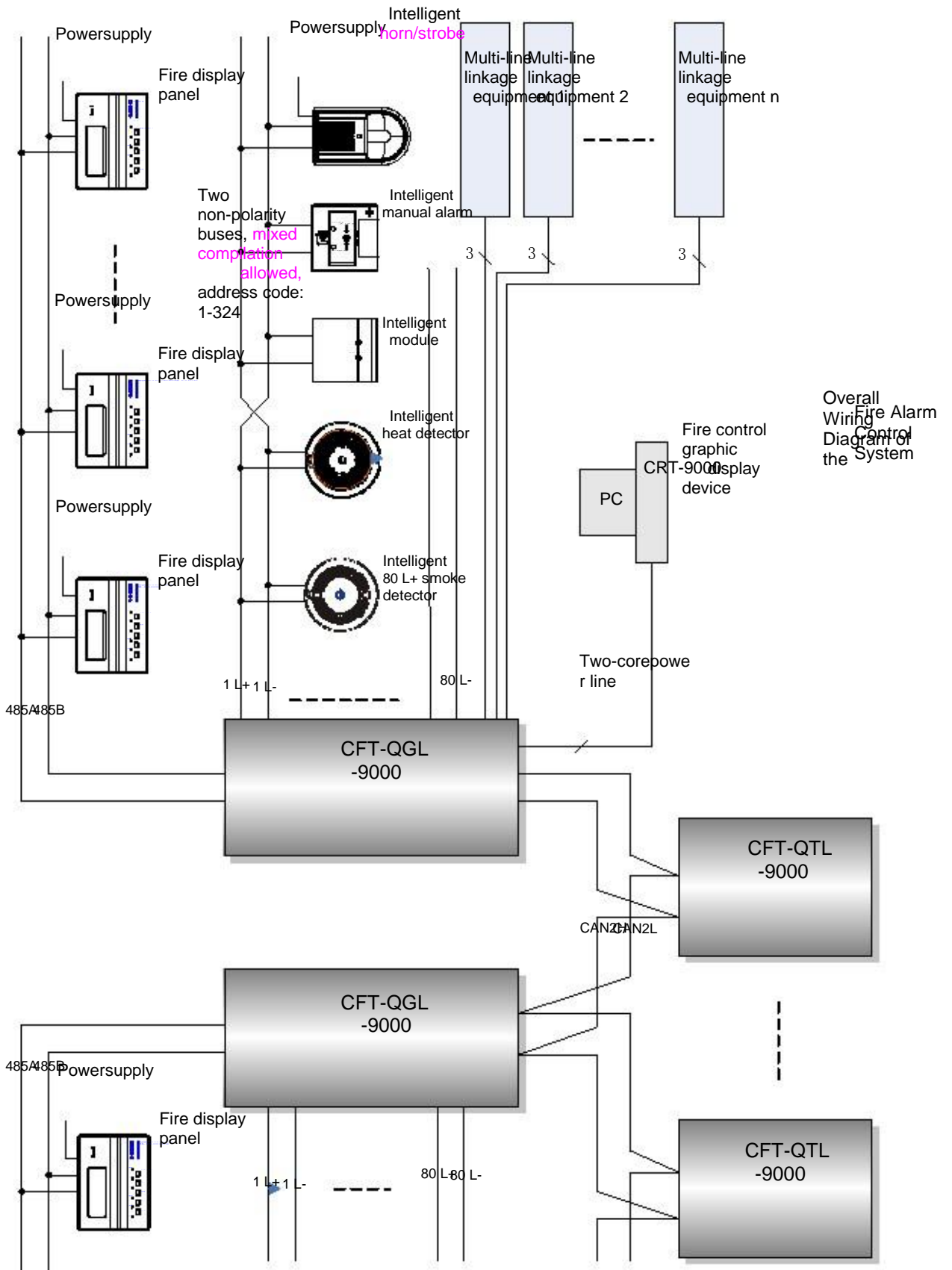
1 L+ 1 L-

80 L- 80 L-

CFT-QTL -9000

Fig.1-1 System Schematic Diagram

1.4 System equipment

As shown in Fig.1-1, in addition to a fire control unit, the system also includes other corresponding equipment. To acquaint you with the system, we will introduce its equipment briefly below. The fire control system includes the following main components:

- **Main control unit**

  The main control panel processes and analyzes the data information transmitted from other components of the system and commands other components of the system to execute the corresponding commands according to the results of data analyses. For example, it can make the buzzer give a fire alarm.

- **Display component**

  The display component provides a main output interface for alarm information and the daily maintenance and query interfaces as well.

- **Input equipment**

  The system is transplanted with a standard external peripheral interface for computers and uses a PS/2 keyboard and mouse as input equipment, which makes system setting and maintenance highly convenient for users.

- **Power supplies**

  They provide electricity for the internal equipment of the entire system. The system has special fire equipment power supplies with an output voltage of DC 24V. The power supplies can provide alarm or feedback signals like AC FAULT, DC FAULT, DC LACK, DC CHARGE and have an excellent anti-interference characteristic.

- **Interface board**

  It is a driver board for the detector or module bus. Each interface board has two circuits. Each of the two circuits can drive 324 intelligent detectors or modules.

- **Fire detector**

  The system can be accessed to multiple intelligent smoke, heat or composite detectors produced by Fanhai Sanjiang. The main fire detector models include JTY-GD-930, JTW-ZD -920 and so on.

- **Input module, output module, audible and visual alarm, manual alarm and fire hydrant**

  The system may be accessed to multiple intelligent modules produced by kai wei xin . The main product models include JK-952 (input module), JS-951 (input module), KZ-953 (output module) and KZJ-956 (I/O module). Meanwhile, the system may also be accessed to an SG-991 intelligent audible and visual alarm, a J-SAP-M-960 intelligent manual alarm button, a J-SAP-M-961 intelligent fire hydrant, etc.

- **Bus manual control panel**

  Each manual control panel has 30 manual control buttons each of which corresponds to an I/O module on the bus. In the permissible manual control state, pressing such a manual control button can realize manual start and stop operations of the corresponding I/O module.

- **Multi-line linkage control unit**

  Each group of DX900-05A multi-line linkage control units include 5 multi-line control points that may control five pieces of key equipment needing direct control, such as fire pumps, etc. A 2U panel may be installed with 15 multi-line linkage control points (three units).

- **Printer**

  The system has a standard special mini printer (printer for short) that may print information like alarm information, feedback information, fault information and some other information for future reference.

- **Fire display panel**

  A fire display panel is also called a floor display panel. Its application is expanded in the system, so it can be used as either a zone display panel or a building display panel or floor display panel. The fire display panel model that may be accessed to the system is CFT-FSD-982

1.5 Technical parameters of the products of the system

1.5.1 Power supplies:

Main power supply: AC 220V±20%/50Hz or DC24V

Emergency power supply: Maintenance-free DC24V battery (its capacity depends on the system size).

1.5.2 Operating conditions:

Ambient temperature: -10℃～+55℃ during system operation

Ambient humidity: ≤95% (40℃±2℃, without condensation)

1.5.3 Peripheral equipment:

For the specific technical parameters of equipment like detectors, modules and audible and visual alarms, see the corresponding instruction manuals.

