



GST-IFP2E

Intelligent Fire Alarm Control Panel



Installation and Operation Manual

Issue 1.02

ERP: 30313610

CONTENTS

Installation Precautions	1
Preface EN 54 Information	2
1 Product Introduction	3
1.1 Standard Features	4
1.2 System Limitations	5
1.3 Basic Components	5
1.4 Optional Components	6
1.4.1 LC-200E Single Loop Card	6
1.4.2 P-9967EA CAN Network Card.....	6
1.4.3 P-9981E Zone Display Panel	6
1.4.4 P-9982E Zone Display and Control Panel	6
1.4.5 PR-200 Thermal Printer	6
1.4.6 P-9984EA Fiber Network Card	6
1.4.7 P-9957E Modbus Card	6
1.4.8 P-9957E-RP Repeater Card.....	7
1.5 Peripheral Devices	7
1.6 Accessories	7
1.7 Defining Tool.....	7
1.8 Update Tool	7
2 Installation.....	8
2.1 Component Inspection	8
2.2 Install the Cabinet	8
2.2.1 Install the cabinet of panel.....	8
2.3 Install Components	10
2.3.1 Battery Power	10
2.3.2 Installing Circuit Modules	11
2.3.3 Installing Zone Display and Control Panel	12
2.3.4 Installing Thermal Printer	12
2.3.5 Installation of Front Panel to FACP Door	12
2.3.6 Installation of Labels on the Zone Display and Control Panel (ZCP)	14
2.4 Start-up Check	15
2.5 External Connection.....	16
2.5.1 AC Power Connection	16
2.5.2 Battery Connection	16
2.5.3 Signaling Line Circuits (SLC) Connection.....	17
2.5.4 Alarm Output(NAC).....	18
2.5.5 Sounder Output/ AUX.....	18
2.5.6 Relays (For Common Use).....	18
2.5.7 INPUT	19
2.5.8 CAN Network Connection	19

2.5.9 Fiber Optical Class A Network Connection	19
2.5.10 Hybrid Network Connection.....	20
2.5.11 Modbus Card Connection.....	20
2.5.12 Repeater Card Connection.....	20
2.5.13 Power-limited Wiring Requirements.....	21
2.6 Connection Inspection.....	21
2.7 Setup FACP and Define Devices	22
2.8 Field Device Commission.....	22
3 Indication & Control	23
3.1 LED Indicators.....	23
3.2 Functional Keys.....	25
3.3 Service / Program Keys:	26
3.4 User Interface.....	26
4 Operations	29
4.1 Programming on FACP	29
4.1.1 Basic Settings.....	29
4.1.2 Program.....	36
4.1.3 Advanced Settings.....	45
4.2 Programming FACP Through GST-DEF 4.1 Defining Software	47
4.2.1 Auto Registration to Generate Configuration	47
4.2.2 Download through Ethernet interface.....	49
4.3 User Setup	50
4.3.1 Soft Keyboard Setting	50
4.3.2 Display Setup	50
4.3.3 Test/Delay Setup	51
4.3.4 Date/Time Setup.....	52
4.3.5 Print Setup.....	52
4.3.6 Day/Night Mode.....	53
4.3.7 Language Setup	54
4.3.8 Project Information	54
4.3.9 Email Setup	55
4.4 Forget Password	55
4.5 GMC Connection.....	56
5 Equipment Operation and Information Browsing	57
5.1 Equipment Operation	57
5.2 Devices Information Browsing	61
5.3 Record Browsing.....	62
6 Operating Instructions	63
6.1 Panel Control Keys	63
6.1.1 ACKNOWLEDGE (User password)	63

6.1.2 <i>SILENCE ALARM</i> (User password)	63
6.1.3 <i>MANUAL ALARM</i> (User password)	63
6.1.4 <i>RESET</i> (User password)	63
6.2 Pre-alarm.....	64
6.2.1 <i>Type-A Warning</i>	64
6.2.2 <i>Type-B Warning</i>	64
7 Default Setting	65
8 Maintenance	65
8.1 Replacing the Battery.....	65
8.2 Replace of Fuse	65
Appendix A Basic System Connection	66
Appendix B Electrical Specifications	67
B.1 Electrical Specifications.....	67
B.1.1 AC Power	67
B.1.2 Battery	67
B.1.3 Signaling Line Circuit (SLC).....	67
B.1.4 Alarm/Sounder Circuit (OUTPUTs).....	68
B.1.5 Auxiliary Power (SOUNDER OUTPUT/AUX programmed as AUX)	68
B.1.6 Relays	68
B.1.7 Input	69
B.1.8 CAN Network	69
B.1.9 Fiber-Optical Network	69
B.2.0 Modbus Communication – for supplementary use only	69
B.2.1 Repeater Communication	69
B.2 Typical Configuration of SLCs	70
Appendix C Compatible Devices	71
C.1 Series Addressable Detectors	71
C.1.1 Smoke Detectors (Photoelectric).....	71
C.1.2 Heat Detectors	71
C.1.3 Intelligent Combination Heat Photoelectric Smoke Detector	71
C.1.4 Intelligent Reflective Beam Detector	71
C.2 Manual Pull Stations.....	72
C.3 Loop Isolators	72
C.4 Control Modules	72
C.5 Horns / Strobes Module.....	72
Appendix D Battery Calculations.....	74
Appendix E Operating Instructions	77
Appendix F Devices type list.....	78
9 Limited Warranty	81
10 Product Warnings and Disclaimers.....	81



Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

- ✧ Do not attempt to install, service, or operate this unit until this manual is read and understood.
- ✧ This equipment must be installed in accordance with these instructions and the appropriate national, regional and local regulations specific to the country and location of the installation. Consult with the appropriate Authority Having Jurisdiction (AHJ) for confirmation of the requirements.
- ✧ GST-IFP2E Fire Alarm Control Panel (FACP) shall only be installed and serviced by trained specialist.
- ✧ Disconnect all sources of power before servicing. The control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized.
- ✧ Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, and printed circuit board location.

Preface EN 54 Information

- EN 54** ✓ ✧ GST-IFP2E Intelligent Fire Alarm Control Panel (FACP) complies with the requirements of EN 54-2: 1997 +A1:2006 and EN 54-4: 1997 +A1:2002 + A2:2006. In addition to the basic requirements of these standards, the panel conforms to the following optional requirements.

Option		EN 54-2 Clause
Indication	Alarm counter	7.13
	Fault signals from points	8.3
Control	Delays to outputs	7.11
	Dependencies on more than one alarm signal	7.12.1 7.12.2
	Disablement of addressable points	9.5
Outputs	Output to fire alarm devices	7.8
	Output to fire protection equipment	7.10.1
Test	Test condition	10

- EN 54** ✓ ✧ The power supply of GST-IFP2E FACP complies with EN 54-4 requirements.

	EN 54-4 Clause
Power supply from the main power source	5.1
Power supply from the standby power source (battery)	5.2
Charger	5.3
Faults	5.4

- EN 54** N/A ✧ In addition to functions required by EN54-2, the panel supports a number of ancillary functions that are not required. These are outlined below:

Ancillary Function	Manual Section
Thermal Printer	1.4.5
USB	1.4.8
GST-IFPx-Def Defining Tool	1.7

1 Product Introduction

GST-IFP2E, as an intelligent fire alarm control panel, is designed to fit small size projects, supporting maximum 2 loops or 484 devices. featured by powerful CPU and touchscreen, embedded Linux OS and a user-friendly interface. They are designed for making installation, operation and maintenance much easier than ever.

Its high performing components that construct the fast, stable, and robust system. ARM926 CPU integrated with 128MB DDR2 RAM, ensures high-speed data processing requiring low power consumption. And 256MB Nand Flash delivers fast data read and write. Both designs are to make sure the GST-IFP2E system can identify and respond fire in a minimized cycle time.

7-inch capacitive touchscreen. That explains itself. Playing with it is as simple as playing with your iPad. And the icons are very intuitive to prompt you where to find the event records, to search devices, to access the shortcuts of frequently used operations, to enter user settings and system settings, and to look for help.

GST-IFP2E's graphic cause & effect programming will make your life easier. You simply drag and drop the device icons in the diagram, and define their properties, and then select the logical relationships between inputs, which represent causes, and outputs, which represent effects. Now the cause & effect programming is done

GST-IFP2E is designed with redundancies to ensure stable functions like alarming and cause& Effect actioning.. If, unfortunately, mainboards fail, and in worse case, fire is detected at this time, the loop card which manages the alarm device that detected the fire can also light the panel FIRE indicator, trigger the buzzer and all sounders in this particular fire alarming zone.

Dongle can secure data. Once data is secured, the panel will not allow any modification to definition data via keypad or touch screen. if someone needs to access the panel data from definition software on PC, the dongle will be checked to make sure information is matching to enable the connection between the panel and the PC.

Variety of networking modes are supported by GST-IFP2E, including CAN bus, optical-fiber , to address diverse project needs, the CAN networking. Maximum 250 panels with maximum 3 kilometers distance between panel nodes are supported. Optical fiber connection is normally selected for those large or critical projects that need long distance, anti-interference or highly secured data transmission.

Inventory

The FACP is delivered with all components installed. When the shipment is received, check to make certain that all accessories have been included:

- ✧ Cabinet key
- ✧ Manual

1.1 Standard Features

The FACP provides the following:

- ✧ Advanced Protocol mode with 1~2 loops which meets Class A requirements.
- ✧ 242 addressable devices (include sensors, modules and manual call points) per loop.
- ✧ Maximum 484 zones can be indicated, and maximum 60 zones can be indicated using LED. Can be configured to indicate additional 580 zones (not approved). The rest of the zones will be indicated on the LCD.
- ✧ One Alarm Output and one programmable Sounder/AUX Output. They are Power Limited and share total max 1A current.
- ✧ Built-in two fixed relays: Alarm and Fault.
- ✧ Built-in one programmable relay which can be set as Alarm, Supervisory, Fault, Mains Fault, Isolate, Silence Alarm, Reset function.
- ✧ Battery charger supports up to 21 amp hour sealed lead-acid batteries
- ✧ Ethernet interface for GMC communication system.
- ✧ EIA-485 communication interface for passive and mimic repeaters=
- ✧ LCD display unit of 800×480,7.0 inch color TFT LCD.
- ✧ Capacitive Touch screen.
- ✧ History file with 10,000 alarm events, 10,000 supervisory events and 100,000-other events capacity.
- ✧ Advanced history filters allow sorting by event, time, date, address etc.
- ✧ Up to 1000 powerful Cause & Effect Equations.
- ✧ Network operation.
- ✧ Ground fault detection.
- ✧ Password and key-protected nonvolatile memory.
- ✧ User programmable password.
- ✧ Field-programmable on panel, or by external computer with GST-DEF 4.1 Defining Software and connected via Ethernet on GST-IFP2E Main Board, or by using a USB drive via USB port on GST-IFP2E Main Board
- ✧ The list of components is shown in the table below:

Model	Description
PSB-20E	GST-IFP2E Power Switch Board
PIB-20E	GST-IFP2E Power Interface Board
IB-20E	GST-IFP2E Indicator Board
MB-20E	GST-IFP2E Main Board
PS-200E	AC-DC Power Supply PDF-150-27.5

SC-400	LCD Screen
BZ-400	Buzzer

Optional modular units are shown in the table below:

Model	Description
LC-200E	Single Loop Card
P-9984EA	Fiber Network Card
P-9957E	Modbus Card
P-9957E-RP	Repeater Card
P-9967EA	CAN Network Card
P-9981E	Zone Display Panel
P-9981FE	Zone Display Panel
P-9982E	Zone Display and Control Panel
P-9982FE	Zone Display and Control Panel
PR-200	Thermal Printer for GST-IFP2E

1.2 System Limitations

System expansion must take into consideration the following:

- ✧ The physical limitations of the cabinet configuration.
- ✧ The electrical limitations of the system power supply.
- ✧ The capacity of the secondary power source (standby batteries).

1.3 Basic Components

A basic FACP requires at least the following components:

- ✧ **A AC-DC PDF-150-27.5 Main Power Supply**

Supply power to the whole panel and connected devices. Monitor the status of AC power, battery and charger, switch power between AC power and battery.

- ✧ **A Battery**

The FACP uses only sealed lead-acid batteries that must meet the requirements of annex M of EN 62368-1 for standby power. Maximum battery capacity is 21Ah (ampere-hour). Minimum battery capacity depends upon your system configuration;

- ✧ **A Display and Keypad Module**

This module is the heart of the FACP that includes LCD, Touch screen, main board, LED, indicator board. It provides information in graphic and word, and customers can operate the panel using real keys and touch screen.

- ✧ **A Power Interface Board**

This board is the base of the FACP. It can control the power supply of the panel and communicate with loop devices

✧ **An Enclosure with door**

The enclosure can conclude a power supply, a power Interface board, three optional card and two batteries of 12V/21Ah. A display and keypad module and 3 ZCPs can be installed on the door.

1.4 Optional Components

1.4.1 LC-200E Single Loop Card

Single Loop Card has one completely Class A SLC compatible with Digital Protocol Bus. The loop can connect maximum 242 devices. Users can add up this card to extend loop if necessary.

1.4.2 P-9967EA CAN Network Card

The network card is essential accessory for the FACP to be networked. Some separate FACPs can form a fire alarm network through the card. Each panel supports Max one network cards. Please refer to Section 2.5.9 for wiring and setting information.

1.4.3 P-9981E Zone Display Panel

Zone Display Panel is used to indicate a related zone, or device states of fire, fault and isolation. Each zone display panel can show 20 zones or devices, and every 2 indicators for one zone or device. The user can write or print descriptions on a label for a zone, and then put the label into the transparent box of the zone display panel.

1.4.4 P-9982E Zone Display and Control Panel

Zone Display and Control Panel is used to indicate a related zone, or device states of fire, fault and isolation. It can also be used to disable, enable, start and stop the related devices. Each zone display panel can show 20 zones or devices, and every 2 indicators and 1 key for one zone or device. The user can write or print descriptions on a label for a zone, and then put the label into the transparent box of ZCP.

1.4.5 PR-200 Thermal Printer

PR-200 Thermal Printer is optional. It can be directly connected to the FACP through RS232. This printer, with its panel embedded, can be installed on the front panel of the FACP. It can print running record of the FACP. It's easy to operate and convenient for checking.

1.4.6 P-9984EA Fiber Network Card

P-9984EA card is optional for GST-IFP2E control panel, providing two LC single-mode fiber interfaces. This card provides the same function as P-9966EA CAN Class A network card. Transmission distance is longer when this card is used to network control panels.

1.4.7 P-9957E Modbus Card

P-9957E Modbus Card is optional for supplementary use in GST-IFP2E control panel, providing standard Modbus interface for temporarily transmitting messages between the third party devices and the control panel. P-9957E Modbus Card only has the type of

RS485.

1.4.8 P-9957E-RP Repeater Card

P-9957E-RP Repeater Card is optional for supplementary use in GST-IFP2E control panel. Providing RS485 interface for connection to GST852RP.

1.5 Peripheral Devices

FACP is compatible with a series of addressable GST products, which are intelligent sounder strobe complying with EN 54-3, heat detector complying with EN 54-5, photoelectric smoke detector complying with EN 54-7, intelligent manual call point complying with EN 54-11, intelligent reflective beam detector complying with EN 54-12, input and output module complying with EN 54-18, and loop isolator complying with EN 54-17. and Compatible Voice Evacuation System Master Panel.

1.6 Accessories

✧ GST Series Hand Held Programmer

P-9910B Hand Held Programmer can read the address, sensitivity and device type and program device type of addressable detectors and modules.

The handheld programmer has to be separately ordered.

1.7 Defining Tool

GST-DEF 4.1 Defining Software is used for setting panel and network configuration, editing and downloading definition of device and Cause & Effect equation. Before the system starts operation, you need to set panel and network configuration, define the device and Cause & Effect using this software on a computer, and then download them to the FACP.

1.8 Update Tool

An USB port on the MB-20E GST-IFP2E Main Board can be used to update software of the board and update device data

2 Installation

This chapter describes the installation of the FACP. The steps below are guidance for installation of the FACP.

- 1 Check if you have received all items ordered.
- 2 Install the cabinet.
- 3 Install the component (basic and optional).
- 4 Power up the FACP and check if it can be normally started.
- 5 External connection.
- 6 Check the lines.
- 7 Setup FACP and define devices using GST-DEF 4.1 Defining Software on a PC and download them to the FACP according to engineering configuration.
- 8 Check and commission peripheral devices.

2.1 Component Inspection

Before installation, check the following items:

✧ Check Engineering Requirement

Check the packing list according to engineering requirement. The main items to be examined are: installation and operation manual, key to the FACP, battery wires, terminal resistor and etc.

✧ Check Internal Components and Interconnection inside the FACP

All basic internal parts have been connected (including power supply unit, power interface board, and main front panel) before the FACP leaves the factory. Therefore, you can mainly check the optional units ordered and the connection among parts, including the connection between power interface board and power supply, main board and indicator board, the connection of the zone indication panel with Indicator board, etc. Please refer to Appendix A for the internal connection diagram.

2.2 Install the Cabinet

2.2.1 Install the cabinet of panel

Before commencing installation, examine the unit for damage incurred during transit and carry out unpacking carefully. The enclosure shall be mounted within a clean, dry, vibration-free area where extreme temperatures do not prevail. The installation site shall be accessible at all times and furnished with ample space for panel assembly and ongoing maintenance. Mount the enclosure at a proper height above the floor, with the hinge side located on the right.

Ambient conditions for installation of the FACP:

Temperature: -5°C~+50°C

Relative humidity: ≤95% non-condensing

This Fire Alarm Control Panel is suitable for both flush and wall mounting. Fasten the assembly via three 7 mm diameter mounting holes located on the rear panel. Please refer to Fig. 2.1 below for the mounting hole layout and dimensions.

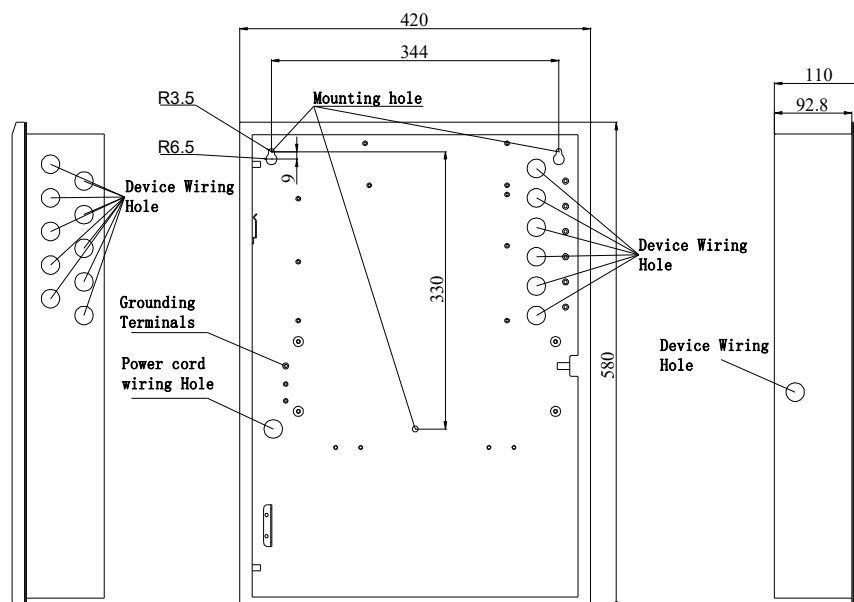


Fig. 2.1

To facilitate rear wiring, the clearance between the enclosure rear panel and the wall shall be greater than 40 mm. Square stop blocks (length 50 mm, inner diameter ≥ 8 mm, projection size $\leq 30 \times 30$ mm) shall be sleeved over the mounting bolts.