Chapter two: Installation and dimensions of system engineering

2.1 Outline drawing and dimensional drawing of the product
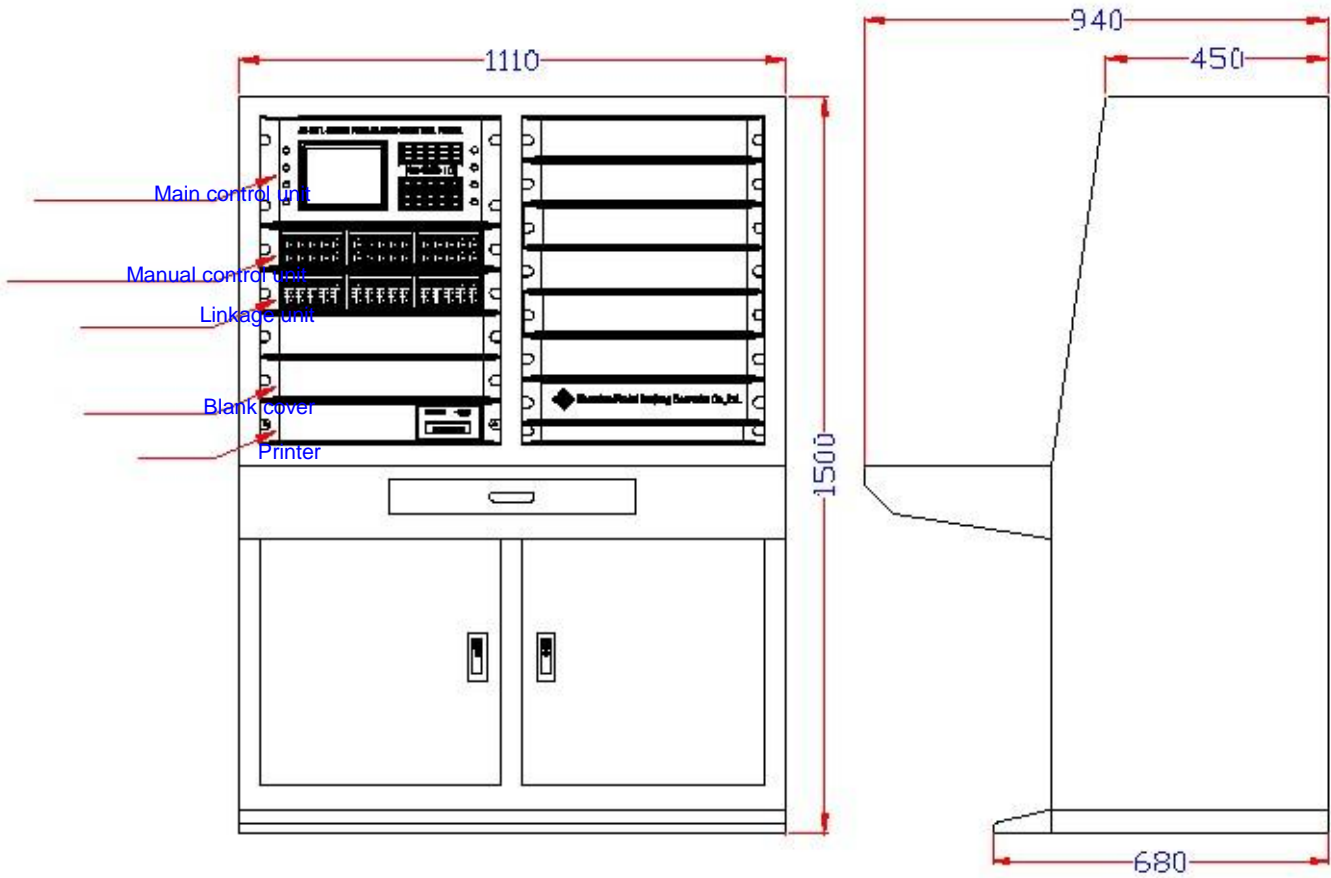
✧ Appearance and dimensions of CFT-QTL-9000