Stop blocks shall be provided by the user. Welded steel plate is recommended; other equivalent materials or structures may be adopted as alternatives.

When adopting the wall mounting method, please refer to Fig. 2.2.

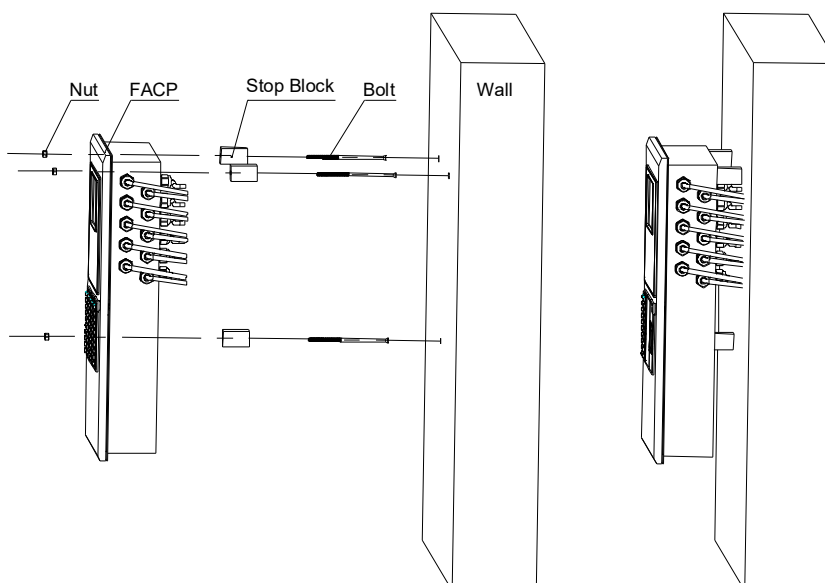


Fig. 2.2

- ✧ Mark the positions and pre-drill mounting bolt holes on the wall in accordance with the dimensions shown in Fig. 2.1.
- ✧ Secure three bolts to the wall. M6×150 bolts are recommended, with the bolt heads protruding approximately 70 mm.
- ✧ Install stop blocks (length 50 mm, inner diameter ≥8 mm, projection size ≤30×30 mm) on the mounting bolts.
- ✧ Hang the enclosure onto the three bolts, level it, then tighten the nuts.

When adopting the flush mounting method, please refer to Fig. 2.3.

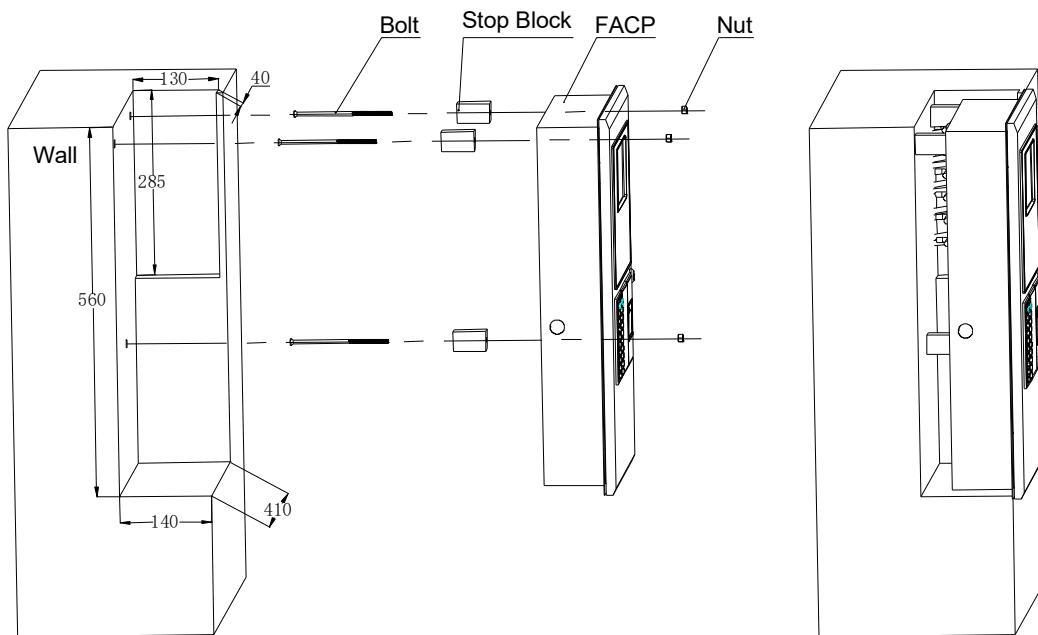


Fig. 2.3

Firstly, create a 570 mm × 410 mm × 140 mm mounting recess on the wall, and install the unit inside. Follow the wall mounting instructions.

Note: For flush mounting, cut a cable groove at the corresponding position on the wall to allow wiring from the right side. The groove dimensions: 285 mm × 130 mm × 40 mm.

2.3 Install Components



WARNING: Disconnect all sources of power before servicing. The panel and associated equipment may be damaged by removing and/or inserting cards, modules or interconnecting cables while this unit is energized.

2.3.1 Battery Power

The small capacity battery is installed in the panel. The following graphics Fig. 2.4 show how to install the battery inside the cabinet.

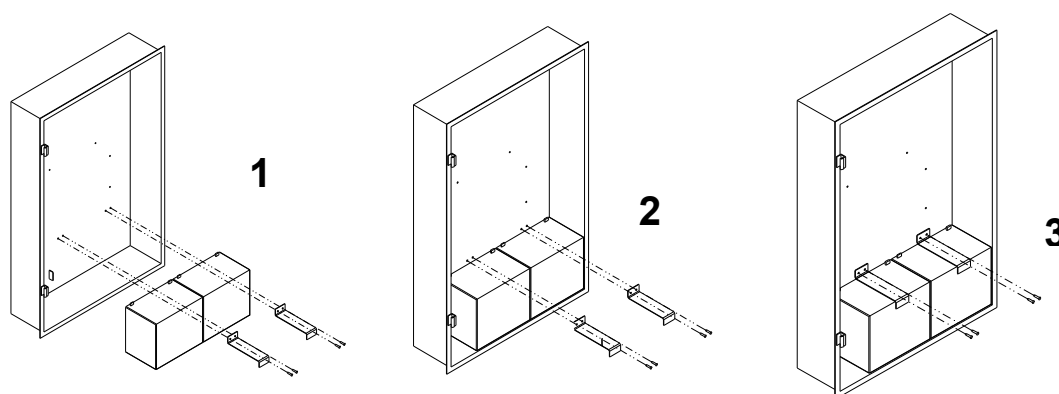


Fig. 2.4

First, put two batteries on the right bottom side of the cabinet, then align the holes of battery holders with the holes on the cabinet, finally, fasten the battery holders through screws.



WARNING: Battery contains sulfuric acid, which can cause severe burns to the skin and eyes and can destroy fabrics. If contact is made with sulfuric acid, immediately flush the skin or eyes with water for 15 minutes and seek immediate medical attention.

2.3.2 Installing Circuit Modules

Circuit modules are plugged into the inside of FACP, as shown below Fig. 2.5.

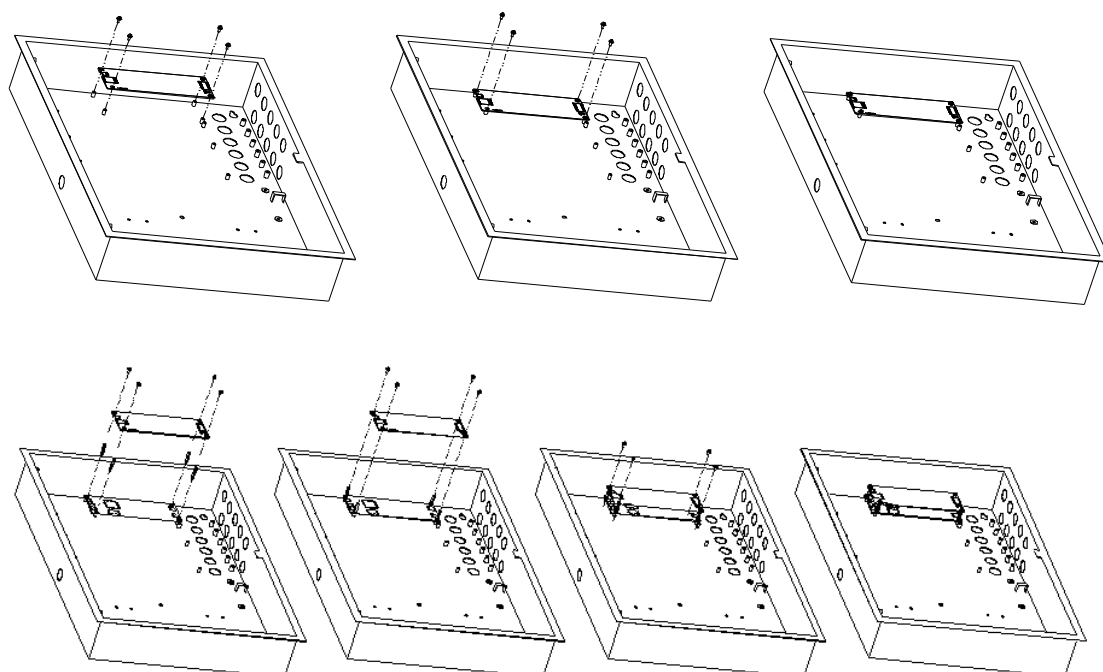


Fig. 2.5

Note:

- ✧ **All circuit modules do not support hot swapping**

2.3.3 Installing Zone Display and Control Panel

Zone display and control panel is installed on the cabinet door. The following Fig. 2.6 shows how to install it.

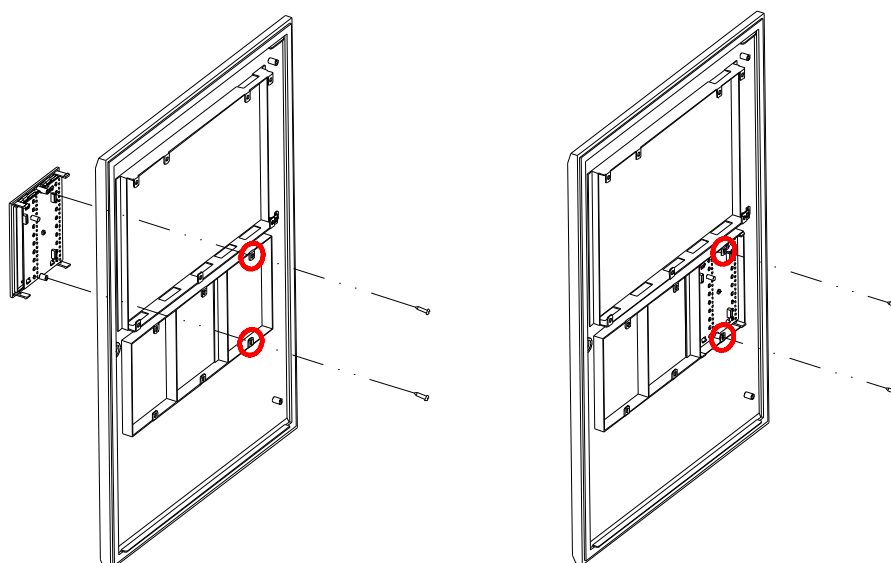


Fig. 2.6

First, Align the snap of the zone display and control panel with the slot on the door; Second, Hook the zone display and control panel with the door; Finally, fix the panel with screws.

2.3.4 Installing Thermal Printer

Firstly, install the printer onto the printer panel, which can be secured by screws in the printer tray. Finally, install the printer panel onto the FACP in a similar installation method to the Zone display and control panel

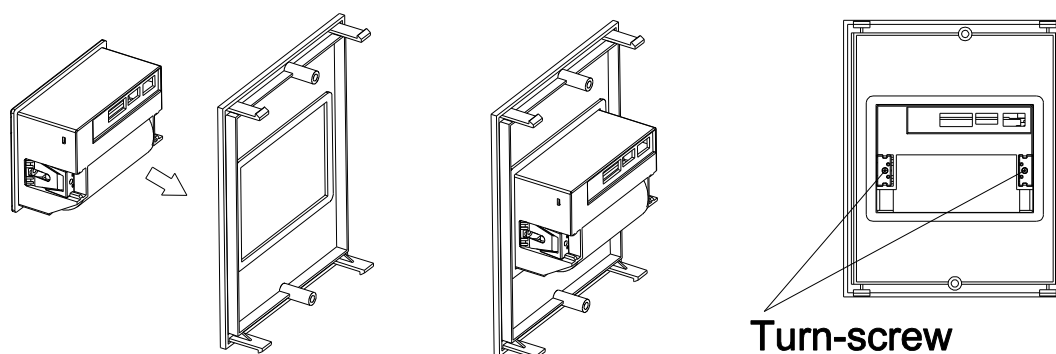


Fig. 2.7

2.3.5 Installation of Front Panel to FACP Door

Installation steps Fig. 2.8-Fig. 2.11 are shown below.

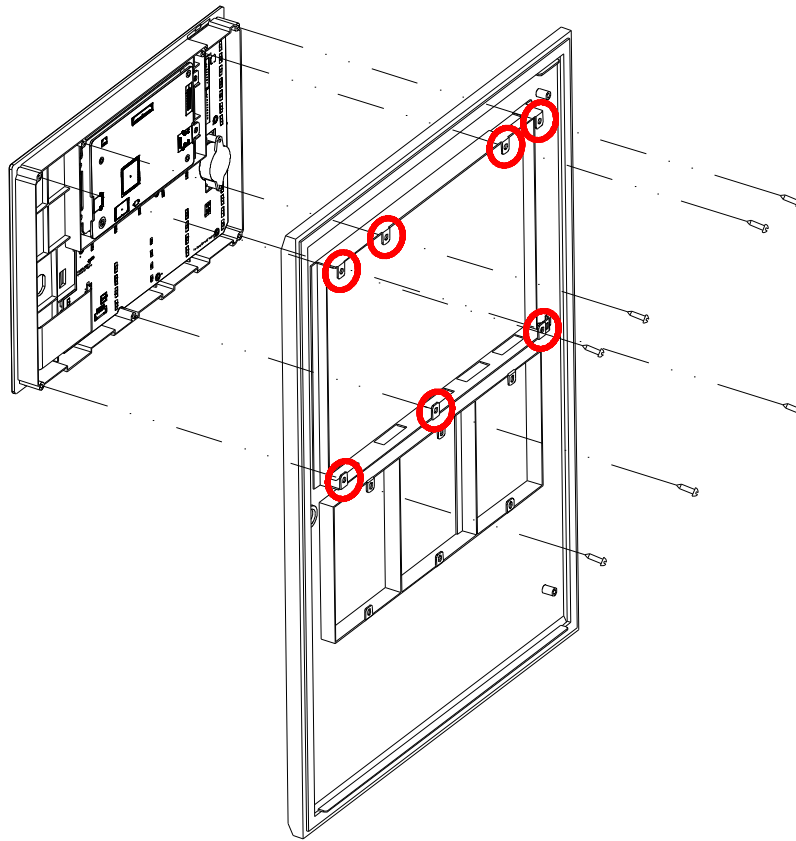


Fig. 2.8

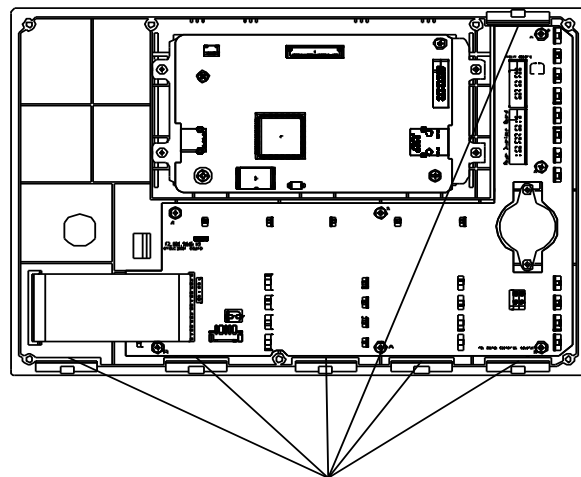


Fig. 2.9

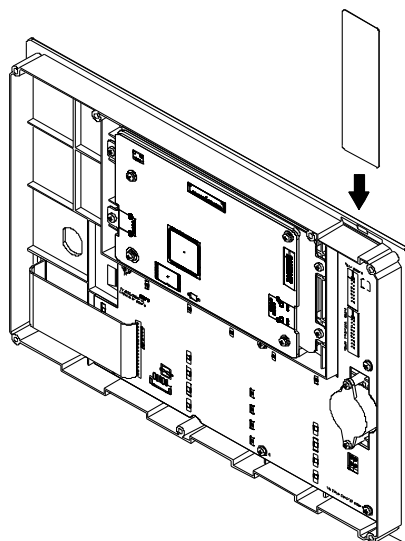


Fig. 2.10

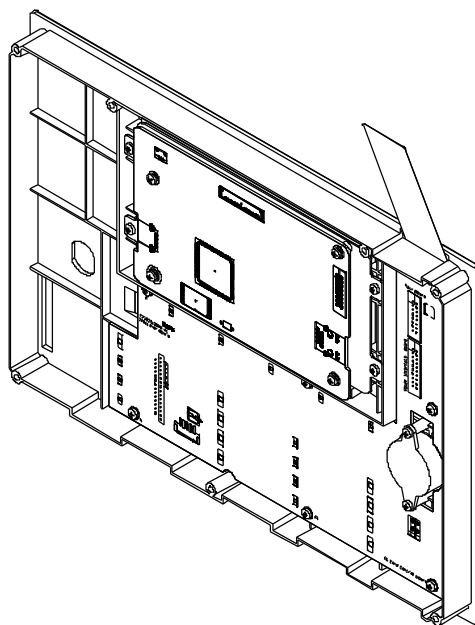


Fig. 2.11

2.3.6 Installation of Labels on the Zone Display and Control Panel (ZCP)

Installation steps Fig. 2.12 are shown below for labels on the ZCP.