Main control unit

Manual control unit

Linkage unit

Blank cover

Printer

Fig.2-1 Qintai Dimensions

✧ Appearance and dimensions of CFT-QGL-9000

Host cover

Manual control unit

Linkage unit

Keyboard, mouse

Printer

Blank cover
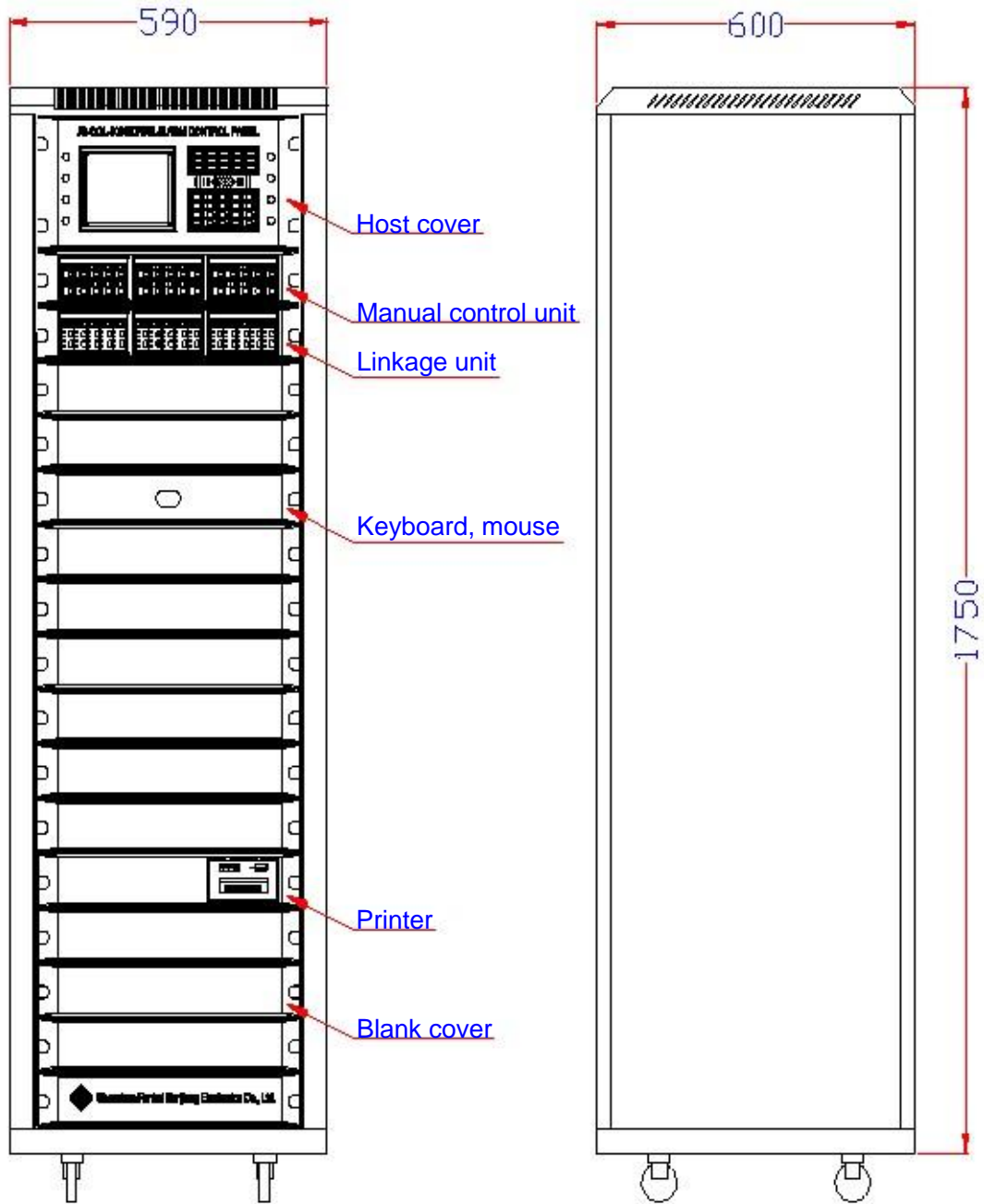
Fig.2-2 Cabinet Dimensions

ø6

ø9

Lashing eye
Scale3:1

500

60

640

ø6

Lashing eye
Scale3:1
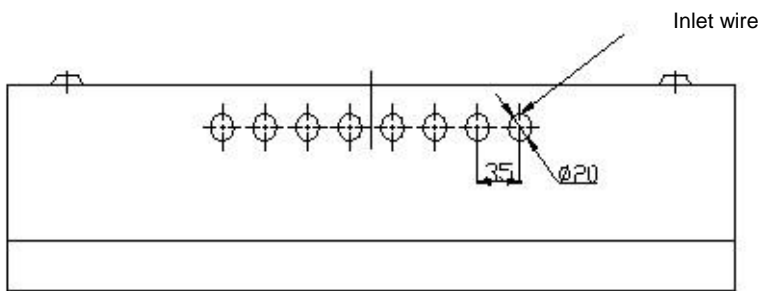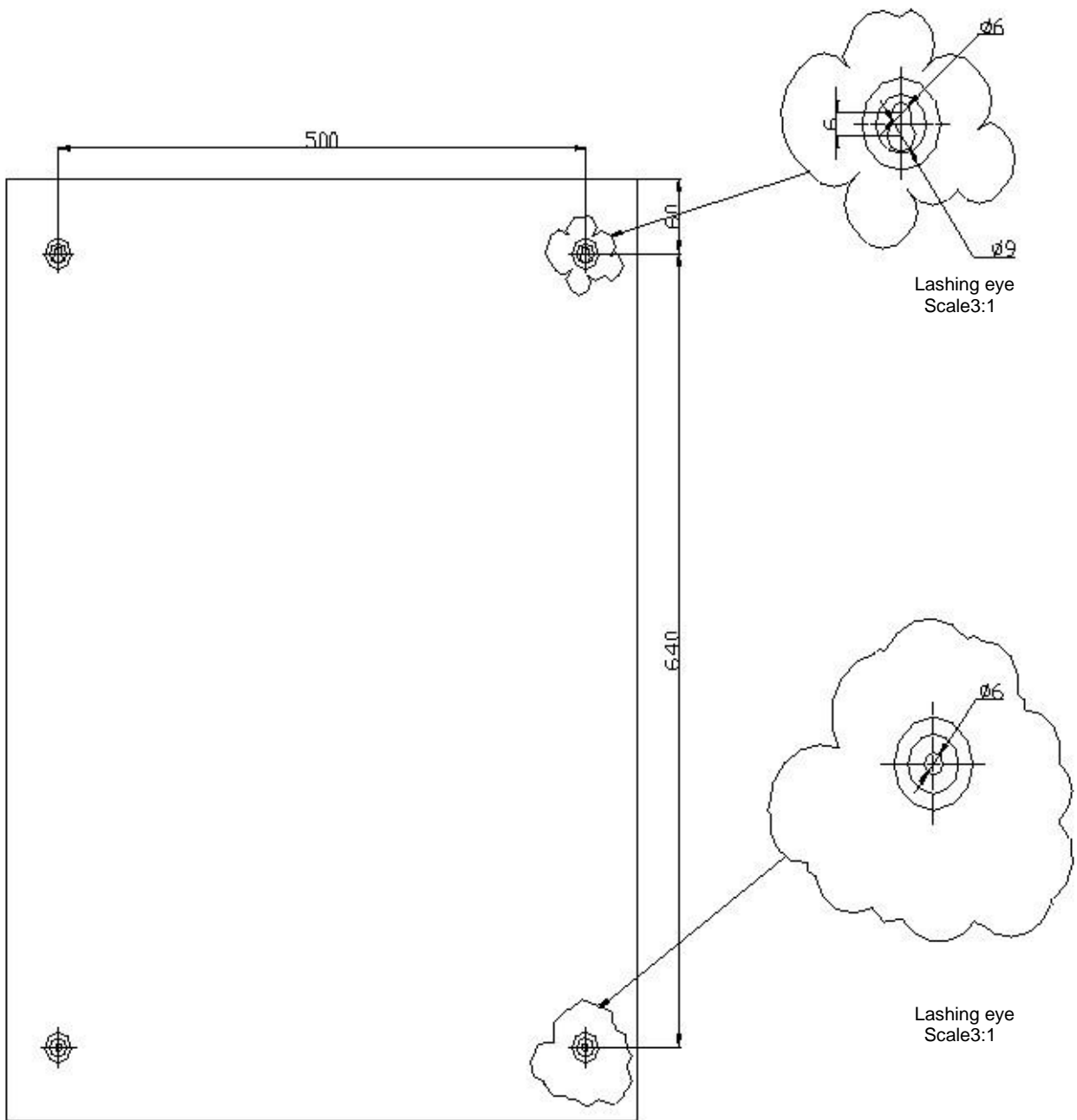
Inlet wire

35   ø20

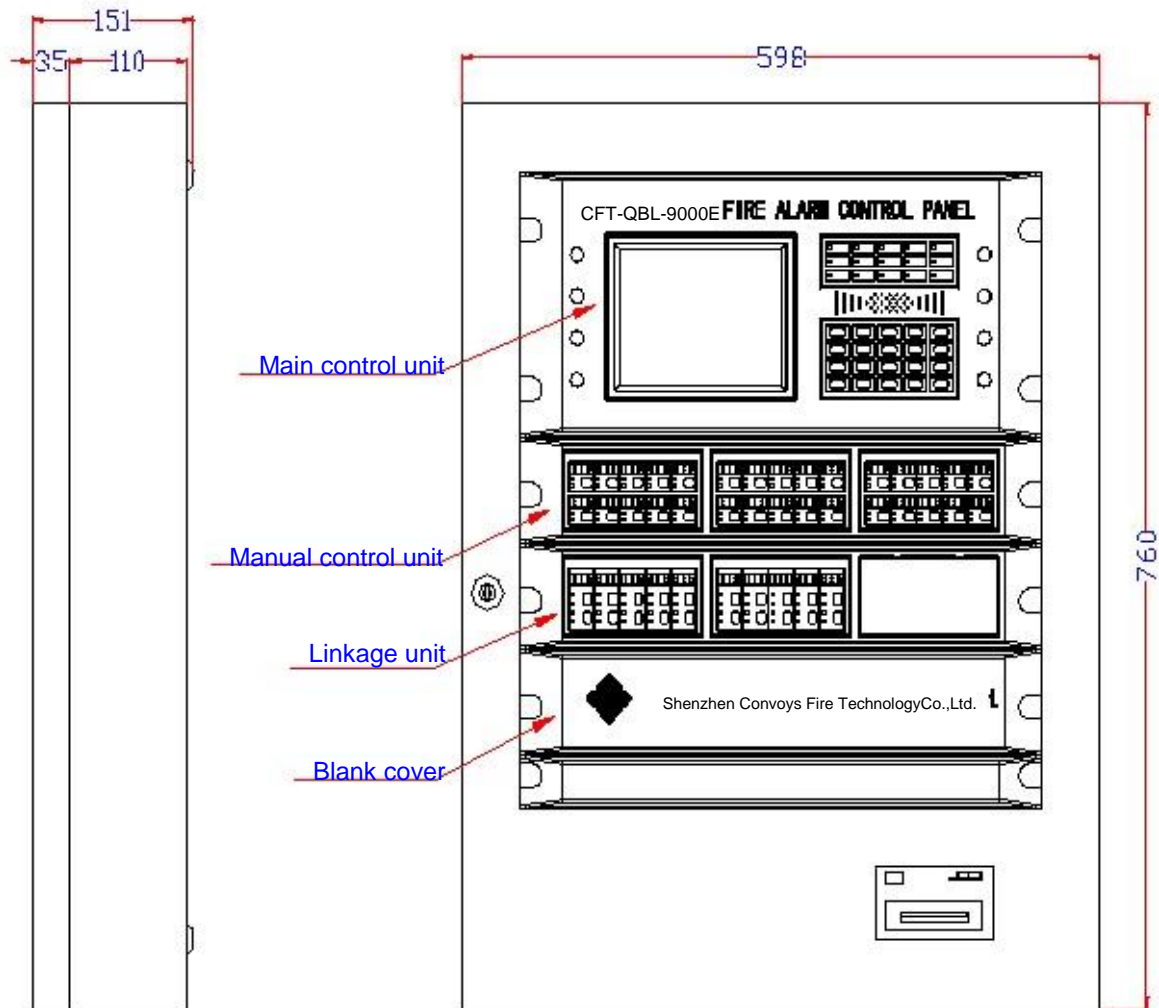Fig.2-3 CFT-QBL-9000 diagrammatic sketch

Fig.2-4 CFT-QBL-9000 Dimensions

2.2 System installation

2.2.1 Unpacking inspection

It is necessary before installation to inspect the on-site equipment. After unpacking the box, check the goods in it one by one according to the content of the packing list. The main content of the check should cover the Installation and Operation Manual, the protector tubes, the spare screws, the control panel key and so on. After checking the above, do necessary inspections for the appearance of the fire alarm control panel. If any non-conformities are discovered in the check or inspections, call our salespersons.

2.2.2 Engineering configuration inspection

Inspect whether the contents of the packing list of the control equipment complies with the engineering configurations and matches with the design drawings or not.

2.2.3 Inspection of the internal configurations and connection condition of the

fire alarm control panel

Do simple routine inspections for the internal configurations of the fire alarm control panel, such as the number of the interface boards, the number of the manual control panels, the power

supply connection condition, etc. Meanwhile, inspect whether or not the internal connecting lines of the equipment suffer falling or abnormalities due to transportation.

2.2.4 Power on self test

If no abnormalities are discovered in the inspections above, do a simple power on self test for the fire alarm control panel as instructed in 2.4.2 to check whether its power supplies and basic functions (such as keys, indication function and so on) are normal or not.

2.2.5 Inspection and connection of external equipment

Inspect the conditions of the buses in connection with the fire alarm control panel and measure the insulation resistances between the buses of different circuits and that between the buses and ground as well as the loads of the circuits. The insulation resistances should be larger than 20MΩ and the circuit resistances should be smaller than 40Ω.

Use debugging devices to inspect whether the conditions of the circuit equipment (including quantity, codes and operating conditions) comply with the design requirements or not, so as to eliminate the faults (if any) and prepare for system connection.

Access the external equipment or connecting lines of the system to the input terminals of the system controller. See the descriptions on the labels for the definitions of the terminals. The contact should be good and there should be neither short circuits nor open circuits during the test done with a multimeter.

Chapter three: System debugging and operation

3.1 System debugging

If no abnormalities are discovered in the careful inspections done following system connection, the system may be powered on for debugging. The main content of debugging includes the login and tests of detectors and modules, the settings of the bus manual control panels, the multi-line linkage control units, the linkage relations, etc.

3.2 Directions for system operation

3.2.1 Panel functions

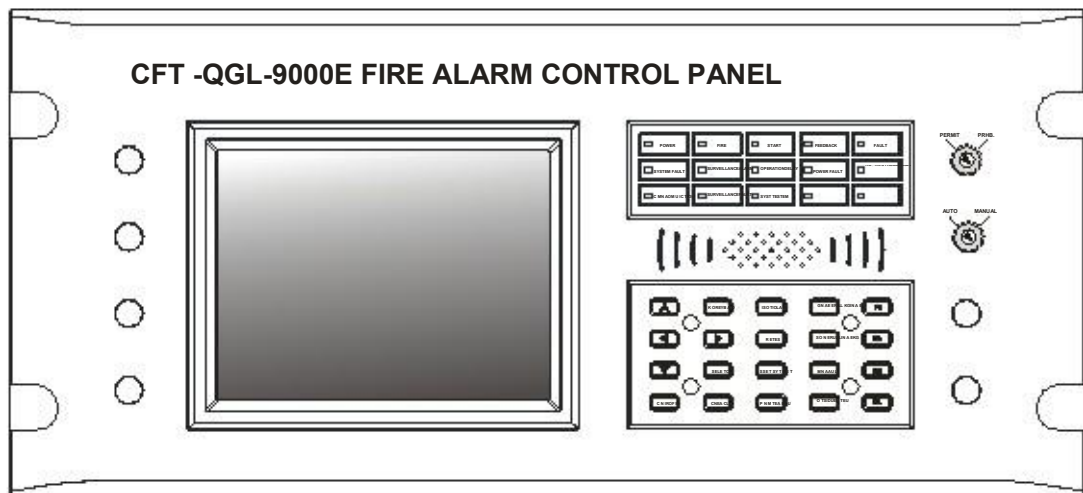The layout of the CFT-QGL-9000 panel is shown in the figure below.

Fig.3-1 Layout of the Panel

The panel design includes the basic functions regarding alarm query and control. Hereunder are detailed introductions to the figure above.
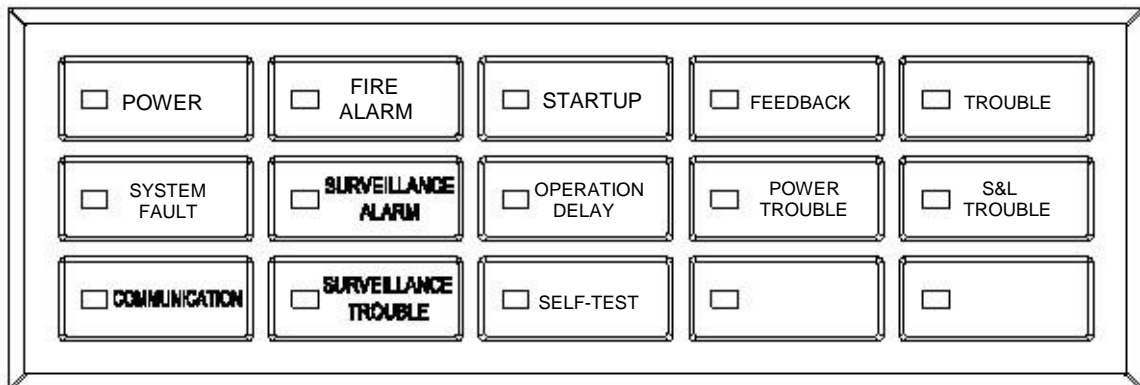
Indication function zone:

Fig.3-2 Indication Function Zone

No.	Silk screen printed	Color of the light	Function description
01	**POWER**	Green	It will be lit after the mainboard is normally powered on by the power supply source of the fire alarm control panel (or the emergency power supply

|			
			source). User's Tip: If it is lit, it does not suggest that all other components of the system other than the mainboard have been normally powered on, in other words, it will be lit as log as the mainboard is normally powered on.
02	**FIRE ALARM**	Red	It will be lit upon a fire alarm discovered in the system.
03	**STARTUP**	Red	It will be lit after the system sends a linkage request of a module.
04	**FEEDBACK**	Red	It will be lit after the system receives the linkage feedback of a module.
05	**TROUBLE**	Yellow	It will be lit after an alarm fault is discovered in the system (no matter which type the fault is).
06	**SYSTEM FAULT**	Yellow	It will be lit when the fire alarm control panel suffers a fault or the system is not running normally.
07	**SURVEILLANCE ALARM**	Red	It is currently meaningless as a reserved function.
08	**OPERATION DELAY**	Red	It will be lit when a fire alarm triggers a linkage; and it will go out when all the linkage delays have ended and all the linkages have been established.
09	**POWER TROUBLE**	Yellow	It will be lit when a power supply alarm of the fire alarm control panel is discovered in the system (no matter which type the power supply fault is). It is specially set against the possibility that power supply faults may make the entire system fail to operate normally.
10	**S&L TROUBLE**	Yellow	It will be lit when there is an audible and visual alarm fault or a sounder (alarm bell) fault in the system.
11	**COMMUNICATION**	Green	It will be lit when the fire alarm control panel has normal communication. Warm tip: Communication speed is fast, so this light is actually in a flashing state.
12	**SURVEILLANCE TROUBLE**	Yellow	It is currently meaningless as a reserved function.
13	**SELF-TEST**	Yellow	It will be lit when the fire alarm control panel is undergoing a self test or single-point test. It will go out automatically after the self test.

Key function zone:
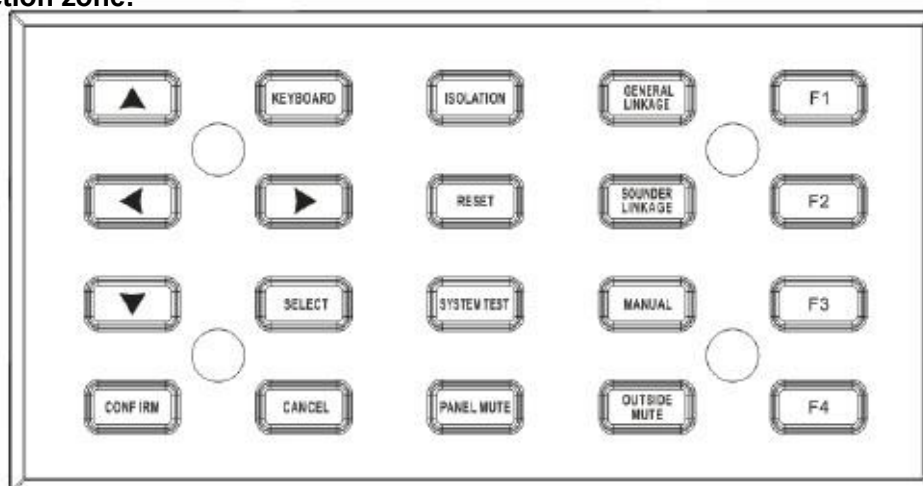
Fig.3-3 Key Function Zone

1) KEYBOARD function key (with a light)

When the system is powered on, the initial state is that the panel keyboard is closed and the KEYBOARD light is out. After the KEYBOARD key is pressed or the CTRL , ALT and DEL keys on the PS/2 keyboard are pressed at the same time, a password input box and a figure selection box (there will be no figure selection box if login is realized through the PS/2 keyboard) will pop up on the screen. At this time, user may log in the system after inputting the correct password (for details, see the instructions on user login). If the system receives the correct password, the panel keyboard will be opened and the KEYBOARD light will be lit at the same time. When the panel keyboard is opened, the system will close the keyboard and exit the login after the KEYBOARD key is pressed or the CTRL , ALT and DEL keys on the PS/2 keyboard are pressed at the same time.

User's Tip: If no operations are done on the system for about 10min when the panel keyboard is opened, the system will exit the login automatically and close the panel keyboard. All the function keys (all those introduced below) except for the LOCAL MUTE key can be operated when the panel keyboard is opened only.

2) INTEGRATION function key (with a light)

If the integration control is in the PRHB state, press the INTEGRATION key to switch it to the PERMIT state. During the process, the INTEGRATION light will be lit. If the IINTEGRATION key is pressed again, the integration control will be in the PRHB state again and the INTEGRATION light will go out at the same time. If multiple fire alarm control panels are networked and the INTEGRATION key on the No.1 fire alarm control panel in the network is pressed, the integration control states of all the fire alarm control panels will be changed at the same time; if the INTEGRATION key on any other fire alarm control panel is pressed, only the integration control state of the fire alarm control panel will be changed. The integration control state will be saved upon a power failure. In other words, if the system suffers a power failure and is then powered on again, the integration control state before the power failure will be restored.

User's Tip: Integration refers to the integration control except for the sounder. Sounder refers to a kind of linkage control of the system over the alarm bell, the audible and visual alarm and other alarm devices. These alarm devices are used extensively in projects and have independent muting operations. In order to simplify the settings for users, we list the integrations of this sort separately for independent operations.

3) SOUNDER function key (with a light)

If the sounder control is in the PRHB state, press the SOUNDER key to switch it to the PERMIT state. During the process, the PERMIT light near the SOUNDER key will be lit. If the SOUNDER key is pressed again, the sounder control will be in the PRHB state again and the PERMIT light will go out at the same time. If multiple fire alarm control panels are networked and the SOUNDER key on the No.1 fire alarm control panel in the network is pressed, the sounder control states of all the other fire alarm control panels will be changed at the same time to make them the same as that of the No.1 fire alarm control panel; if the SOUNDER key on any other fire alarm control panel is pressed, only the sounder control state of the fire alarm control panel will be changed. The sounder control state will be saved upon a power failure. In other words, if the system suffers a power failure and is then powered on again, the sounder control state before the power failure will be restored.

4) MANUAL function key (with a light)

If the MANUAL control of the system is in the PRHB state, press the MANUAL key to switch all the accessed manual control panels to the PERMIT state. During the process, the PERMIT light below the MANUAL key will be lit. If the MANUAL key is pressed again, the MANUAL control will be in the PRHB state again and the PERMIT light will go out at the same time. If multiple fire alarm control panels are networked and the MANUAL key on the No.1 fire alarm control panel in the network is pressed, the manual control states of all the other fire alarm control panels will be changed at the same time to make them the same as that of the No.1 fire alarm control panel; if

the MANUAL key on any other fire alarm control panel is pressed, only the manual control state of the fire alarm control panel will be changed. The manual control state will be saved upon a power failure. In other words, if the system suffers a power failure and is then powered on again, the manual control state before the power failure will be restored.

5) LOCAL MUTE function key

Pressing the LOCAL MUTE key can mute the alarm sounds given by the buzzer and fire display panel in the fire alarm control panel and the graphical display device in the fire control room. Upon a new alarm under the mute state, the buzzer and other audible alarm devices will be restarted. The LOCAL MUTE key is the only key not under the password protection in the system and it can be operated no matter whether the keyboard panel is opened or closed.