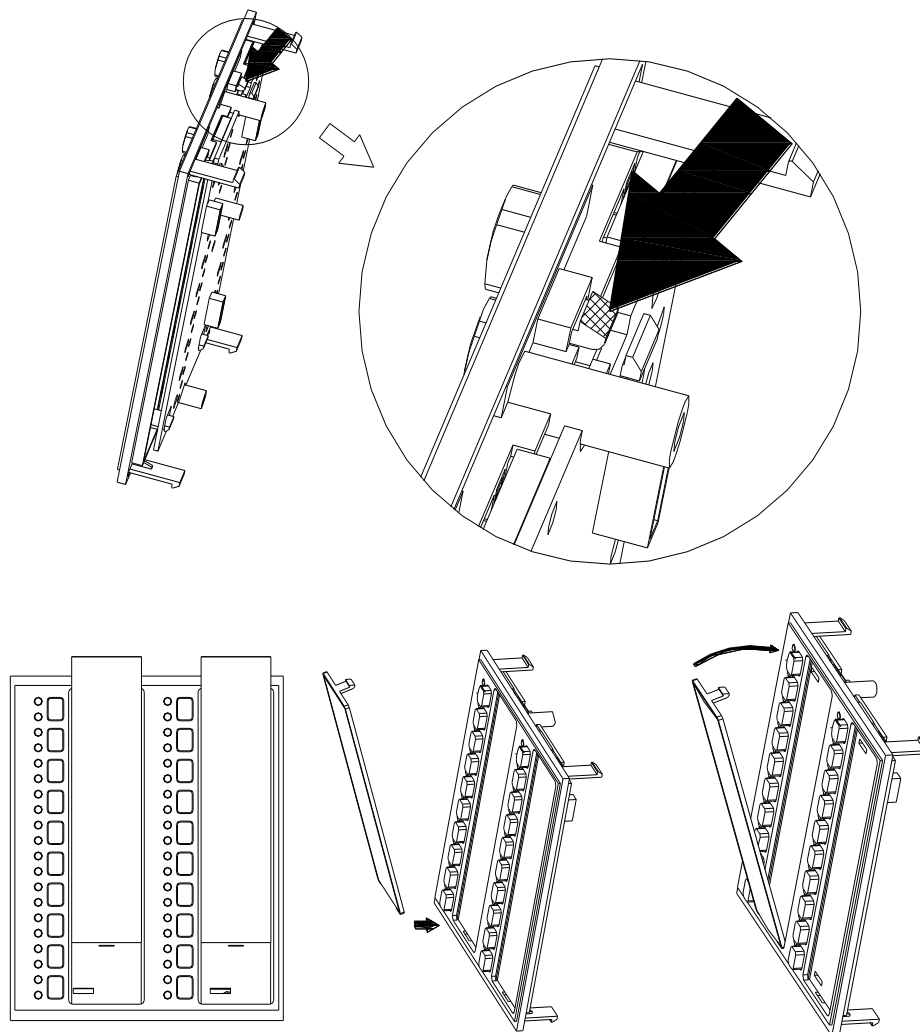


Fig. 2.12

Take the transparent baffle from the ZCP by using a small screwdriver. Put the printed label into the slot for ZCP label and then restore the transparent baffle.

Maximum 8 locations can be installed with P-9981, P-9982, P-9981F or P-9982F Zone display and control modules. Any unused location shall be covered by ZD-400 blank faceplate.

2.4 Start-up Check

After installation, apply power to the FACP. Connect the battery plug onto the power board, and then turn on the mains switch in the cabinet and check if the FACP can self-test. The procedures are as follows.

- ✧ Powering on the FACP, All LEDs light up, LCD displays GST logo. Initiation of the system takes about 85s~90s.
- ✧ Self-test of LEDs on the front panel and ZCPs.
- ✧ Self-test of internal cards.
- ✧ Self-test of printer.
- ✧ Reset of the system.

Start-up check is done if the FACP switches on normally after undertaking above steps.

2.5 External Connection

2.5.1 AC Power Connection

Use 14AWG (2.00mm²) or larger wire with 600 volt insulation rating. Make certain that the AC mains switch is off before wiring any connections between the mains and the FACP. Power supply wires should be connected to the terminal as shown in Figure below Fig. 2.13.

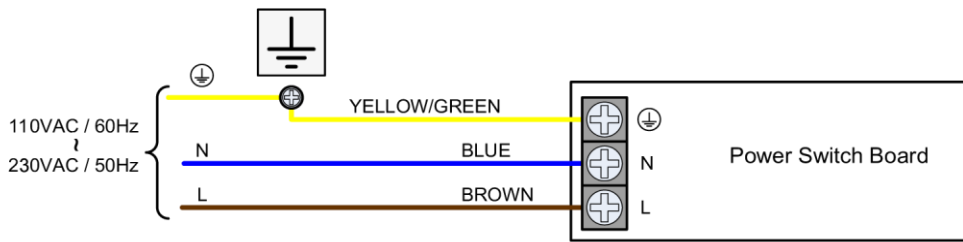


Fig. 2.13

Note:

- ✧ **Verify all cables are correctly connected before connecting power supply.**
- ✧ **Please make sure the mains power is in line with the rated voltage marked on the panel's label.**

Connect a wire from the grounding stud in the cabinet to a known solid earth ground in the buildings. Refer to Fig. 2.1 for location of the stud. This connection is vital for maintaining the FACP's immunity to unwanted transients generated by lightning and electrostatic discharge. Apply AC power to the panel only after the system is completely installed and visually checked. The FACP shall be connected to a dedicated 15 Amp branch circuit.

2.5.2 Battery Connection

Batteries wire is connected to XT3 of power box, as shown in the Figure below Fig. 2.14.

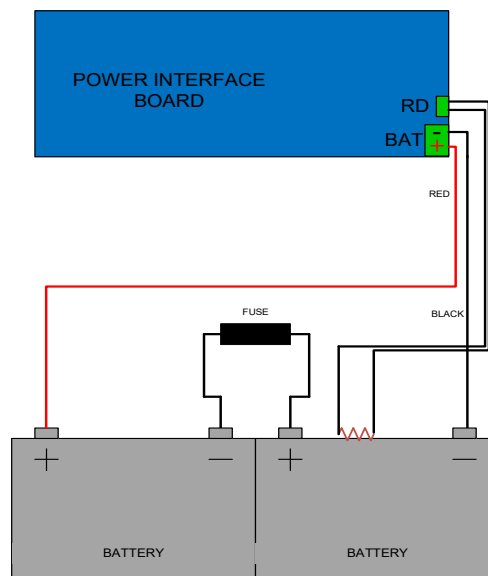


Fig. 2.14

Before connecting the batteries to the FACP, make certain that the interconnect cable between the batteries is not connected. Do not connect the interconnect cable until the system is completely installed. Observe polarity when connecting the batteries.

Connecting to the XT4 port is a thermistor used to measure the ambient temperature of battery, please place the thermistor near the battery.

Note: Do not make the final battery connections until the installation is completed.

Caution: Do not connect power to your device until you have completed all input and output connections. Failure to do so may result in injury!

2.5.3 Signaling Line Circuits (SLC) Connection

Each SLC includes four wires: O+ (bus output positive), O- (bus output negative), I+ (bus input positive), and I- (bus input negative). The wire from O+ is connected back to I+ and the wire from O- back to I-. SLC only has one connection of Class A.

When connecting with DC-9503E/DC-9504E Loop Isolator, each SLC can connect up to 50 Isolators. Maximum 32 detectors/MCPs/modules can be protected between two isolators. The connection is shown below Fig. 2.15. If shielded cable is used, connect the shielded layer to ground terminal.

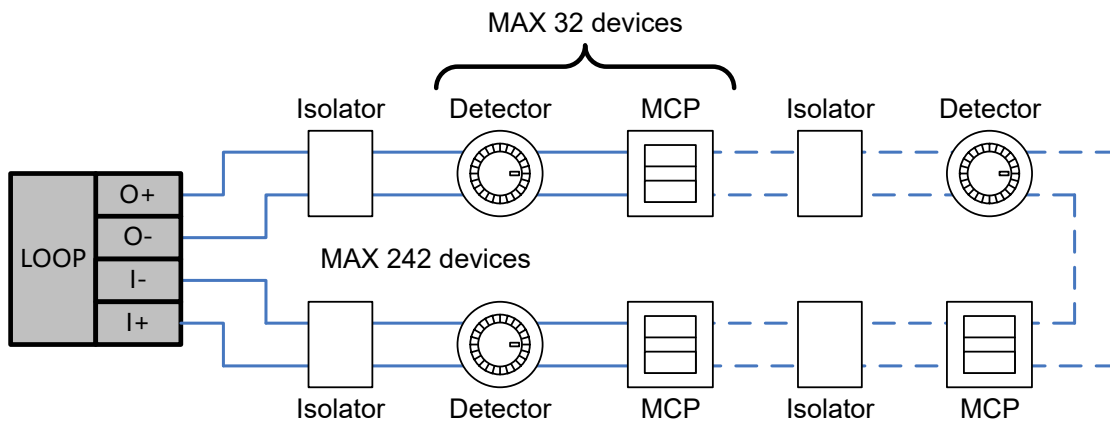


Fig. 2.15

When not connecting with C-9503E/DC-9504E Loop Isolator, the connection of SLC is shown below Fig. 2.16.

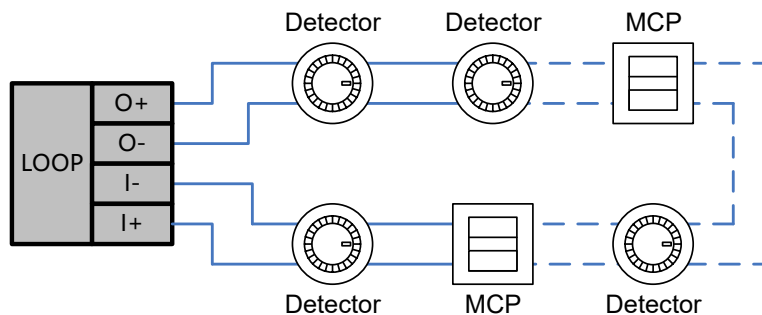


Fig. 2.16

2.5.4 Alarm Output(NAC)

It outputs according to settings when there is fire alarm. It can be disabled and does not output when fire alarm occurs in disabled state. It can be included in the Cause & Effect equation. The total maximum current in alarm for Alarm Output cannot exceed 1A. Circuits are regulated, supervised and power limited.

Connection of Alarm Output is shown below Fig. 2.17. If shielded cable is used, connect the shielded layer to ground terminal.

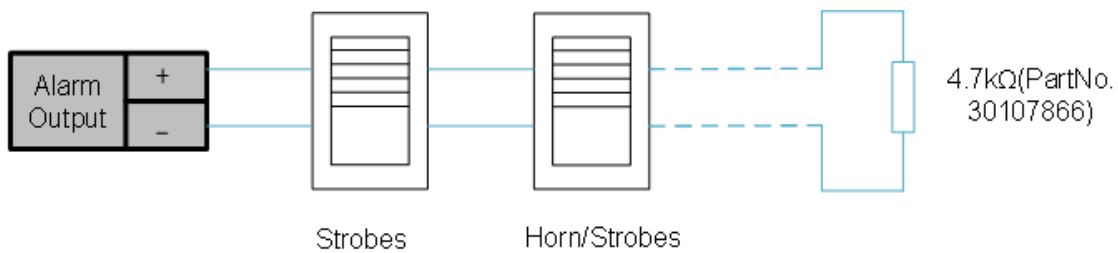


Fig. 2.17

2.5.5 Sounder Output/ AUX

This interface can be set as Sounder Output or Auxiliary Power Output. When it is used as Sounder Output, the connection is the same as Fig. 2.17, and it outputs according to settings when there is fire alarm.

When it is used as AUX, it outputs as a 24V power. The connection is shown below Fig. 2.18. If shielded cable is used, connect the shielded layer to ground terminal.

Circuits are regulated, supervised and power limited.

Note: This output interface shares total maximum 1A current with Alarm Output, and if one of the Alarm Output and Sounder Output line is grounded, the panel will report Input/Output interface ground fault.

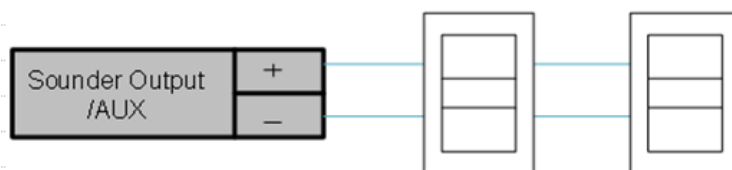


Fig. 2.18

2.5.6 Relays (For Common Use)

Relays labelled as "Alarm", "Fault" are designated as "Common". RL1 relays are designated as "Programmable".

The relay outputs can be set to normally open/close contact output. When connecting **COM** and **NOx** with a jumper, this relay output is set to normally open contact output, shown as Fig. 2.19. when the jumper connecting **COM** and **NCx**, the relay output is set to normally closed contact output. If shielded cable is used, connect the shielded layer to ground terminal.

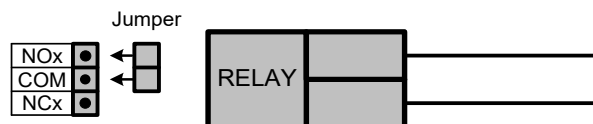


Fig. 2.19

2.5.7 INPUT

The INPUT interface wiring diagram is as following Fig. 2.20. If shielded cable is used, connect the shielded layer to ground terminal.

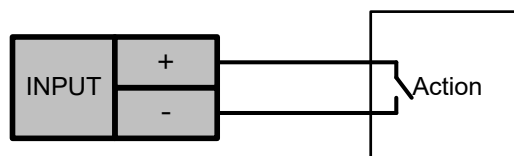


Fig. 2.20

2.5.8 CAN Network Connection

P-9967EA CAN Class A Network Card can be set into FACP. A maximum of P-9967EA CAN Network Cards are to be used in a panel.. If shielded cable is used, connect the shielded layer to ground terminal.

Fig. 2.21 shows the connection when P-9967EA is used.

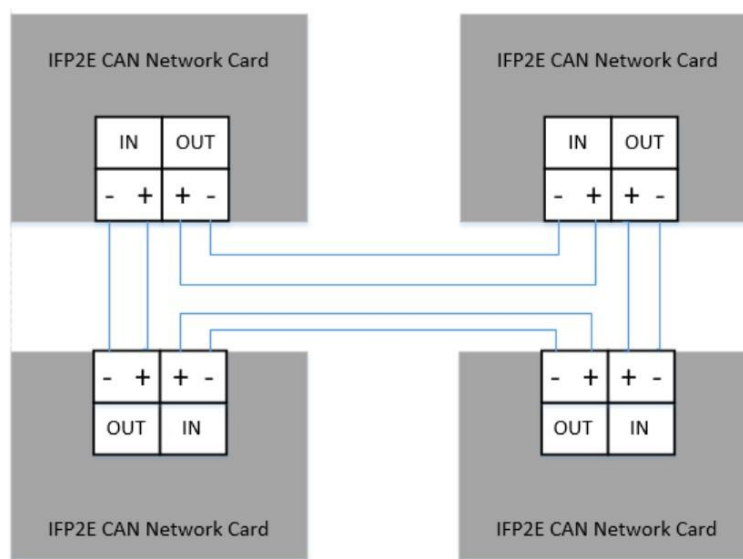


Fig. 2.21

2.5.9 Fiber Optical Class A Network Connection

P-9984EA Fiber-Optical Class A Network Card can be set into FACP . A maximum of P-9984EA Fiber-Optical Class A Network Cards are to be used. The position for the fiber interface is on the fiber network card. Fig. 2.22 shows the connection between the P-9984EA Fiber-Optical Class A Network Card.

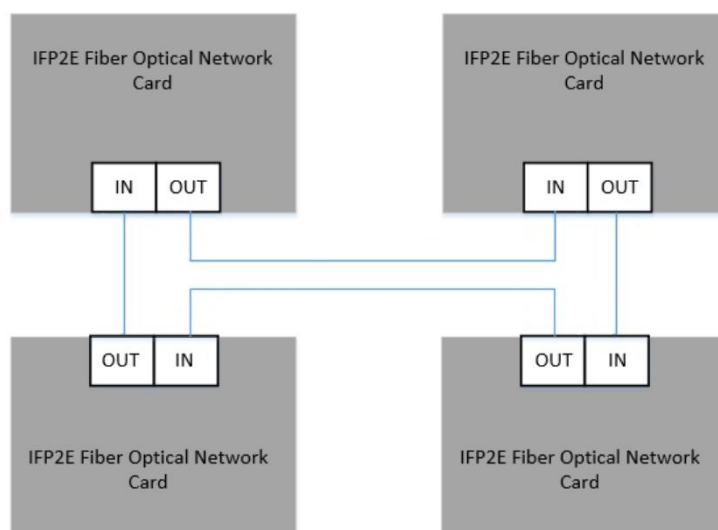


Fig. 2.22

2.5.10 Hybrid Network Connection

User can set a hybrid network. For example Fig. 2.23, No1 GST-IFP2E, a P-9984EA Fiber-Optical Network Card and a P-9967EA CAN Network Cards are set up. No1 GST-IFP2E and No2 GST-IFP2E make up a CAN network. At the same time, No1 GST-IFP2E and No3 GST-IFP2E make up a Fiber-Optical network. The quantity of the GST-IFP2E in the whole network that shows in Fig. 2.23 is no more than 250.

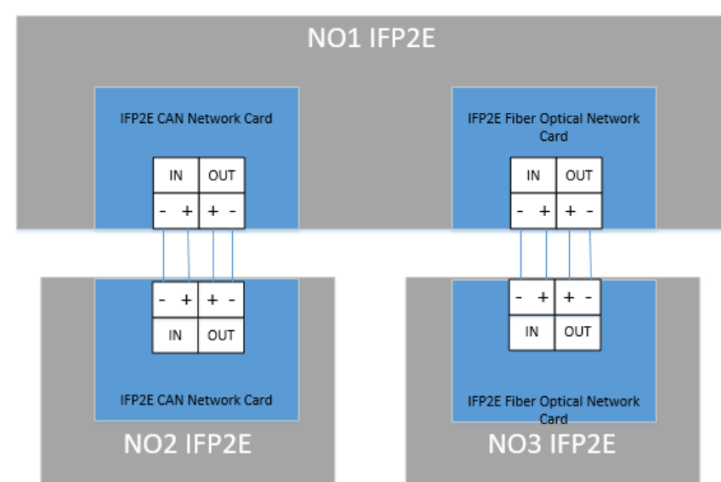


Fig. 2.23

2.5.11 Modbus Card Connection

P-9957E-Modbus Card has RS485 interface.

2.5.12 Repeater Card Connection

The P-9957E-RP wiring diagram is as following Fig. 2.24. If shielded cable is used, connect the shielded layer to ground terminal.

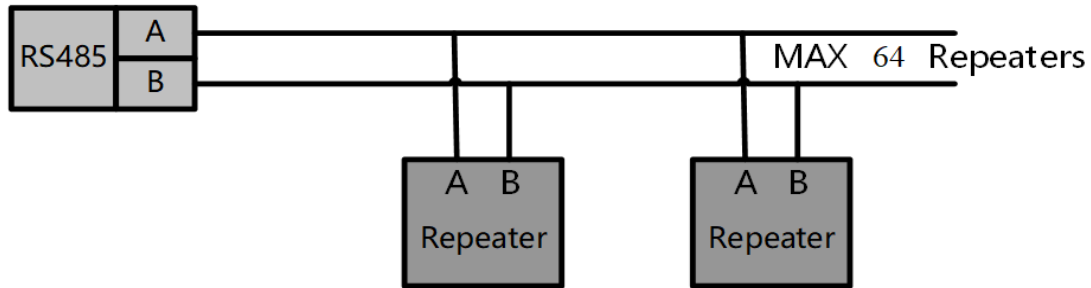


Fig. 2.24

2.5.13 Power-limited Wiring Requirements

Power-limited and nonpower-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" (6.4mm) away from any nonpower-limited circuit wiring, and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits. The typical wiring diagram for the FACP is shown below Fig. 2.25.