6) OUTSIDE MUTE function key (with a light)

Pressing the OUTSIDE MUTE key can mute the alarm sounds of external equipment (including the alarm bell and the audible and visual alarm). If there is a fire alarm, this key can disable or enable the alarm sounds of corresponding alarm devices. After this key is pressed, the alarm sounds will be muted and the OUTSIDE MUTE light will be lit. Upon a new fire alarm discovered in the system when the alarm bell or the audible and visual alarm is linked, the OUTSIDE MUTE light will go out and the alarm sounds of the corresponding alarm devices will be enabled again. This key can be operated after the user logs in the system only.

7) ISOLATION function key (with a light)

If the ISOLATION key is pressed, all the bus equipment (it may be any bus equipment in the networked system) currently under the alarm state (the fire alarm state, the feedback state or the fault state) will be isolated. If a piece of bus equipment is isolated, the system will not give any audible/visible alarms for the alarm information of the bus equipment. The fault information of the interface boards, the power supplies, the printer, the display panels and the communication of the fire alarm control panel should not be isolated. If any bus equipment in the system is isolated, the ISOLATION light will be lit.

User's Tip: Only the superuser is allowed to use this function. Isolation involves displayed information. The isolated bus equipment can run normally. Only a current alarm key will be available on the panel in this case. Isolation operations like ISOLATION QUERY and CANCEL ALL ISOLATIONS may be done through menu operations.

8) SELF-TEST function key

After the SELF-TEST key is pressed, the system will enter the self-test procedure: All the lights will be lit for a light inspection; the buzzer will try multiple sound modes (fire alarm, fault, feedback); and the screen will light the dot matrixes in order. After the self-test, the system will exit automatically. If the SELF-TEST key is pressed during the self-test, the system will exit the self-test state.

⚠ Caution: Under the self-test state, the system will not receive alarm signals.

9) RESET function key

After the RESET key is pressed, all the present alarms will be eliminated and the system will be restarted. The entire process needs about 30s to 60s. If multiple fire alarm control panels are networked and the RESET key on the No.1 fire alarm control panel in the network is pressed, all the networked fire alarm control panels will execute the reset operation; and if the RESET key on any other fire alarm control panel networked is pressed, only the fire alarm control panel will be reset.

⚠ Caution: If multiple fire alarm control panels are networked and the No.1 fire alarm control panel is the concentrator (the system's principal fire alarm control panel), then, when the RESET key, the ISOLATION key, the LOCAL MUTE key, the OUTSIDE MUTE key, the INTEGRATION key, the SOUNDER key or the MANUAL key on the concentrator is pressed, all the other zone fire alarm control panels networked (the

No.2 fire alarm control panel to the No.20 fire alarm control panel) will execute the corresponding operation; and if the said key on an zone fire alarm control panel is pressed, only the state of the zone fire alarm control panel will be changed. If the RESET key on the concentrator is pressed by an operator when an zone fire alarm control panel in the networked system is in the set state, the zone fire alarm control panel will immediately respond to the restoration command and the file is set by it at that time will lose the content updated this time, namely the data newly set after the last time saving will not be saved automatically. Therefore, when the networked system is debugged by several debugging personnel at the same time, it is necessary to disconnect the networking cables of the set fire alarm control panel temporarily before inputting mass data.

10) Selection and query of the content on the LCD

In this part, there are four keys, including ▲, SELECT, CONFIRM and ▼. The specific meanings of the four keys depend on the content currently displayed on the screen. The four keys mainly have two applications:

✧ **Query alarms:**	✧ **Input the password:**
▲ : Upward rolling	▲ : Move the cursor upward.
SELECT: Select the activity area (fire alarm request/feedback area, fault area).	SELECT: Select a figure.
CONFIRM: Confirm the activity area (fire alarm request/feedback area, fault area).	CONFIRM: Confirm the completion of password inputting.
▼ : Downward rolling	▼ : Move the cursor downward.

11) Reserved keys for reserved functions

Keys like F1, F2, F3, F4, ◄ and ► have no practical meanings at present and are reserved for future system expansion.

12) Functional key lock

⚠ Caution: The key lock functions are designed for multi-line linkage control units only.

"PERMIT/PRHB." key lock function: When the "PERMIT/PRHB." key lock is put on the PERMIT position, the system's multi-line linkage function will be enabled; and when it is put on the PRHB. position, the system's multi-line linkage function will be disabled.

"AUTO/MANUAL" key lock function: When the "AUTO/MANUAL" key lock is put on the AUTO position, the multi-line linkage control units will run automatically and priority will be given to the manual mode. In case a piece of fire alarm information discovered in the system, the corresponding multi-line linkage control unit will run automatically. When it is put on the MANUAL position, the multi-line linkage control units can only be started manually. At this time, the system can give alarms only and the multi-line linkage control units will fail to run automatically.

PERMIT   PRHB.

AUTO   MANUAL

PERMIT
PRHB.

AUTO

MANUAL

Chapter six: Functions of manual control panel

The system may be externally connected with multiple manual control panels to serve as direct manual control equipment for users. Each bus manual control panel (2U panel) contains 30 manual control buttons for the control over 30 bus modules. Each of the manual control buttons has two lights (a REQ. light and a FEEDBACK light) to indicate the state of the module controlled by it.

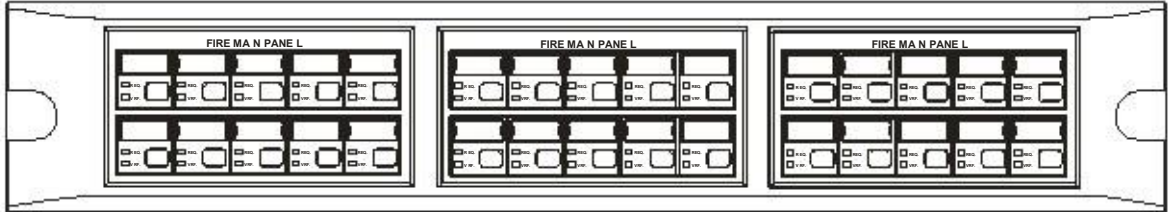Hereunder is an outside view of a manual control panel.

Fig.6-1 Manual Control Panel

Each manual control button needs to occupy a module address, so each manual control panel needs to occupy 30 continuous bus module addresses. The quantity of the manual control panels that may be accessed to a fire alarm control panel depends on the quantity of the interface boards. There are 11 initial positions of the 30 module addresses for selection: 1, 31, 61, 91, 121, 151, 181, 211, 241, 271 and 301. The specific address settings may be determined by four jumpers JP1, JP2, JP3 and JP4 on the circuit board. When the jumpers jump to the upper end, it is "1" (HIGH); when they jump to the lower end, it is "0" (LOW). The corresponding addresses are given as follows.
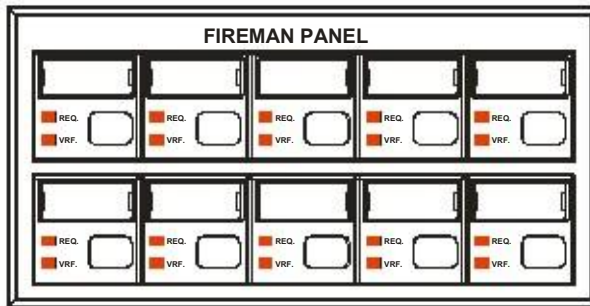

Fig.6-2 Detailed Outside View (10 Points)

User's Tip:

Each 30 manual control panels are designed to be a group. During configuration, the manual control panels should be increased by the integral multiples of 30.