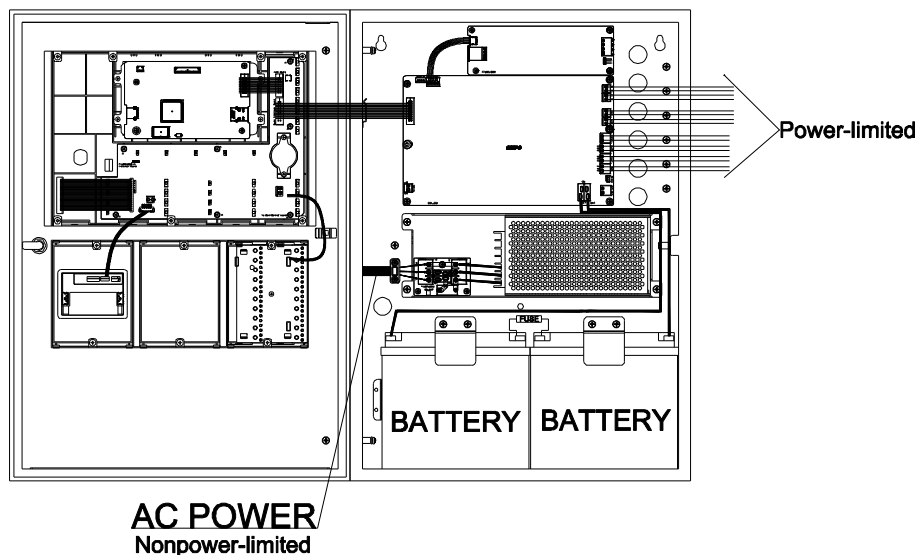


Fig. 2.25

2.6 Connection Inspection

Check the circuit connected with the FACP. Measure the insulation resistance between loops and between loops and ground, which should be more than 20MΩ. Measure the load of detection loops, which should be more than 1kΩ. The resistance between cables of Alarm Output(NAC), Sounder Output /AUX should be equal to the end-of-line resistance(4.7kΩ).

2.7 Setup FACP and Define Devices

Refer to Section 4 for FACP programming and configuration.

2.8 Field Device Commission

After connection, definition and download of device and Cause & Effect equations, you can power up the FACP and start commission. The following steps are for reference.

- 1 Complete the labels of zone indication panel.
- 2 Test all the detectors and make sure their positions are correct.
- 3 Check all device definition and modify the improper definitions.
- 4 Check all Cause & Effect equations, modify improper equations, and test automatic action of the system by Cause & Effect equation.

3 Indication & Control

The keys and LED indicators of FACP are shown below Fig. 3.1.



Fig. 3.1

3.1 LED Indicators

Note:

Unless otherwise specified, all LEDs are yellow.

Except for POWER LED, all LEDs go out when the FACP is reset.

- ✧ **POWER:** Green steady LED. It lights steady when the FACP is powered up.
- ✧ **PRE-ALARM:** Red steady LED. It lights steady when there is pre-alarm message; it goes out as the pre-alarm message disappears.
- ✧ **GENERAL Fault:** Yellow steady LED. It lights steady when there is fault message; it goes out as the fault is removed.
- ✧ **SYSTEM Fault:** Yellow steady LED. It lights steady when any card is fault and after remove the card fault, users need to reboot the panel
- ✧ **SUPERVISORY:** Yellow steady LED. It lights steady when any supervisory message exists.
- ✧ **DISABLE:** Yellow steady LED. It lights steady when any disabled message exists; it doesn't light without disabled messages.
- ✧ **AC Fault:** Yellow steady LED. It lights steady when there is AC fault; it goes out as the fault is removed.



- ✧ **BAT Fault:** Yellow steady LED. It lights steady when there is battery fault; it goes out as the battery fault is removed.
- ✧ **CHARGER Fault:** Yellow steady LED. It lights steady when there is charger fault.
- ✧ **ALARM OUTPUT FLT/DIS:** Yellow LED. It flashes when ALARM OUTPUT port is fault; it goes out as the fault is removed. If ALARM OUTPUT is disabled, the LED lights steady.
- ✧ **SOUNDER OUTPUT FLT/DIS:** Yellow LED. It flashes when SOUNDER OUTPUT port is fault; it goes out as the fault is removed. If SOUNDER OUTPUT is disabled, the LED lights steady.
- ✧ **LOOP SOUNDER FLT/DIS:** Yellow LED. It flashes lights when SOUNDER port is fault. It goes out as the fault is removed. If SOUNDER is disabled, the LED lights steady.
- ✧ **FIRE ALARM:** Red steady LED. It lights steady when there is an alarm message.
- ✧ **ALARM OUTPUT ACTIVATED:** Red steady LED. It lights steady when ALARM OUTPUT outputs
- ✧ **SOUNDER OUTPUT ACTIVATED:** Red steady LED. It lights steady when SOUNDER OUTPUT outputs; it goes out as SILENCE ALARM key is pressed.
- ✧ **GROUND Fault:** Yellow steady LED. It lights steady when there is ground fault; it goes out as the fault is removed.
- ✧ **DETECTOR DIRTY:** Yellow steady LED. It lights steady when the detector is dirty; it goes out as the dirt is reported.
- ✧ **DELAY MODE:** Yellow steady LED. It lights steady when the FACP enters delay mode; it goes out as the FACP exits delay mode.
- ✧ **TEST MODE:** Yellow steady LED. It lights steady when the FACP enters test mode; it goes out as the FACP exits test mode.
- ✧ **MAINTENANCE:** Yellow steady LED. It lights steady when the FACP enters maintenance mode; it goes out when the maintenance is completed.
- ✧ **FIRE ALARM INFORMATION:** Red LED. It flashes when an alarm message is not confirmed. It lights when all alarm messages have been confirmed.
- ✧ **SUPERVISORY INFORMATION:** Yellow LED. It flashes when a supervisory message is not confirmed; it lights when all supervisory messages has been confirmed.
- ✧ **Fault INFORMATION:** Yellow LED. It flashes when a fault message is not confirmed. It lights when all fault messages have been confirmed; it goes out as all fault messages are cleared.
- ✧ **DISABLE INFORMATION:** Yellow steady LED. It lights steady when a disabled message exists; it goes out as the message is disposed.
- ✧ **STATUS INFORMATION:** Yellow steady LED. It lights steady when any message exists except fire alarm, supervision, fault, isolation; it goes out as all messages are disposed.

- ✧ **MANUAL ALARM:** Red steady LED, It lights steady when the MANUAL ALARM key is pressed.
- ✧ **ACKNOWLEDGE:** Yellow steady LED. It lights steady when all real messages have been confirmed. It goes out as a new message occurs.
- ✧ **SILENCE ALARM:** Yellow steady LED. When a sounder or a notification appliance is activated, the LED lights steady as SILENCE ALARM key is pressed. It goes out as another new sounder is activated or MANUAL ALARM key is pressed.
- ✧ **SILENCE BUZZER:** Yellow steady LED. It lights steady when the buzzer of the FACP is silenced. It goes out as the buzzer sounds again.
- ✧ **RESOUND:** Yellow steady LED. It lights steady when **RESOUND** key is pressed. It goes out when any sounder is silenced again.
- ✧ **EVAC:** Red steady LED, It lights steady after **EVAC** key is pressed for evacuation.
- ✧ **RESET:** Yellow steady LED. It lights steady when the FACP is being reset; It goes out when the FACP completes reset.
- ✧  **SWITCH:** Yellow steady LED. It lights steady when the FACP is in Day mode; it goes out in Night mode.

3.2 Functional Keys

- ✧ **FIRE ALARM INFORMATION:** Fire alarm information screen is displayed when there is fire alarm information and this key is pressed.
- ✧ **SUPERVISORY INFORMATION:** Supervisory information screen is displayed when there is supervisory information and this key is pressed.
- ✧ **Fault INFORMATION:** Fault information screen is displayed when there is fault information as this key is pressed.
- ✧ **DISABLE INFORMATION:** Disable information screen is displayed when there is disable information as this key is pressed.
- ✧ **STATUS INFORMATION:** Status information screen is displayed when there is status information as this key is pressed.
- ✧ **MANUAL ALARM:** Pressing the key shall activate alarm process, referred to section 6.1.3.
- ✧ **ACKNOWLEDGE:** The current information is confirmed to be selected if this key is pressed.
- ✧ **SILENCE ALARM:** All activated SOUNDER OUTPUT can be silenced when this key is pressed.
- ✧ **SILENCE BUZZER:** the indication sound from the FACP can be silenced if this key is pressed.
- ✧ **RESOUND:** All silenced notification appliances can be reactivated, when **this** key is pressed.
- ✧ **EVAC:** For starting the field sounders for evacuation.
- ✧ **RESET:** The FACP will be reset as this key is pressed.

- ✧  **SWITCH:** The FACP can be switched between day or night mode if this key is pressed.

3.3 Service / Program Keys:

Key	Description
Number Key of 0~9	Press number keys to input numbers.
	UP cursor. Press this key to move the cursor to previous or scroll up lists in a continuous loop.
	DOWN cursor. Press this key to move the cursor to next or scroll down lists in a continuous loop.
	RIGHT cursor. Press this key to switch the cursor to next box or select options to the right.
	LEFT cursor. Press this key to switch the cursor to previous box or select options to the left.
	CANCEL key. Press this key to cancel an operation or exit a menu.
	ENTER key. Press this key to select a displayed item or confirm an operation.
	BACKSPACE key. Press this key to delete an input number or letter.
	SPACE key. Press this key to input a space character.

3.4 User Interface

The FACP has a touch screen with graphical icons. The FACP enters **System Normal** screen as Fig. 3.2 below after correct installation and wiring.

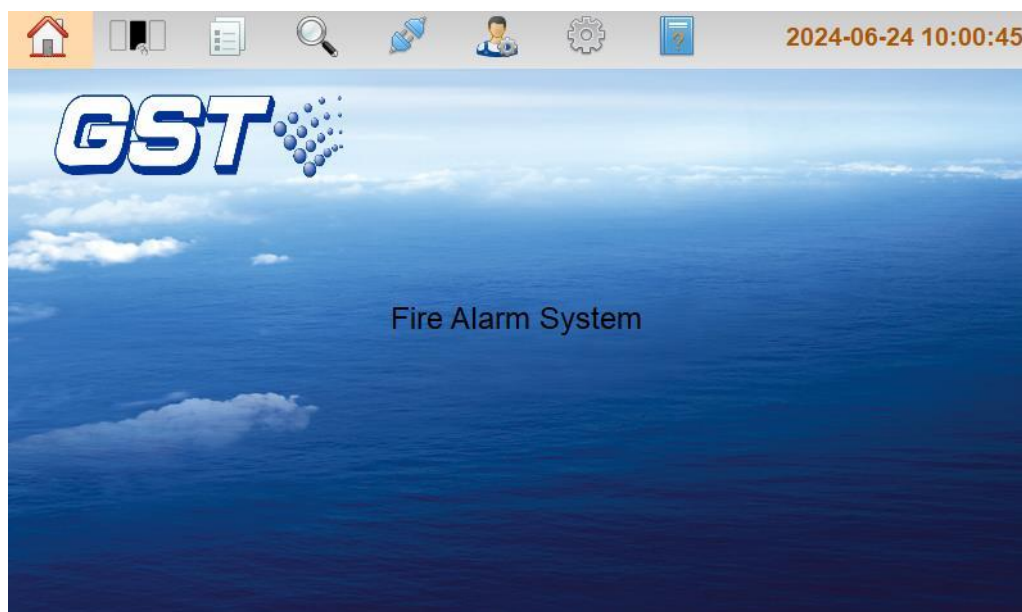


Fig. 3.2

Alarm: when fire alarm signal is on the screen, the FACP will pop up fire alarm (first alarm) message with black words in red background, including alarm time, device address, device type and related description and so on. Alarm message taking the highest priority is displayed on the main screen and other messages are displayed the quantity on related tabs on the screen. Clicking each tab can check details. Refer to the figure below Fig. 3.3.

        2024-06-25 09:08:29				
First Alarm: 2024-06-25 09:08:00 000011 Alarm Zone-0011 Last Alarm: 2024-06-25 09:08:14 000009 NET00#-ZONE009				
Time	Zone	Location	Qty	ACK
2024-06-25 09:08:00	000011	Alarm Zone-0011	1	☐
2024-06-25 09:08:14	000009	NET00#-ZONE009	1	☐
<div> Alarm(2/2) Supervisory Fault(1/17) Disable Status </div>				

Fig. 3.3

The quantity of alarm messages will be displayed if there are many such messages. Clicking **Alarm** tab can view details as shown the figure below Fig. 3.4.

        2024-06-25 09:08:29				
First Alarm: 2024-06-25 09:08:00 000011 Alarm Zone-0011 Last Alarm: 2024-06-25 09:08:14 000009 NET00#-ZONE009				
Time	Zone	Location	Qty	ACK
2024-06-25 09:08:00	000011	Alarm Zone-0011	1	☐
2024-06-25 09:08:14	000009	NET00#-ZONE009	1	☐
<div> Alarm(2/2) Supervisory Fault(1/17) Disable Status </div>				

Fig. 3.4



Supervisory: supervisory messages take lower priority than Alarm messages. The supervisory messages will be displayed if there is no alarm. Clicking **Supervisory** tab can view details.

Fault: fault messages take lower priority than supervisory messages. The fault messages will be displayed if there is no Alarm or supervisory messages. Clicking **Fault** tab can view details.

Fault messages have many types such as internal fault and loop device fault. Clicking on the related types can view the details.

Disable: there are disabled messages if some devices are disabled. Clicking **Disable** tab can view the details as shown in the figure below Fig. 3.4.

Status: clicking **Status** tab can view other status messages of the FACP.

4 Operations

4.1 Programming on FACP

Configurations and definitions can also be programmed directly on the FACP.

Clicking the button  inputs Engineering password to enter **Panel Setup** menu (tree diagram) as shown below Fig. 4.1.

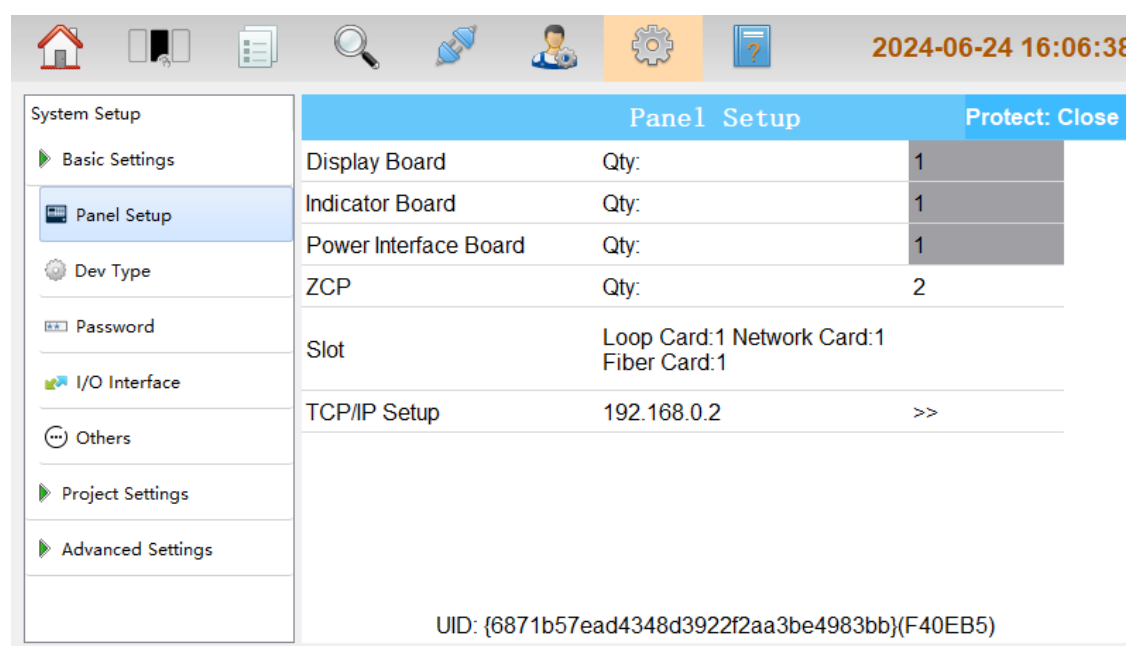


Fig. 4.1

4.1.1 Basic Settings

➤ Panel Setup: in the **Basic Settings** menu, clicking **Panel Setup** shows all cards integrated in the FACP on the right for users to set cards quantity by manual.

- ✧ Display Board: 1 (by default)
- ✧ Indicator Board: 1 (by default)
- ✧ Power Interface Board: 1 (by default)
- ✧ ZCP: user defined (0 ~ 32)
- ✧ Slot: Loop Card:0 (by default)
- ✧ TCP/IP Setup

Clicking **Slot** enters the screen of Slot Definition as shown in Fig. 4.2. In the menu, the listed slots are corresponding to those three slots on the control panel. Users can set types of cards such as: Single Loop Card, Network Card, Modbus Card, Fiber Card, 485Repeater Card, None.

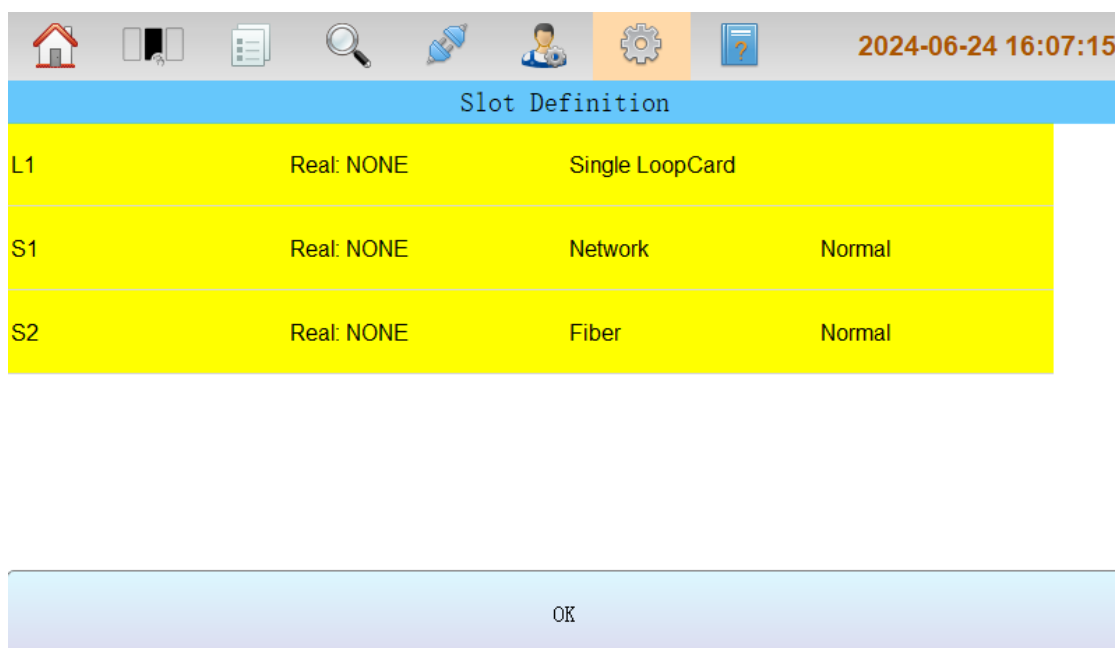


Fig. 4.2

- **Device Type:** clicking Device Type in Basic Settings menu as shown in Fig. 4.2.1, users can set the name and picture of the device type. Only the highlighted device types can be defined. The gray ones cannot be defined. Clicking Model Type as shown in 4.2.2, users can define the device type of a specific model. For example, DI-9300E Addressable Input Module can be set as FLOW SWITCH, ZONE VALVE etc. Clicking Add, choosing the device type and clicking Save can add device types, as show in Fig. 4.2.3.

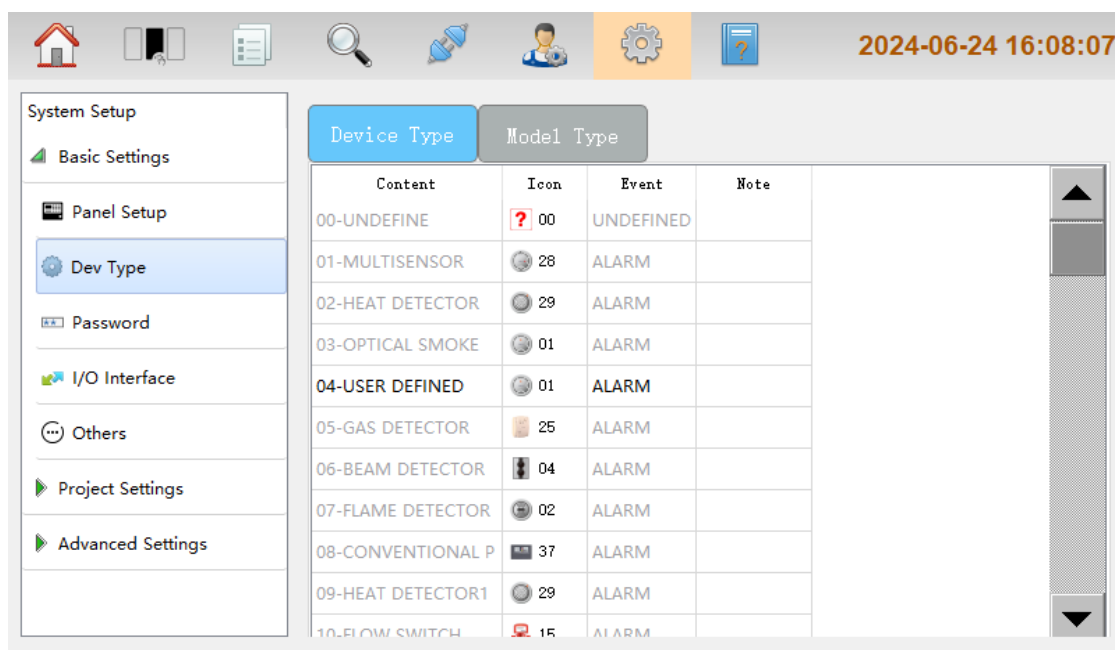


Fig. 4.2.1

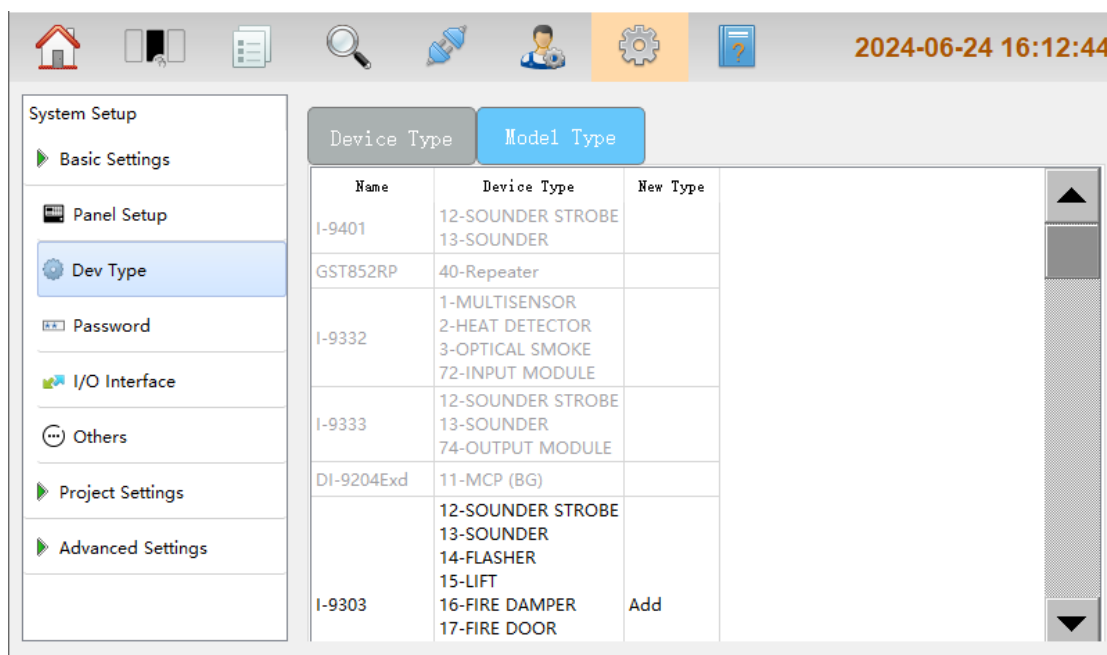


Fig. 4.2.2

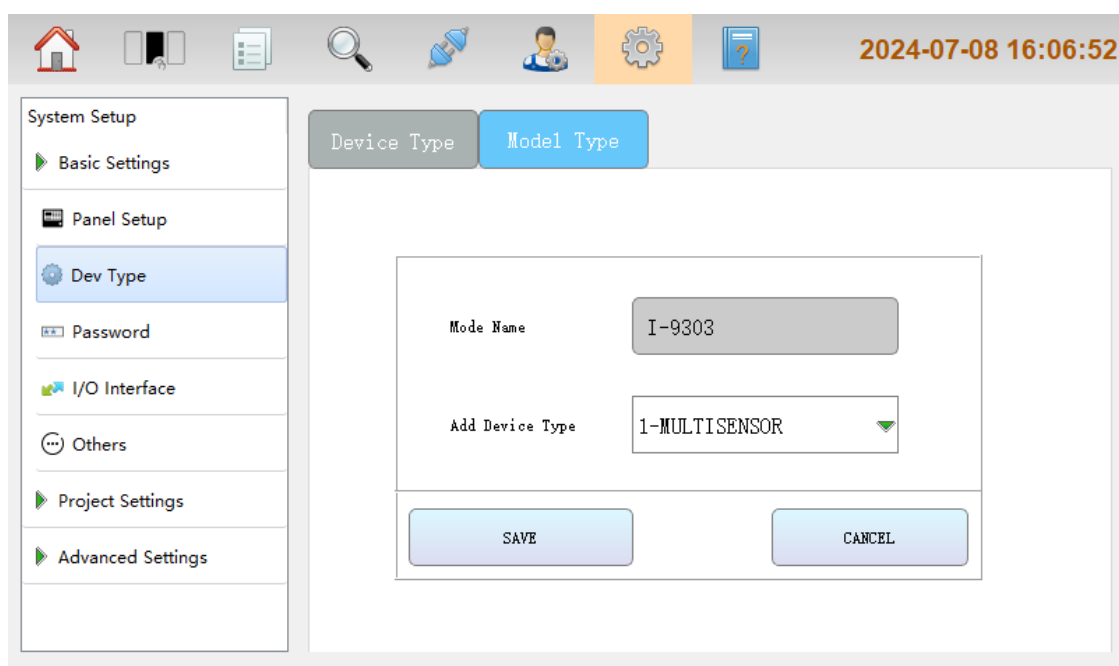


Fig. 4.2.3

- Password: the panel password have 4 access levels, level 1 is used to view historical records and engineering information without entering a password, level 2 (user password) is used to configure user setting and operating devices such as start, stop and so on, level 3 (engineering password) is used to configure engineering information, level 4 (upgrade password) is used to update software. level 2 to 4 requires entering password.

clicking **Password** in **Basic Setting** menu enters the screen for adding and setting passwords as shown in the figure below Fig. 4.3. There are two types of passwords

including **User Password** and **Engineering Password** can be set, After setting, pressing **OK** can save the settings. Maximum 10 users can be added.

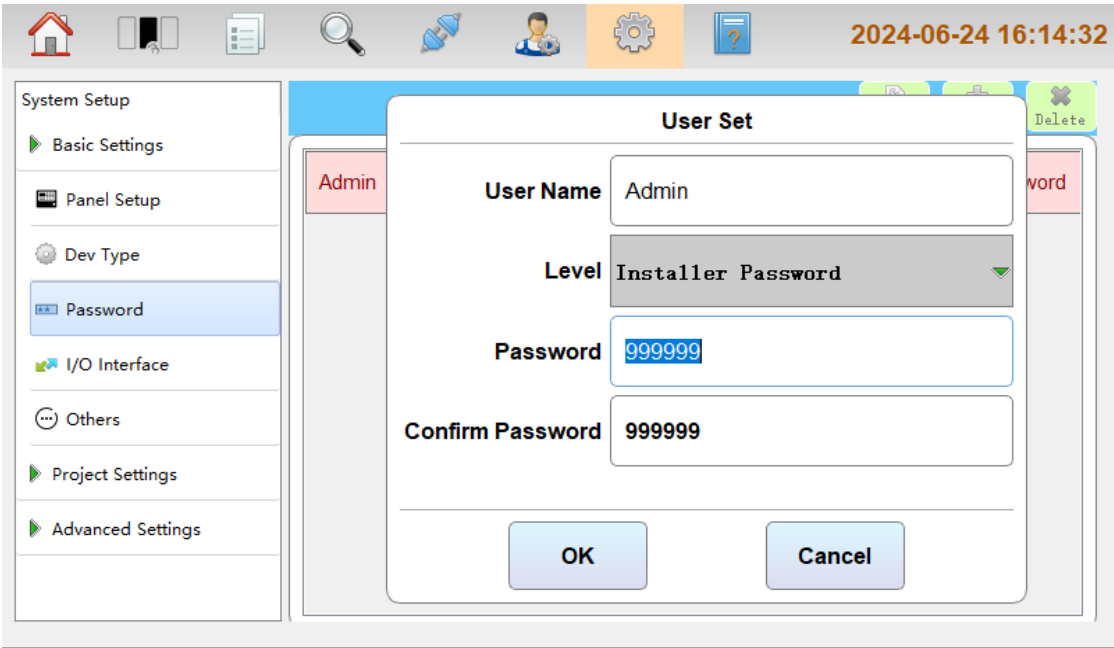


Fig. 4.3

- **I/O Interface**: clicking **I/O Interface** in **Basic Setting** menu, all output interfaces are displayed on the right of the screen and users can edit each interface specifically. Refer to the following figure Fig. 4.4-4.6.

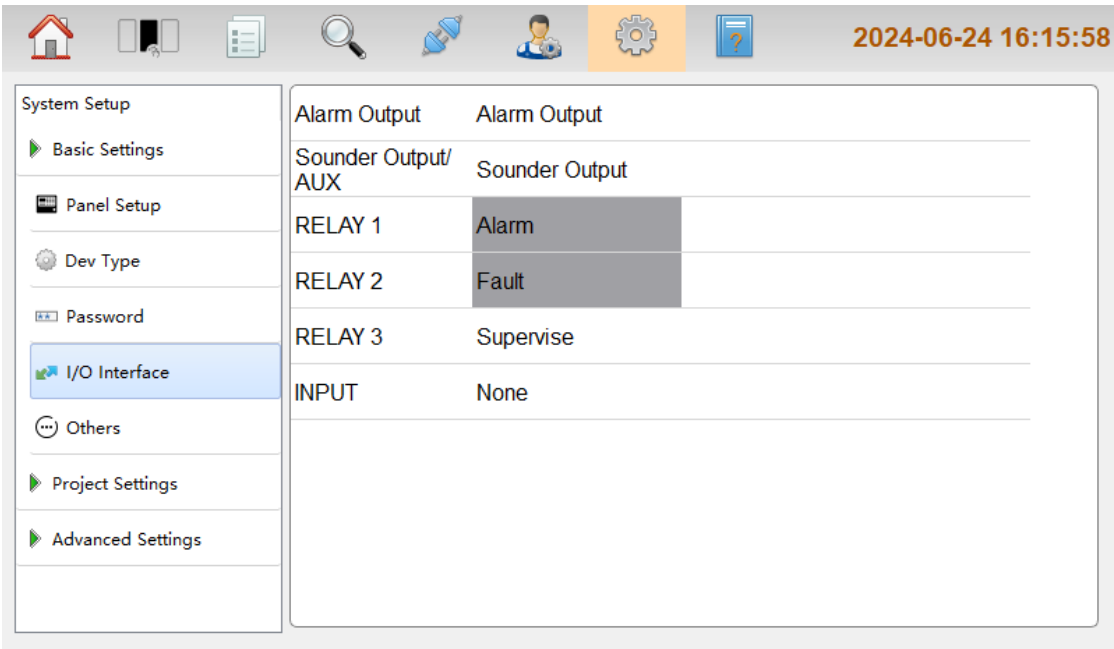


Fig. 4.4

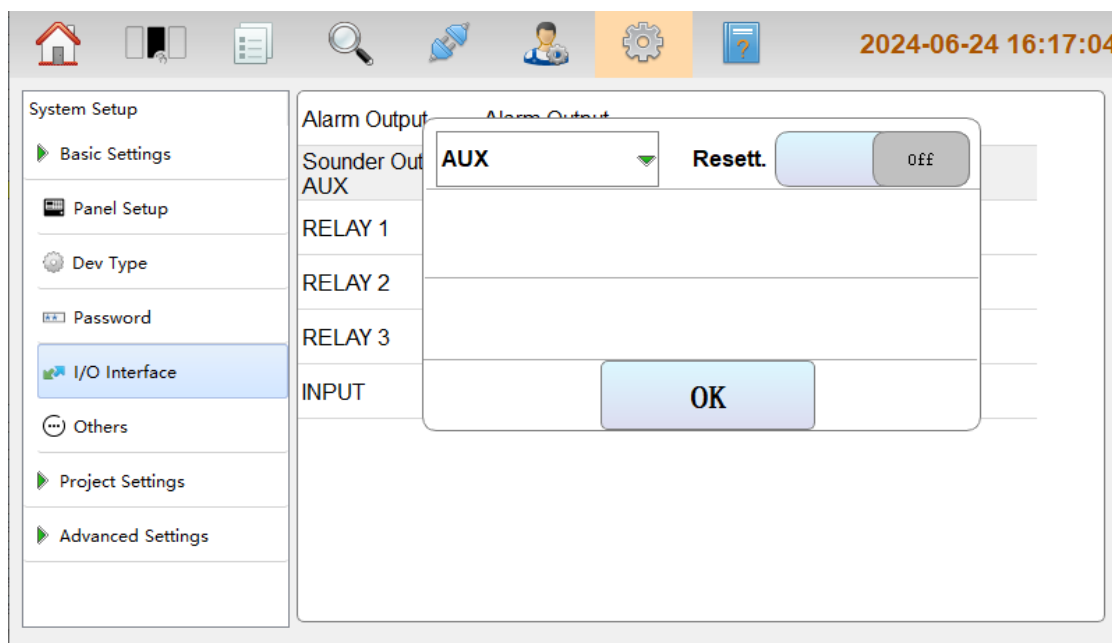


Fig. 4.5

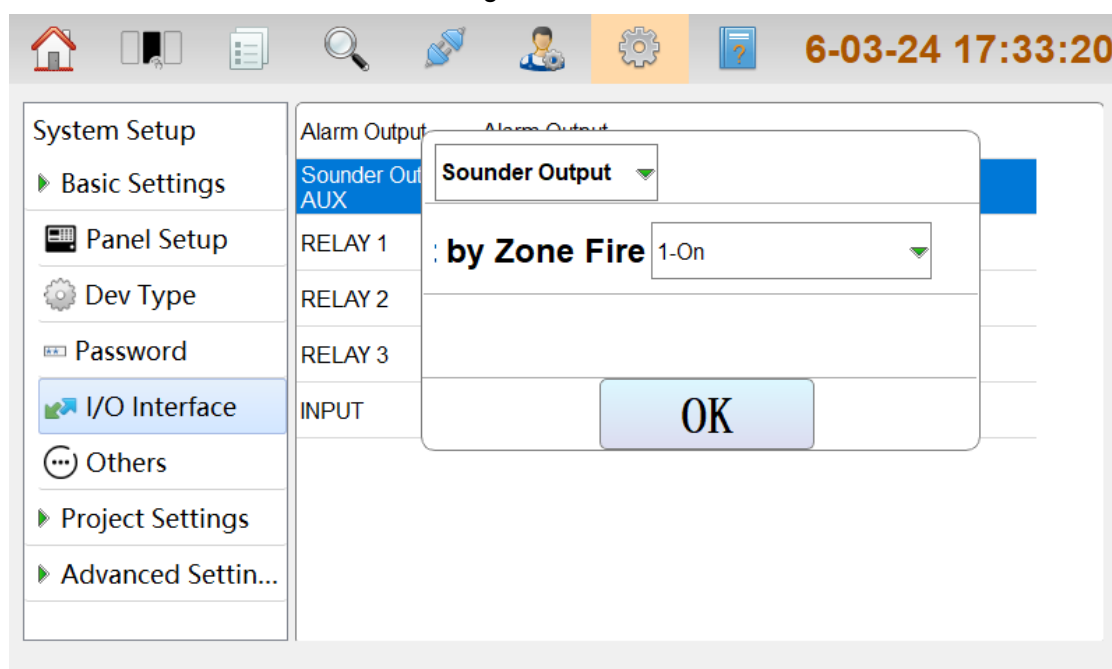


Fig. 4.6

Sounder Output or AUX: Clicking Sounder Output or AUX enters setup screen for Sounder Output/AUX. This interface has Sounder Output and AUX modes. When AUX mode is used, it is used as Class B supervised auxiliary 24V power output. In AUX mode, Resettable option is available as shown the figure above Fig.4.5 When Sounder Output mode is used sounder mode can be selected as 0-sound by zone fire or 1-on C&E see Fig. 4.6.

RELAY: The FACP has 5 relays. Relay1 is fire alarm output, Relay2 is supervisory output, Relay3 is fault output. Relay4 and Relay5 are user-defined, and they can be set as **Alarm**, **Supervisory**, **Fault**, **Mains Fault**, **isolate and Reset** by requirement.