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	211-241
1	0	0	0	241-27
1	0	0	1	271-301
1	0	1	0	301-32
1	0	1	1	
1	1	×	×	

Fig.6-3 Address Coding

The functions of the manual control panels of the system are not introduced here in details. For more information about the functions, please refer to the instruction manual of the multi-line linkage control units (ZX900-10A) of our company.

Chapter seven: Functions of multi-line linkage control unit

The system may be accessed to multiple multi-line linkage control units produced by our company. Each group of multi-line linkage control unit groups includes five multi-line control points. Each multi-line control point includes the following parts.

- REQ. button
- UNSET button
- REQ. light
- VRF. light
- NOR. light
- TRB. light

In the figure below, the three groups of multi-line linkage control units installed on the housing have 15 multi-line control points in all.
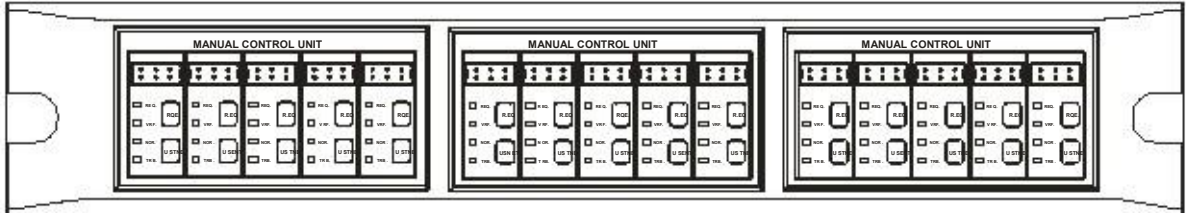
Fig.7-1 Multi-line Linkage Control Unit

The quantity of the multi-line control points that may be accessed depends on the quantity of the interface boards. Each group of multi-line linkage control units occupies five bus addresses. Each multi-line terminal board may be connected with five multi-line output circuits.
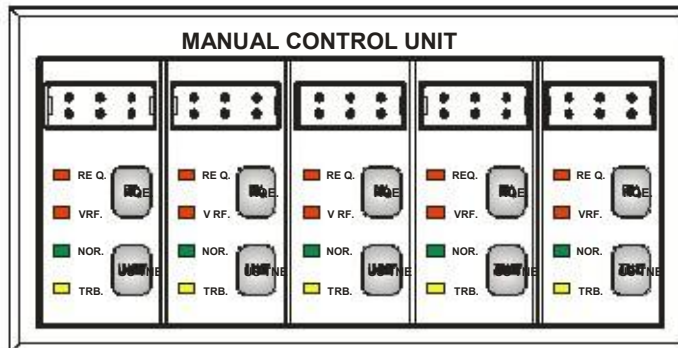
Fig.7-2 Outside View of Each Group of Multi-line Linkage Control Units (5 Points)
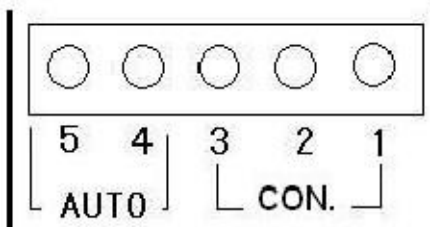
Fig.7-3 Wiring Method (One Circuit)

Each 5 multi-line linkage control unit is designed to be a group. Duringconfiguration,the

multi-line linkage control units should be increased by the integral multiples of 5 according to the actual need.

$CODE1 = address *5+1$

$CODE5 = CODE1 + 4$

Fig.7-4 Address Coding

The functions of the multi-line linkage control units of the system are not introduced here in details. For more information about the functions, please refer to the instruction manual of the multi-line linkage control units (DX900-05A) of our company.

Chapter eight: Cause analysis and troubleshooting of faults

2Fault phenomenon: After the system reports a fire alarm, the corresponding alarm bell and audible and visual alarm fail to act.

Possible causes and troubleshooting methods:

a. Check whether the SOUNDER light on the panel is lit or not;

b. Check whether there is any fault information about the alarm bell or audible and visual alarm or not;

c. Check whether the alarm bell or audible and visual alarm has a 24V power supply or not;

d. Check whether the type of the control module of the alarm bell is set to be sounder or audible and visual alarm or not; or

e. Check whether there is a sounder or audible and visual alarm output in the linkage setup or not.

2Fault phenomenon: After the system reports a fire alarm, the equipment executes no requests.

Possible causes and troubleshooting methods:

a. Check whether the INTEGRATION light on the panel is lit or not; or

b. Check whether there are linkage setting data in the linkage setup or not, or whether the Register option in the linkage data is selected or not.

2Fault phenomenon: After the system reports a fire alarm, the multi-line linkage control units on the fire alarm control panel fail to execute a linkage request or fail to act.

Conditions for the automatic start of the multi-line linkage control units:

a. The PRHB/PERMIT lock-control switch is in the PERMIT state;

b. The AUTO/MANUAL lock-control switch is in the AUTO state;

c. The INTEGRATION light is lit; and

d. Check whether there are linkage setting data in the linkage setup or not, or whether the Register option in the linkage data is selected or not.

After the system reports a fire alarm, linkage may be realized after three of the conditions above are met at the same time only.

Generally speaking, the multi-line linkage control units on the fire alarm control panel are important fire protection equipment for control. In order to avoid wrong operations, they are generally designed with multiple protection measures. In addition to the control of the INTEGRATION switch, automatic linkage is also under the control of the PRHB/PERMIT lock-control switch and AUTO/MANUAL lock-control switch on the fire alarm control panel. In the PERMIT state, no operations can start the multi-line modules. The multi-line modules can respond to the action requests of the fire alarm control panel in the PERMIT and AUTO states only. Both in the AUTO and MANUAL states, the multi-line linkage control units can be started and stopped manually.

2Fault phenomenon: After the system reports a fire alarm, the on-site equipment executes a request, but it fail to act.

The feedback signals of the on-site equipment need to be returned by control and monitoring modules. The possible causes of the fault include:

a. The on-site equipment is not in the auto state and therefore fails to start under module control;

b. The on-site equipment has started, but its feedback signal wire has fallen off; or

c. The on-site equipment is not connected with a proper power supply.

2Fault phenomenon: The fire alarm control panel reports an AC fault and a DC fault.

处理方法及可能的原因有：

Possible causes and troubleshooting methods:

a. Check whether the power feedback cable of the fire alarm control panel is correctly connected or not;

b. Check whether the power feedback type in the Power Setup menu of the fire alarm control panel complies with the actually used power supplies or not; or

c. There is an AC FAULT and a DC LACK fault.

Fault phenomenon: Upon alarms, the printer prints unreadable codes.

The fire alarm control panels of 9000 series may be set with multiple printer types and their communication parameters. The possible causes of the fault include:

a. The set printer type does not comply with the printer provided. For example, if the printer type if set to be "SPRT-01 printer", it means that it is a stylus printer; and if the printer type is set to be "SPRT-02 printer", it means that it is a thermal printer.

b. The communication rate of the printer is improperly set. Generally speaking, the factory default of the communication rate of a stylus printer is 2400BPS and that of a thermal printer is 9600BPS. The communication rate of the printer may be obtained through a self test of the printer. The detailed operating method is: Press the left key to make the power light of the printer go out and then the right key and the left key in order to make the printer undergo a self test. Among the results printed following the self test, there is the current communication rate of the printer.

Fault phenomenon: When two or more fire alarm control panels are networked, the No.2 fire alarm control panel can receive the alarm information sent from the No.1 fire alarm control panel, but the No.1 fire alarm control panel fails to receive the alarm information sent from the No.2 fire alarm control panel.