INPUT: The **INPUT** is input interface can be set as **Active**, **Reset**, **Day Mode**, **Night mode**, **MCP Alarm**, **External fault**, **External Supervise** by requirement

- Others: Users can set dirty level and the switch of GMC, Disable Battery Resistance Fault, Check Device Type, after the change the switch of Disable Battery Resistance Fault, Check Device Type, the function require a reboot to take effect. **Others** menu as shown in Fig. 4.7

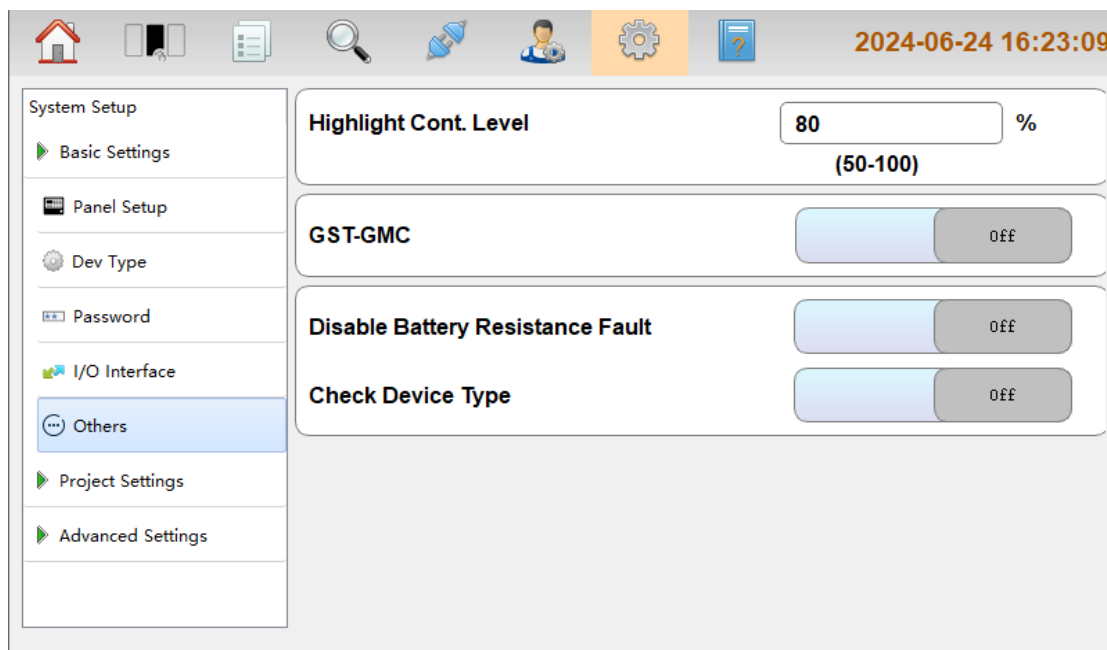


Fig. 4.7

Sometimes users do not want smoke detector becomes too dusty to alarm. User can enter the screen for setting loop devices by following the path:  Panel Setup->Project Settings->Loops. Clicking a certain loop, a list for the loop will be shown. Clicking Cont. button will check and show the smoke detector dirty level. The devices which dirty level reach the value been set at Highlight Dirty Level will be highlighted as yellow. For example, Highlight Dirty Level is set 50%. there is a device which dirty level is 70%, the device is highlighted as yellow. Shown in Fig. 4.8-4.10.

<div>         2024-06-24 16:24:12 </div>						
<div> < Device Config. Loop Cur.:1 Save Cont. CodeChk Add Delete </div>						
	Address	Location	Code	Model	Dev Type	Pr
1	1		000011-001	Unknown	01-MULTISENSOR	Night Mod High LE
2	2		000009-001	Unknown	03-OPTICAL SMOKE	LED:
3	3		000010-243	Unknown	12-SOUNDER STROBE	
4	4		000004-001	Unknown	11-MCP (BG)	
5	5		000001-001	Unknown	44-Duct Probe	
6	6		000002-001	Unknown	44-Duct Probe	
7	7		000004-002	Unknown	59-USER DEFINED	
8	8		000005-001	Unknown	60-USER DEFINED	

Fig. 4.8

<div>         2024-06-24 16:25:38 </div>						
<div> < Device Config. Loop Cur.:1 Save Cont. CodeChk Add Delete </div>						
	Address	Location	Code	Model	Dev Type	Pr
1	1				SOR	Night Mod High LE
2	2				MOKE	LED:
3	3				STROBE	
4	4					
5	5		000001-001	Unknown	44-Duct Probe	
6	6		000002-001	Unknown	44-Duct Probe	
7	7		000004-002	Unknown	59-USER DEFINED	
8	8		000005-001	Unknown	60-USER DEFINED	

Notice

Query detector contamination level?

OK

Cancel

Fig. 4.9

<div>         2024-06-24 16:26:10 </div>					
<div> < Device Config. Loop Cur.:1 </div>					
Address	Location	Code	Cont. Level	Model	
1 1		000011-...	<input type="text"/> 0%	Unknown	01-M
2 2		000009-...	<input type="text"/> 0%	Unknown	03-O

Fig. 4.10

4.1.2 Program

In **Panel Setup** screen, clicking **Project Settings** option enters the screen for setting program as shown in the figure below Fig. 4.11.



2024-06-24 16:27:03

System Setup

- Basic Settings
- Project Settings
- Zones
- Loops
- C&E Matrix
- ZCP
- NetNode
- Repeater
- Advanced Settings

Panel SetupProtect: Close

Display Board	Qty:	1
Indicator Board	Qty:	1
Power Interface Board	Qty:	1
ZCP	Qty:	2
Slot	Loop Card:1 Network Card:1 Fiber Card:1	
TCP/IP Setup	192.168.0.2	>>

UID: {6871b57ead4348d3922f2aa3be4983bb}(F40EB5)

Fig. 4.11

- **Zones:** the zones screen shows all current defined zones. First column is zone number and the second is descriptions. Maximum 40 characters.

Quick Locate: The related zone can be located by inputting a number.

Click the plus sign (+) to add a new zone or double-click the existed zone to edit the selected zone.

Walk Test: Only display fire alarm information without any further actions

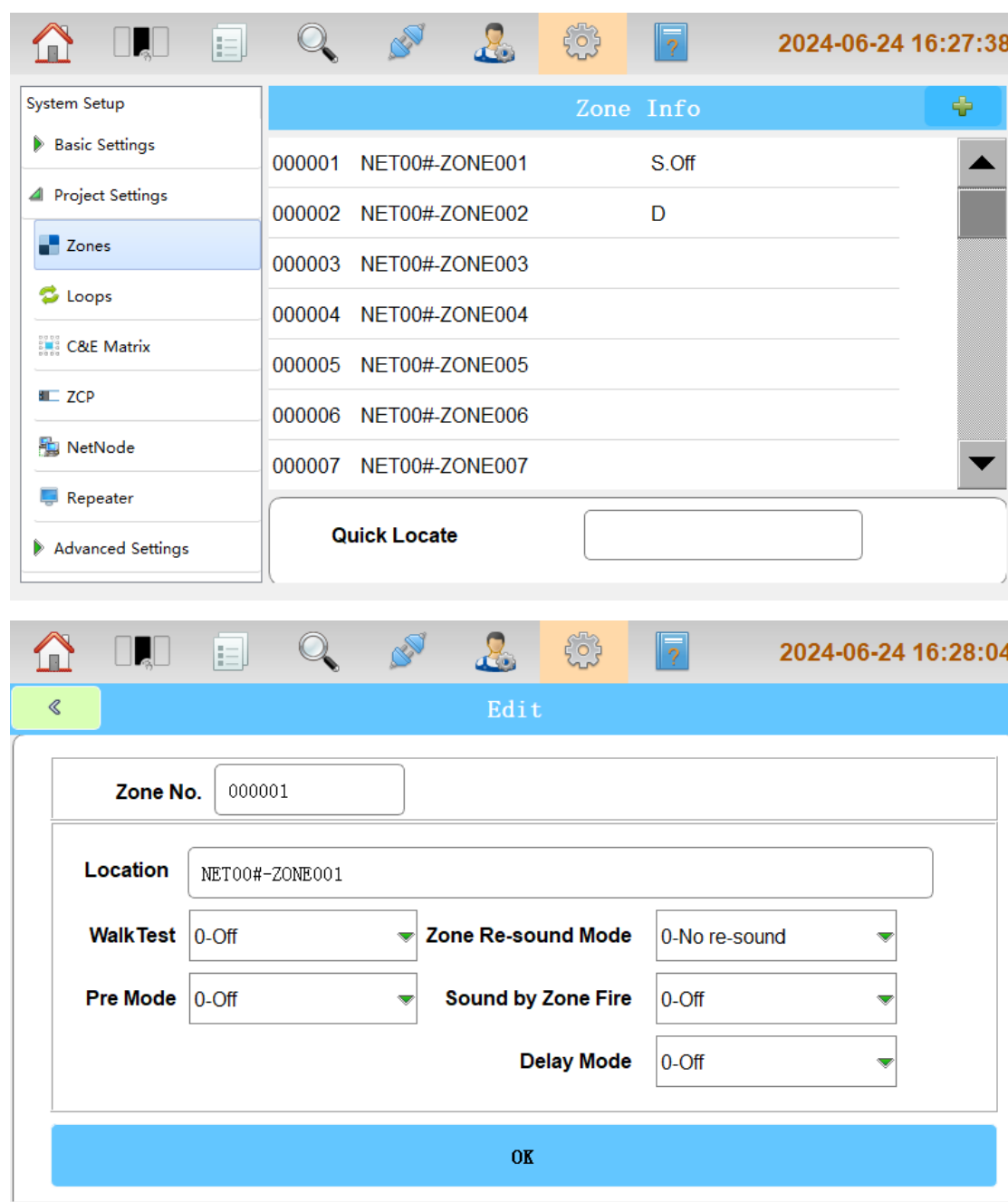
Zone Resound Mode: After the sounder in local zone is activated, perform silence, and the local sounder will be activated again by alarm in the neighbor zone

Pre Mode: Type A, panel turns into a fire alarm after both A1 and A2 time periods have alarm; Type B, panel turns into a fire alarm after two different alarms during the same time period.

Sound by zone Fire: The fire alarm will automatically start the sounders in the same zone

Delay Mode: Sounder delay start mode

click **OK** button to save setup. Refer to the figure below Fig. 4.12.



The figure shows two screenshots of the GST-IFP2E Intelligent Fire Alarm Control Panel software interface.

The top screenshot displays the "Zone Info" table with the following data:

Zone No.	Location	Status
000001	NET00#-ZONE001	S.Off
000002	NET00#-ZONE002	D
000003	NET00#-ZONE003	
000004	NET00#-ZONE004	
000005	NET00#-ZONE005	
000006	NET00#-ZONE006	
000007	NET00#-ZONE007	

The bottom screenshot shows the "Edit" screen for Zone No. 000001. The configuration options are as follows:

Field	Value
Zone No.	000001
Location	NET00#-ZONE001
Walk Test	0-Off
Zone Re-sound Mode	0-No re-sound
Pre Mode	0-Off
Sound by Zone Fire	0-Off
Delay Mode	0-Off

The "OK" button is visible at the bottom of the configuration screen.

Fig. 4.12

If the zone is configured to Walk Test on, the test mode can be viewed by clicking Browse following Zones, as shown in Fig. 4.13.

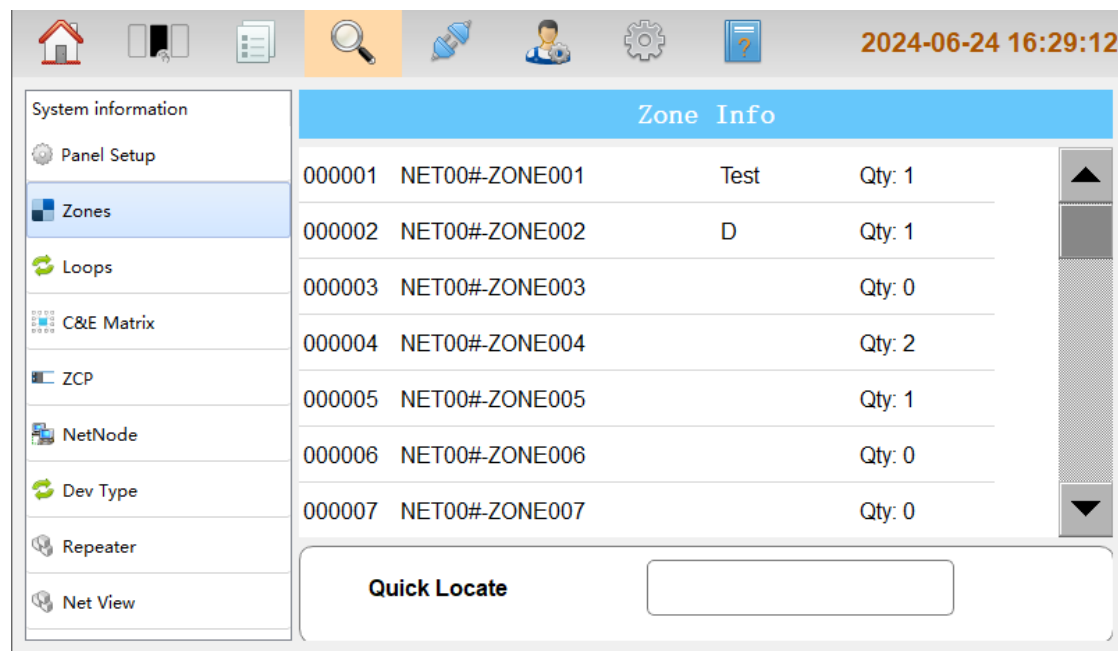


Fig. 4.13

- Loops: clicking **Loops** enters the screen for setting loop devices. The right screen shows all the loops of the FACP, quantity of devices of each loop, as shown in the figure below Fig. 4.14.

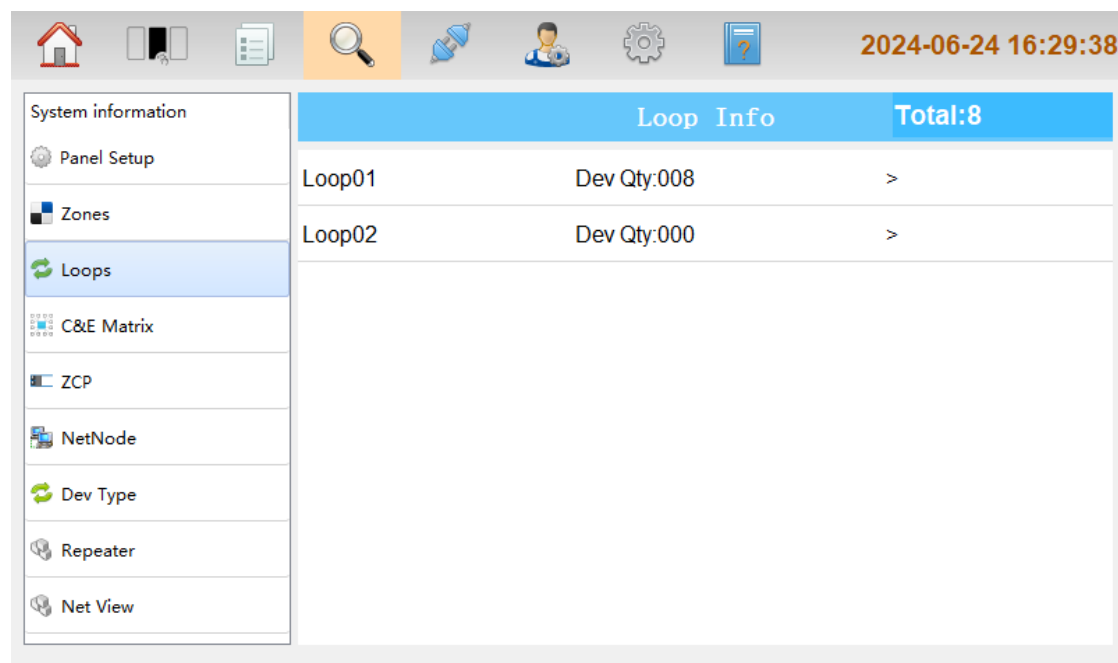


Fig. 4.14

Clicking a certain loop, a list for the loop will be shown. In this screen, loop devices can be added, deleted and saved. Refer to the figure below Fig. 4.15.

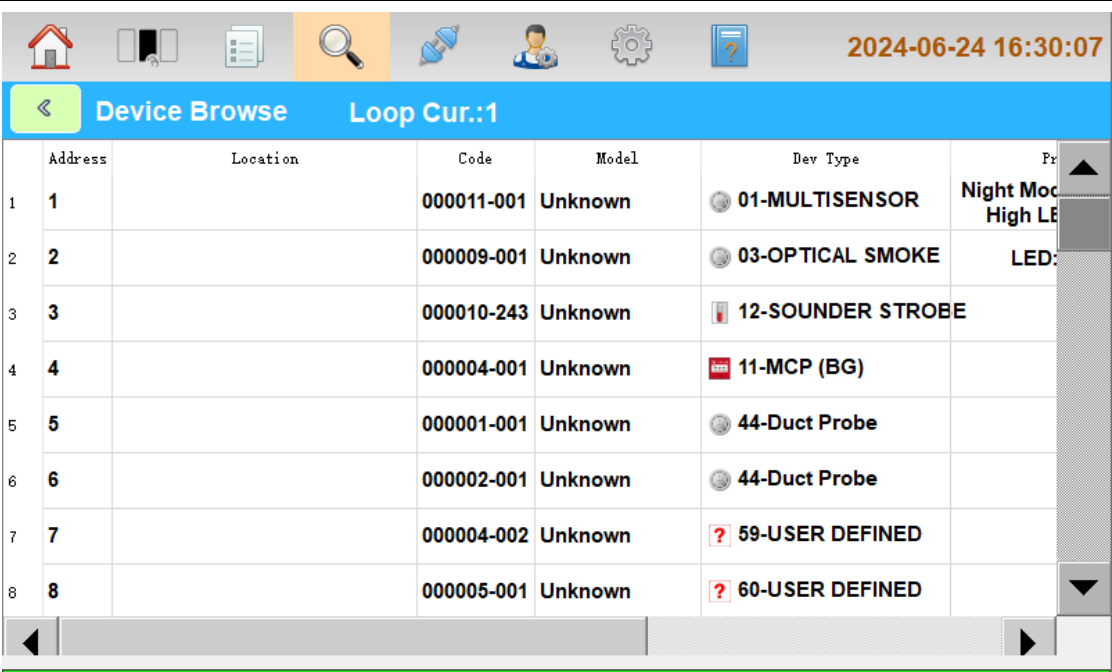
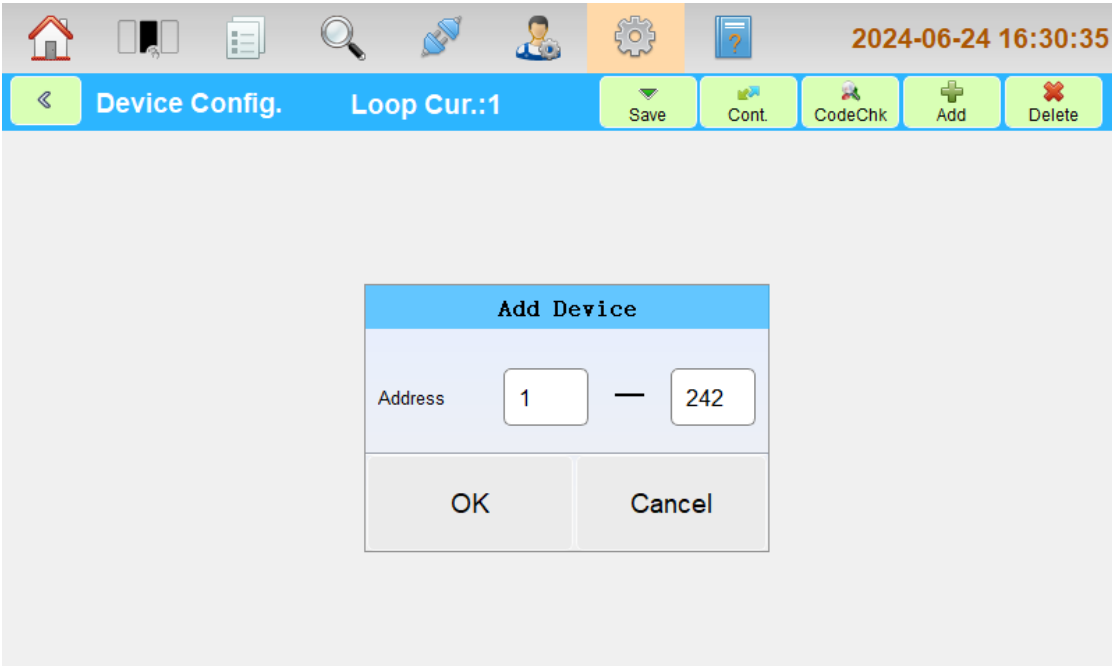


Fig. 4.15

Add/Delete a Device: clicking **Add** or **Del** button on the right corner, devices can be added or deleted. After each **Add** or **Del** operation, need to click **Save**. Refer to the following figure Fig. 4.16.



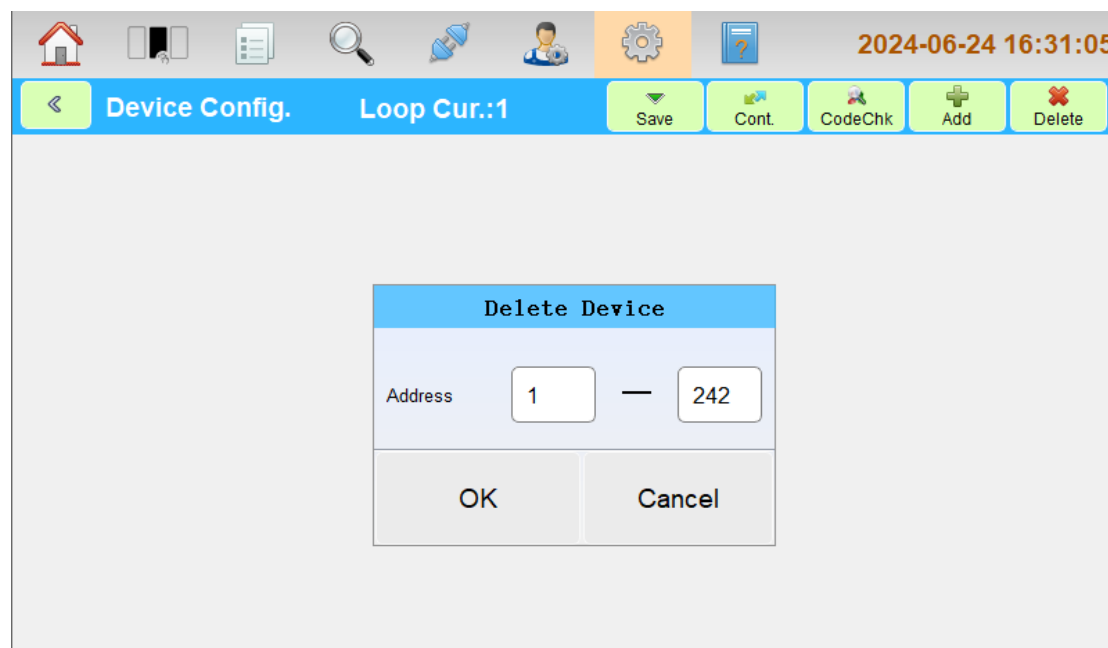
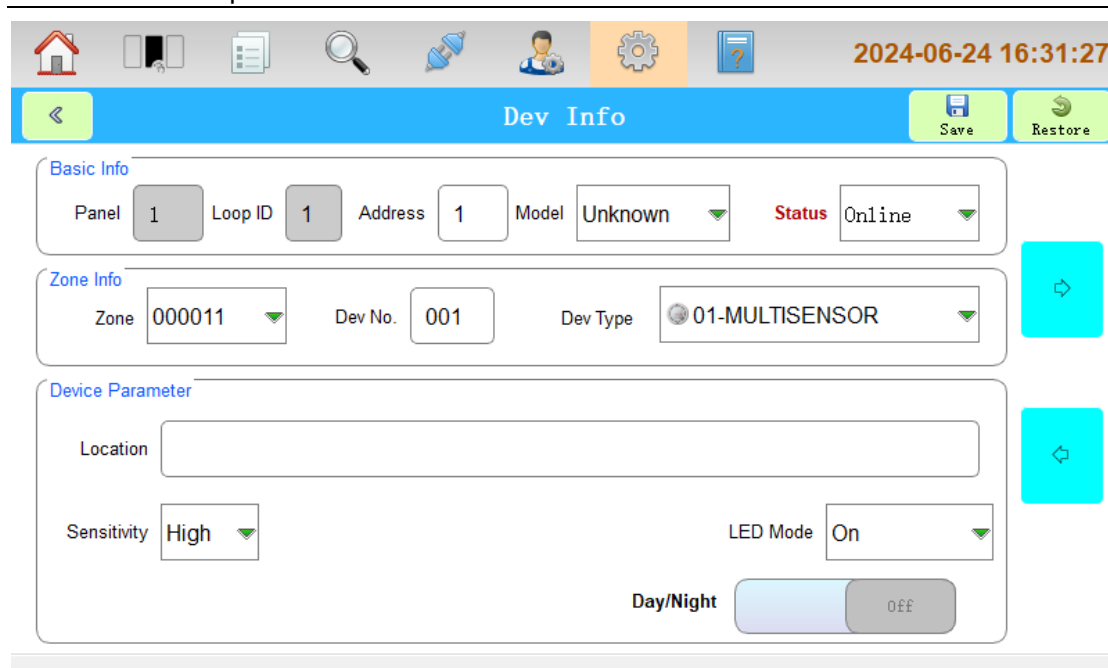


Fig. 4.16

Clicking a device in device define screen pops up the screen for setting the details of the device. Clicking => or <= can skip to another device or the previous device respectively. Refer to the figure below Fig. 4.17.

- ✧ **Panel:** address of the FACP
- ✧ **Loop ID:** loop number of the device
- ✧ **Address.:** address code of the device
- ✧ **Status:** status of the device
- ✧ **Zone:** zone number of the device
- ✧ **Dev No:** device number of the device in the zone
- ✧ **Model:** device model
- ✧ **Dev Type:** device type
- ✧ **Location:** device descriptions
- ✧ **Sensitivity:** sensitivity information of the detector
- ✧ **LED Mode:** indicates polling state of the device
- ✧ **Day/Night:** enable or disable of Day or Night mode



Dev Info

Basic Info

Panel Loop ID Address Model Status

Zone Info

Zone Dev No. Dev Type

Device Parameter

Location

Sensitivity LED Mode

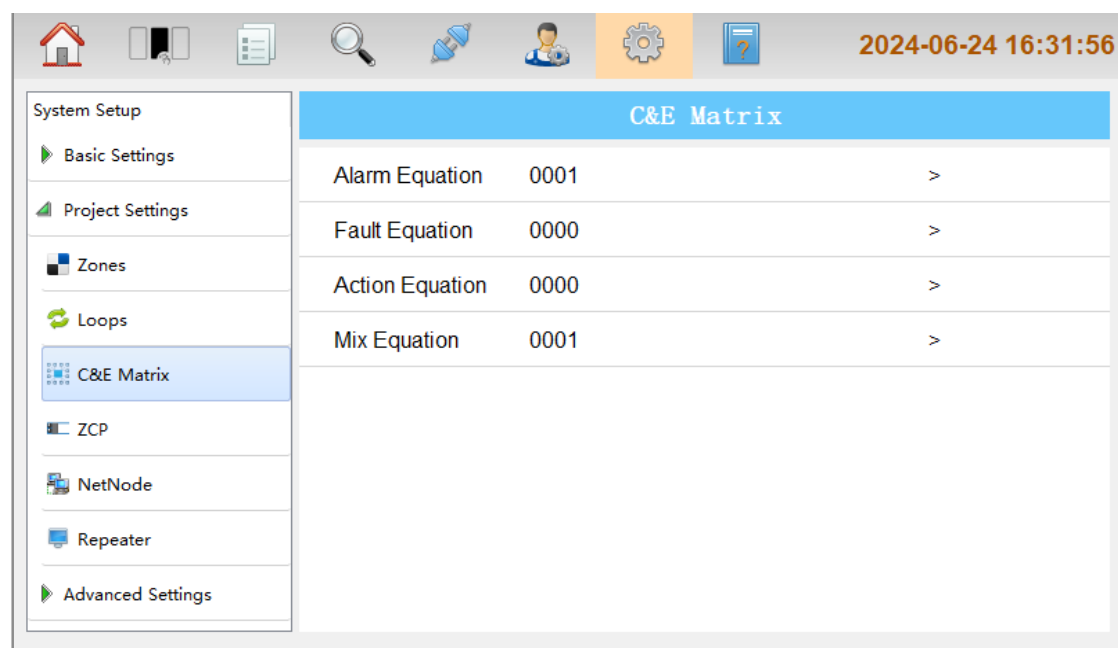
Day/Night ☐ ☐

Save **Restore**

Fig. 4.17

Clicking **Save** button on the right corner, device definitions for the current loop can be downloaded to the loop board.

- C & E Matrix: clicking **C&E Matrix** in **Project Settings** menu enters the screen below Fig. 4.18 including **Alarm Rules**, **Fault Rules**, **Action Rules** and **Mix Rules**.



C&E Matrix

Equation Name	Equation Number	Action
Alarm Equation	0001	>
Fault Equation	0000	>
Action Equation	0000	>
Mix Equation	0001	>

System Setup

- Basic Settings
- Project Settings
- Zones
- Loops
- C&E Matrix**
- ZCP
- NetNode
- Repeater
- Advanced Settings

Fig. 4.18

Clicking a cause and effect matrix of any kind, details of that kind of matrix can be shown as in Fig. 4.19

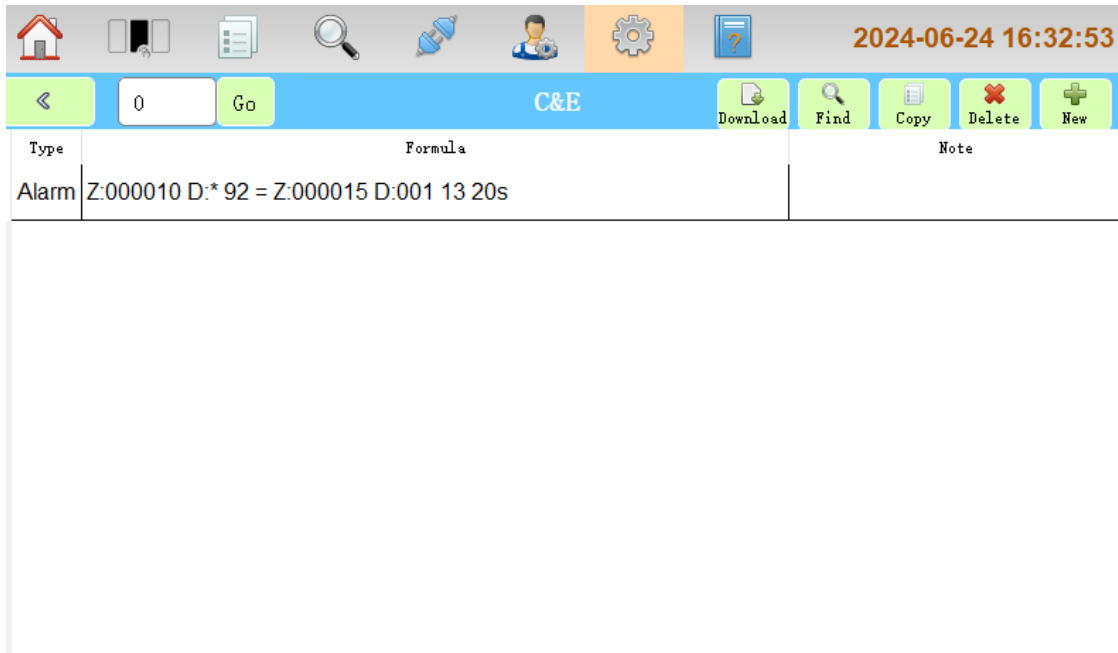


Fig. 4.19

Clicking **Find** in Fig. 4.19 can pop up a dialogue box as shown in Fig. 4.20 As the conditions are changed as required, clicking **OK** can view those cause and effect matrixes meeting those conditions.

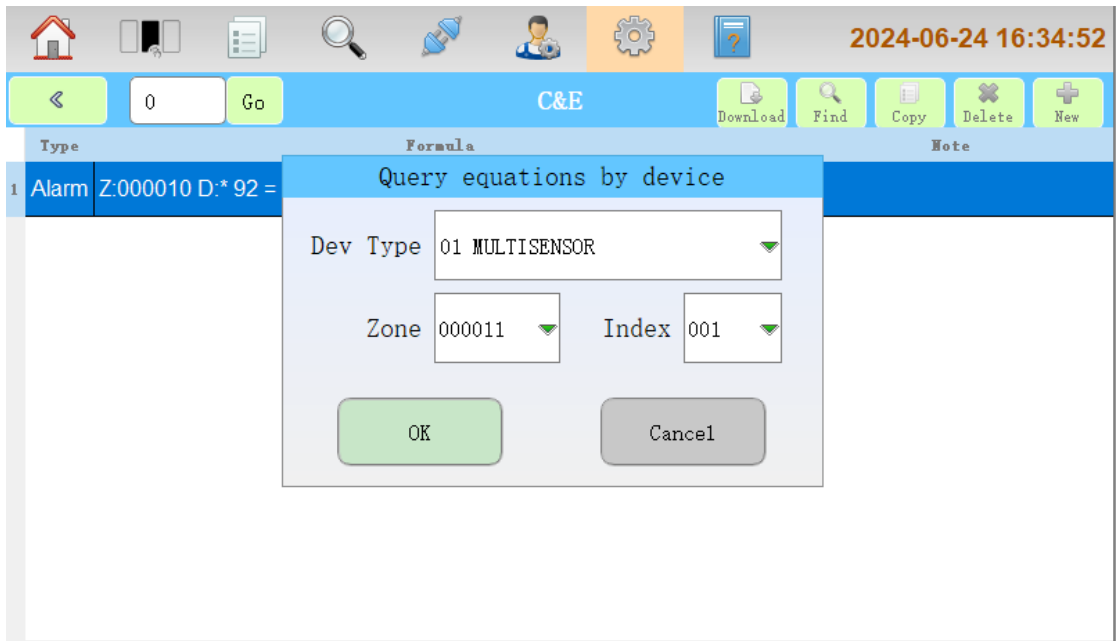


Fig. 4.20

Clicking **Copy** in Fig. 4.19 can pop up a dialogue box. As the parameters are changed, clicking **OK** can copy that selected cause and effect equation or that with the same format. Clicking **Delete** in Fig. 4.19 can pop up a dialogue box for delete. Clicking **OK** can delete the selected equation.

Clicking **New** in Fig. 4.19 can enter the screen for creating a new cause and effect equation as shown in Fig. 4.21 Input device list is on the left and output device list on the

right.

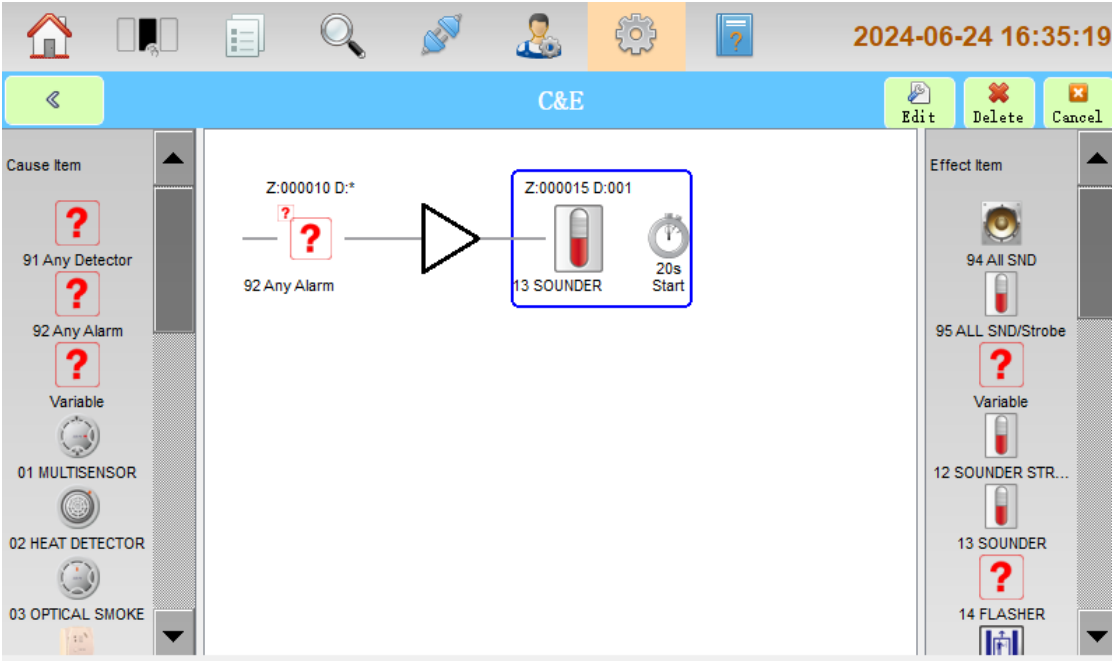


Fig. 4.21

Clicking a device in the list, drag and release it in the editing area. A new equation will be added by editing the parameters.

Selecting a device in editing area, its message can be changed by clicking **Edit** or double clicking on the device.

Selecting a device in editing area, it can be deleted by clicking **Delete**.

Clicking **Cancel** can stop creating a new matrix and return to the previous screen.