The fire alarm control panels of 9000 series adopt the non-master-slave networking mode, namely there is neither master fire alarm control panel nor slave fire alarm control panel(s) in the networked system. Only after another fire alarm control panel has its number registered can the alarm information of the current fire alarm control panel be sent to it through a networking transmission line. The No.2 fire alarm control panel can receive the alarm information sent from the No.1 fire alarm control panel. which means that the corresponding networking transmission line is smooth and that the No.1 fire alarm control panel is registered in the networking setup; the No.1 fire alarm control panel fails to receive the alarm information sent from the No.2 fire alarm control panel, which only means that the No.1 fire alarm control panel is not registered in the No.2 fire alarm control panel.

Fault phenomenon: During the networking of the fire alarm control panels, the communication distance is not far and the communication rate is not high, but the quantity of the data packages received during the bus quality inspection is much less than the quantity of the data packages sent and the networking is abnormal.

During the networking of the fire alarm control panels of 9000 series, the present advanced CAN BUS protocol is used. It is specified by the CAN BUS protocol that the networked fire alarm control panels should be subject to a serial connection rather than a star connection, there must be a 120 Ω terminal resistance at the two ends of the networked system respectively and there must not be too many terminal resistances between the two ends in a bid to ensure a quick and reliable communication for the networking buses.

Fault phenomenon: A fire alarm control panel reports a short or open circuit fault of the XX circuit of interface board XX.

Upon a short circuit fault of a circuit of an interface board of a fire alarm control panel of 9000 series, the system will report "Short circuit fault of the XX circuit of interface board XX" automatically. There are four lights on each interface board. In the normal circumstance, the

green light that is a power light and the red light that is a CAN communication light will remain lit and flash respectively. The other two yellow lights are respectively the short or open circuit lights for the No.1 circuit and the No.2 circuit. There are two circumstances of open circuit: Complete open circuit or partial open circuit. If there are more than 20 loss faults in a single circuit, it will be regarded as a partial open circuit.

Chapter nine: Appendixes
Appendix 1: List of Equipment Types
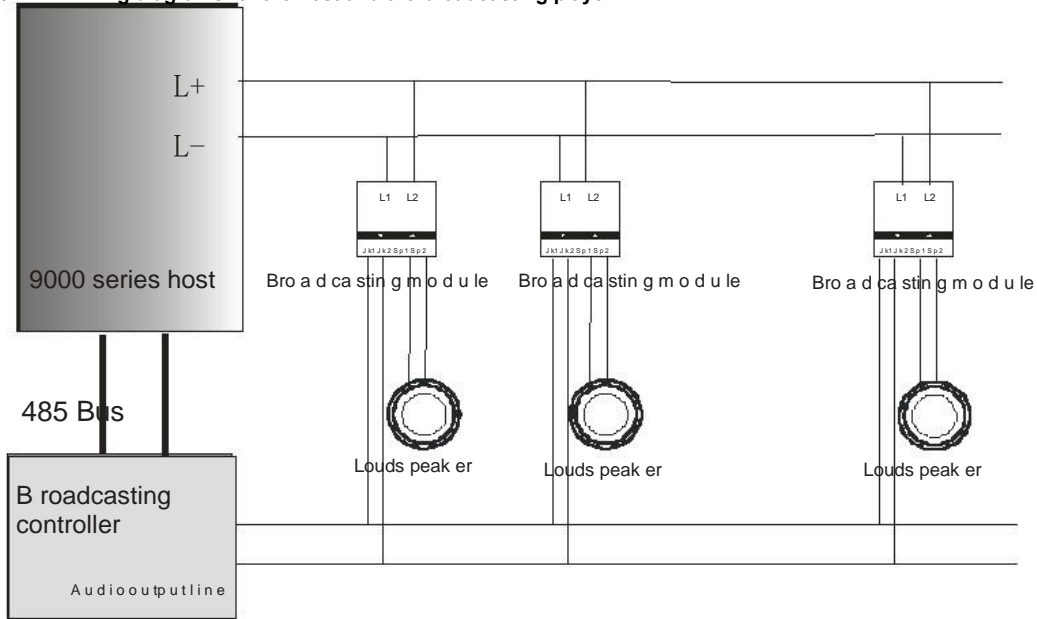### Types of alarm equipment:

1. Ion smoke detector
2. Photoelectric smoke detector
3. Heat detector
4. Infrared detector
5. Composite detector
6. Interface ion detector
7. Interface photoelectric detector
8. Interface heat detector
9. Interface infrared detector
10. Interface composite detector
11. Manual button
12. Temperature sending cable
13. Pressure switch
14. Fire hydrant button
15. Water flow indicator
16. Gas alarm

Types of feedback equipment:

1. Gas spraying
2. Gas fault
3. Gas weightlessness
4. Electromagnetic valve
5. Signal gate valve
6. Wet alarm valve
7. Smoke exhaust valve
8. Smoke exhaust fan
9. Positive pressure air valve
10. Positive pressure fan
11. Blow valve
12. Air blower
13. Fire damper
14. Fire door
15. Deluge valve
17. Spray pump
18. Stabilizing pump
19. Fire pump
20. Foam pump
21. Water curtain pump
22. Municipal electricity cut-off
23. Elevator forced landing
24. Curtain semi-drop
25. Curtain full-stop
26. Air conditioner
27. Radio
28. Sounder
29. Dry power fire distinguisher
30. Emergency lighting
31. Evacuation light
32. BACK
33. Audible and visual alarm
35. Visual Alarm
36. Manual control button

Appendix 2: **Wiring diagrams for the host and the broadcasting player**

Wiring diagram for Hover Broadcasting controller

9 0 0 0 host

4 8 5interface

Note: the 485 interface of Hover host adopts a 10-pin one, of which Pin 7 corresponds to 485A and Pin 8 corresponds to 485B respectively

485 Bus

485 bus hub

Fault input

— — 1 2 3 4 5 6

Input Output 1 2 3 4 5 6

Broadc asting c ontroller

Remot e
B ackup Self control
power inspection
Public failure

Circ uit 1

Circ uit 2

Output

DC2 4

+ — ≡

Broadc asting module

Jk1
Jk2

120V

output Self inspect ion broadcast ing input

Emergency broadcast ing input

F ault output

+ — + — + —

Audio input

A udio output

Backup power
~22 0 V

Main power
~22 0 V

N L N L

A mplifier

220Vexternal power supply

-23 -

1

Wiring diagram for Hengye Broadcasting controller

CD player

Audio output | tronic

Internal External External Elec CJD

recorder output c ontrol lineLine 1 Line 2

Line Line Line Casing

Remote output Ground

Power 2 4V control

Audio L in e

Amplifier failure input

Broadcasting c ontroller

1 | 2

Constant vol tage input 1 | Constant vol tage output 1 | Constant vol tage i nput 2 | Constant voltage output 2

C A N interface

CAN — CAN –HL

RS485 口接

A | B

Line C output

GND | 24

E

Power input (D C2 4V)

C asca de Inp ut | C a scad e ou tpu t | R S 4 8 5 s h ubbu

Broadcas ting module

Jk1
Jk2

9000 Host

485bus

485 in te rfa ce

Amplifier

Cascade Casc ade input output

A udio input

Cons tant voltage output 120 V

Rem ote contr ol

Fault

AC 220V ~

standby power supply

A c220 V˜ normal

L | N | E

L | N | E