- ZCP: clicking **ZCP** in **Project Settings** menu enters the screen for setting the zone panels. Refer to the figure below Fig. 4.22

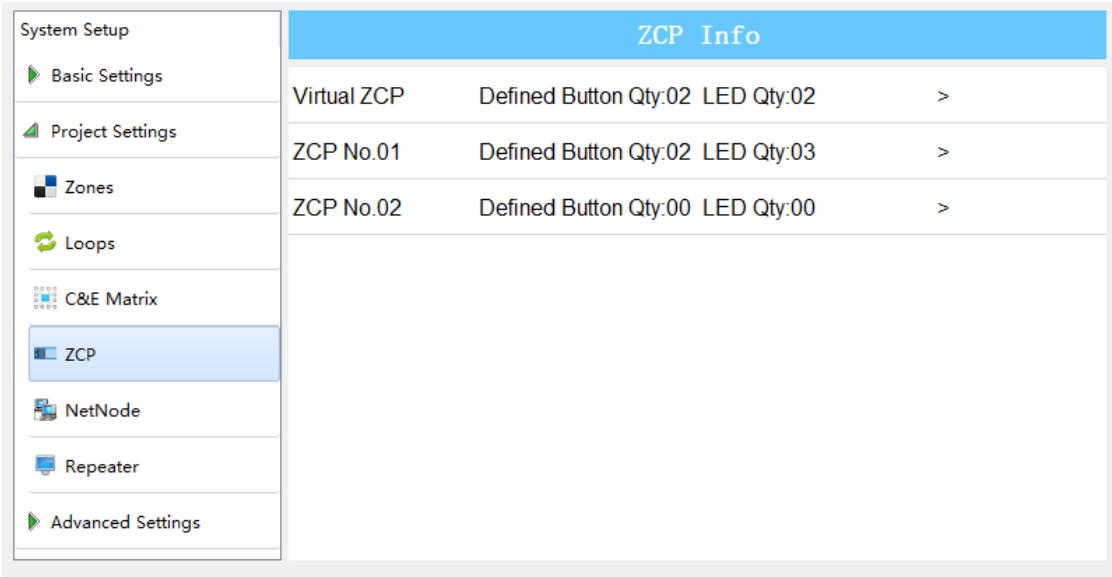


Fig. 4.22

Clicking a zone panel enters the setting screen as shown in the figure below Fig. 4.23

Every zone panel has 40 LEDs and 20 keys. Each LED had red, green and yellow colors for users to set, user also can use virtual ZCP, virtual ZCP has no physical buttons and LEDs, buttons and LEDs are simulated by display screen, the configuration method is same as the general ZCP, if the virtual zone panel is set, the state of zone will display as the Fig 4.25.

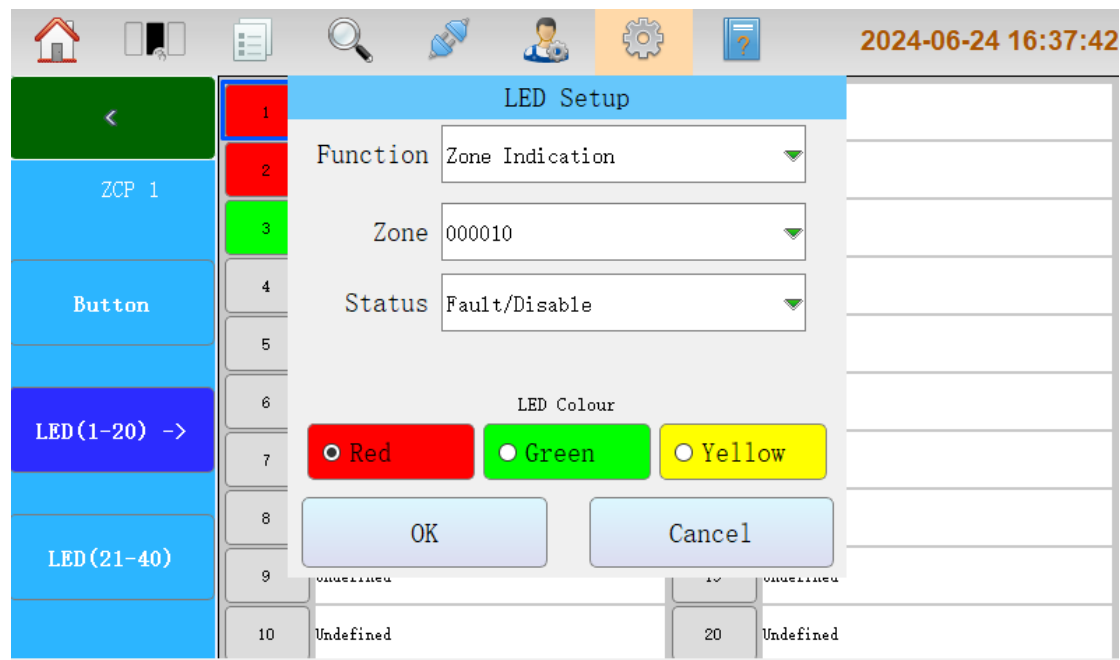


Fig. 4.23

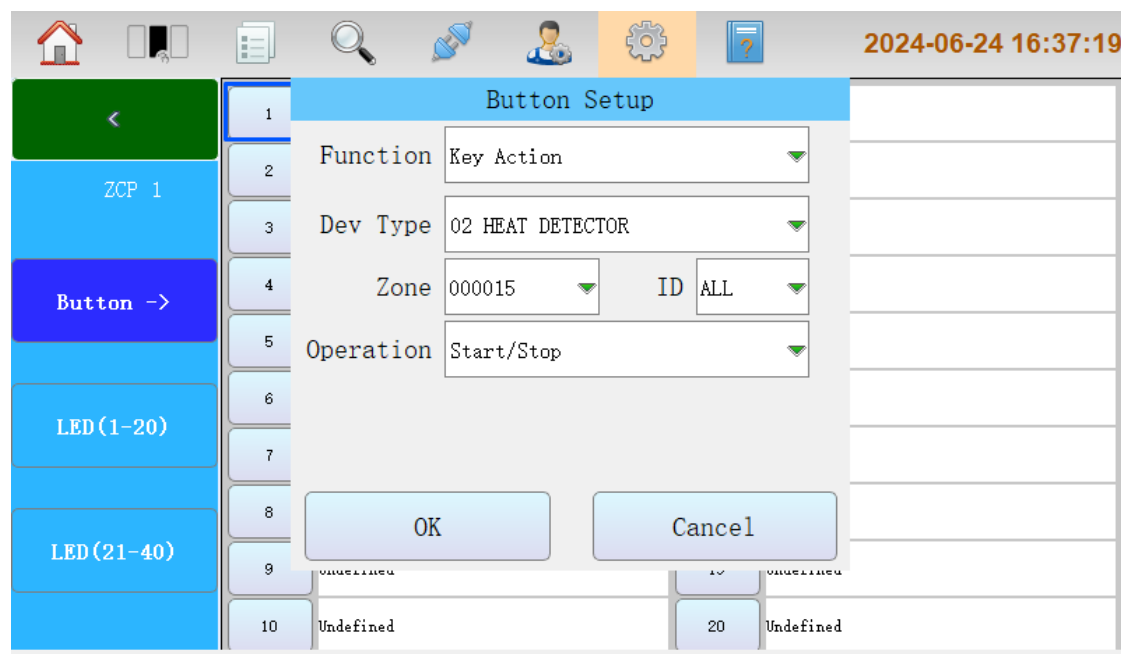


Fig. 4.24

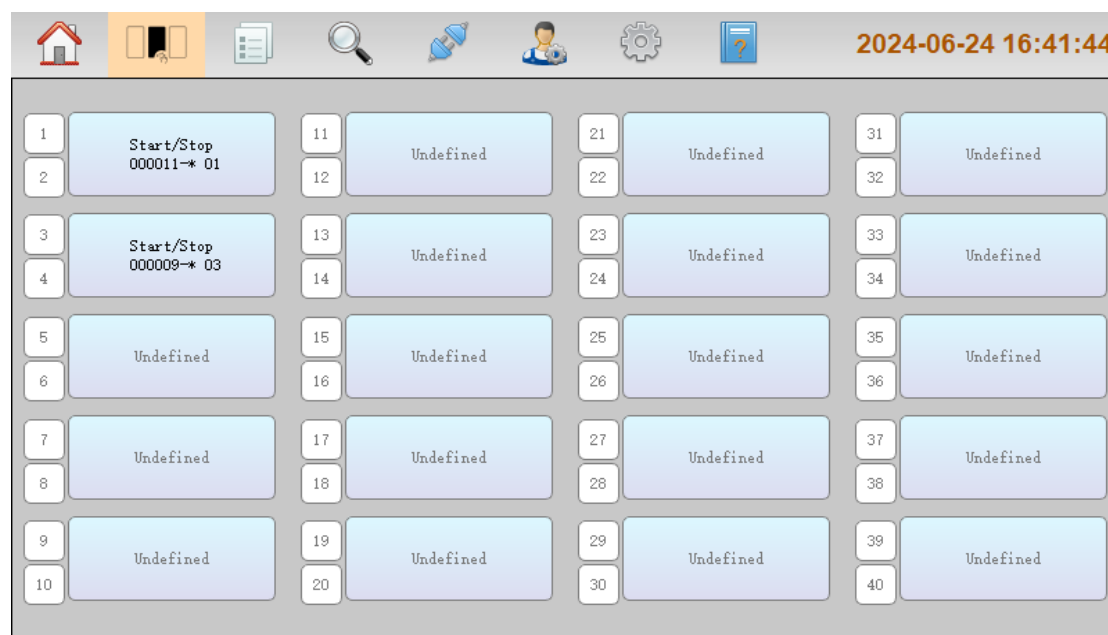


Fig. 4.25

4.1.3 Advanced Settings

Entering the Engineering password, clicking “Network Setup” in “Advanced Settings”, Groups can be set as shown in Fig. 4.26.

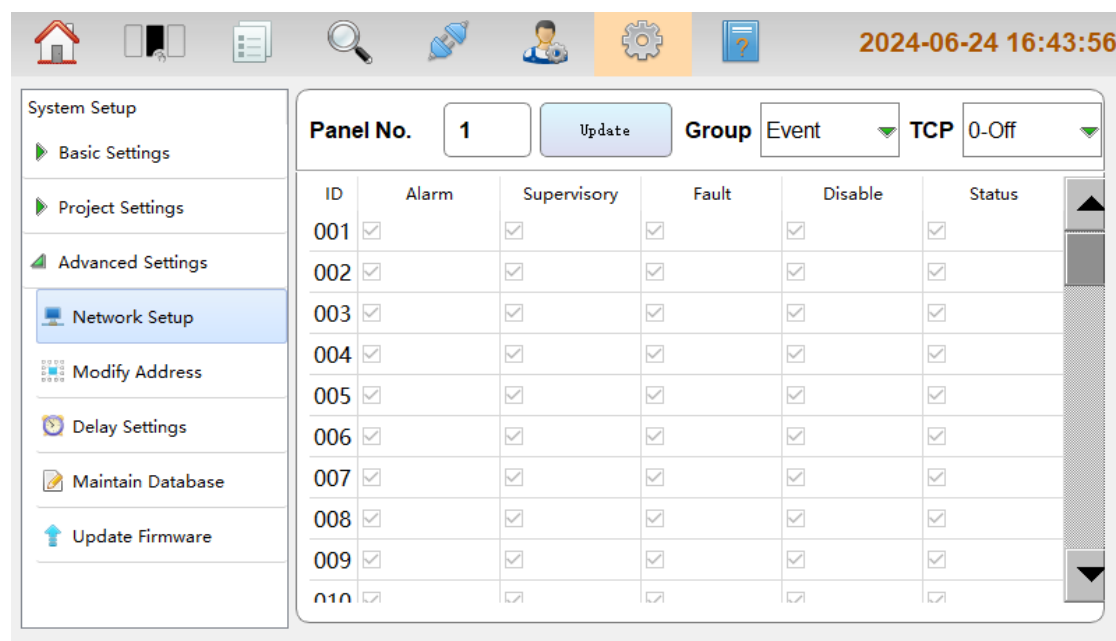


Fig. 4.26

Panel No:click "Update" after filling up the Panel ID.

Group: "Event" and "Command" can be filtered.

Refer to the table above for Event type be filtered. Those messages with no ticks are filtered.

TCP: It is network mode which can be set to on or off. As it is set to On, TCP/IP is used to connect other panels. As it is set to Off, CAN is used to connect other panels.

- **Modify Address:** Users can modify device code based on the actual situation by clicking **Modify Address** in **Advanced Settings** menu as shown in Fig. 4.27.

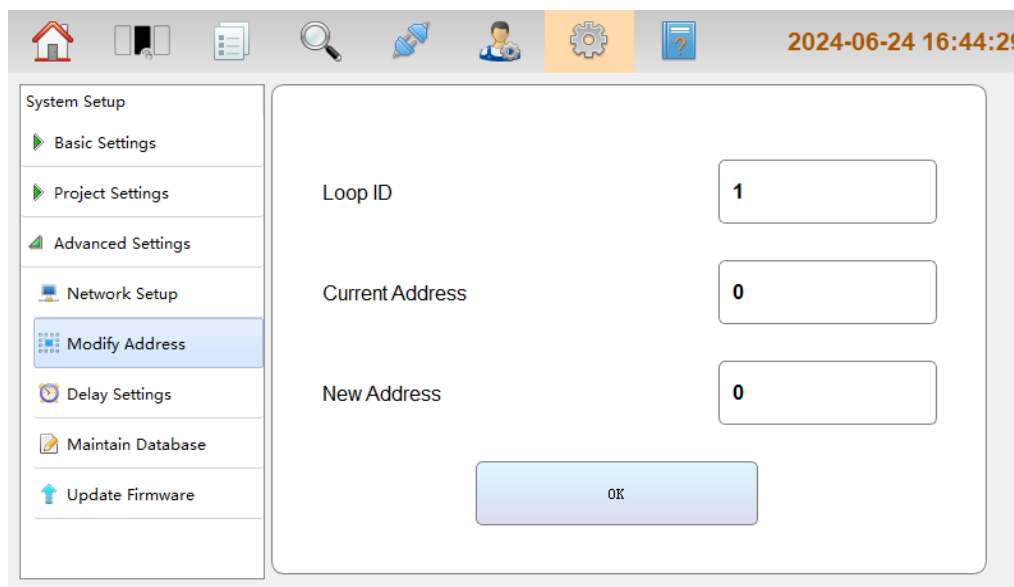


Fig. 4.27

Loop ID: loop No.

Current Address: an existing device code.

New Address: a new device code.

- **Delay Setting:** Users can set delay based on the actual situation by clicking **Delay Settings** in **Advanced Settings** menu as shown in Fig. 4.28. Delay for Silence, Mute and Pre-Alarm delay timer can be set.

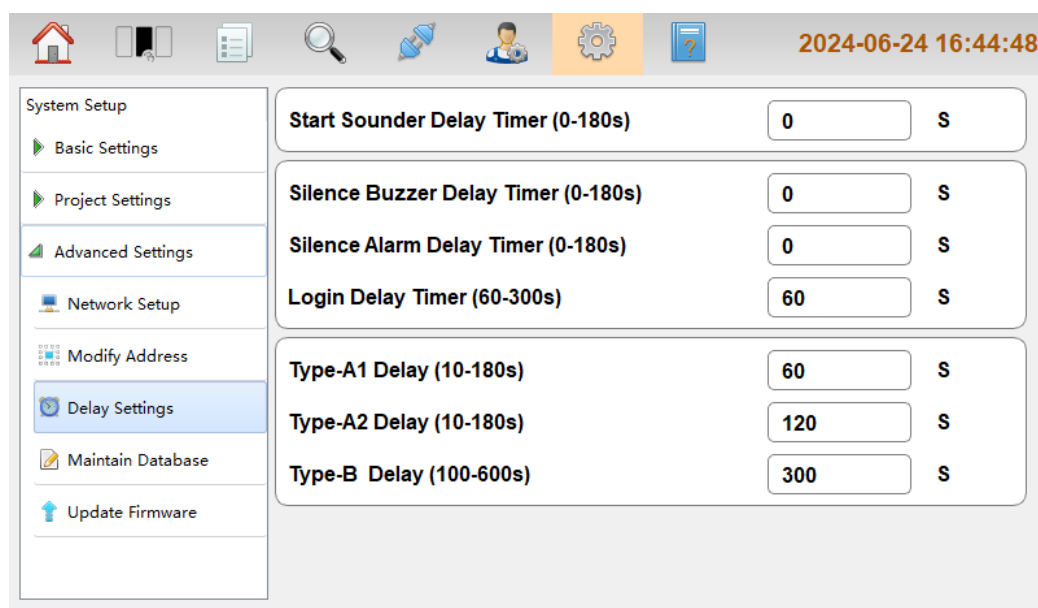


Fig. 4.28

Silence Alarm Delay Timer: When fire alarm condition occurs user can silence alarm by press the Silence Alarm key after the Silence alarm Delay time.

Silence Buzzer Delay Timer: When fire alarm condition occurs user can silence buzzer by press the Silence Buzzer key after the Silence Buzzer Delay time.

Type_A1 Delay: Type A phase 1 of pre-alarm delay setting.

Type_A2 Delay: Type A phase 2 of pre-alarm delay setting.

Type B Delay: Type B pre-alarm delay setting.

- Update Firmware: Clicking **Update Firmware** in **Advanced Settings** menu and entering the upgrade password (obtained from the maintenance service supplier), users can update firmware as shown in Fig. 4.29 then insert USB flash into the LCD drive board and click **OK** to update firmware.

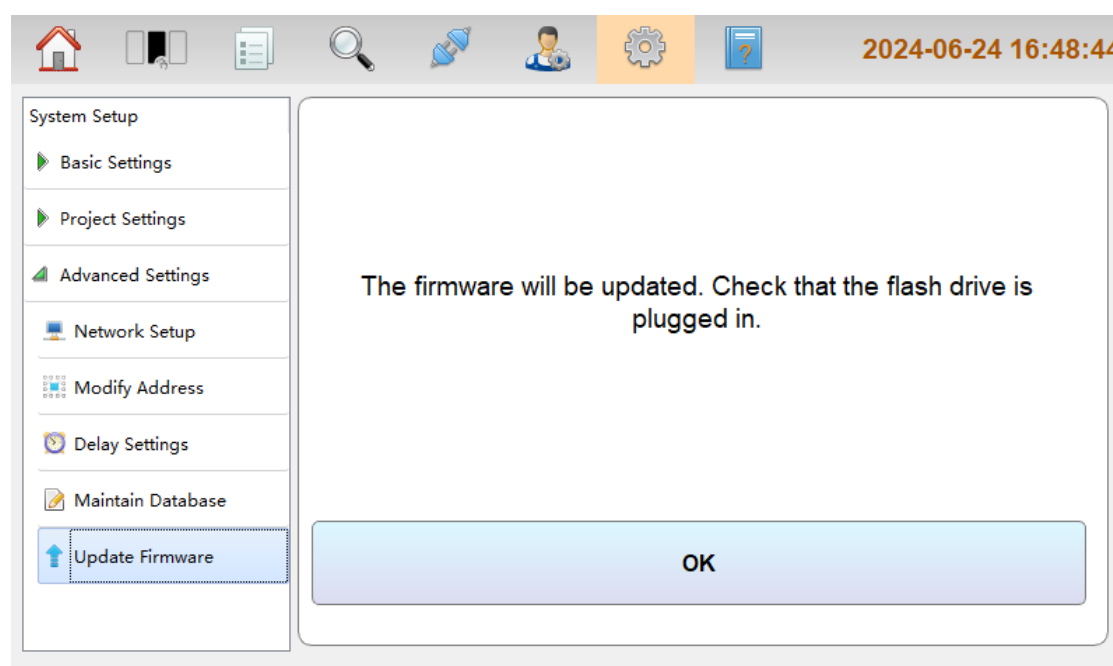


Fig. 4.29

4.2 Programming FACP Through GST-DEF 4.1 Defining Software

Configurations and definitions can be downloaded to the FACP through USB or Ethernet interfaces after they are programmed by using GST-DEF 4.1 Defining Software.

4.2.1 Auto Registration to Generate Configuration

Entering System Setup/Advanced Settings/Maintain Database,click Auto Register button.

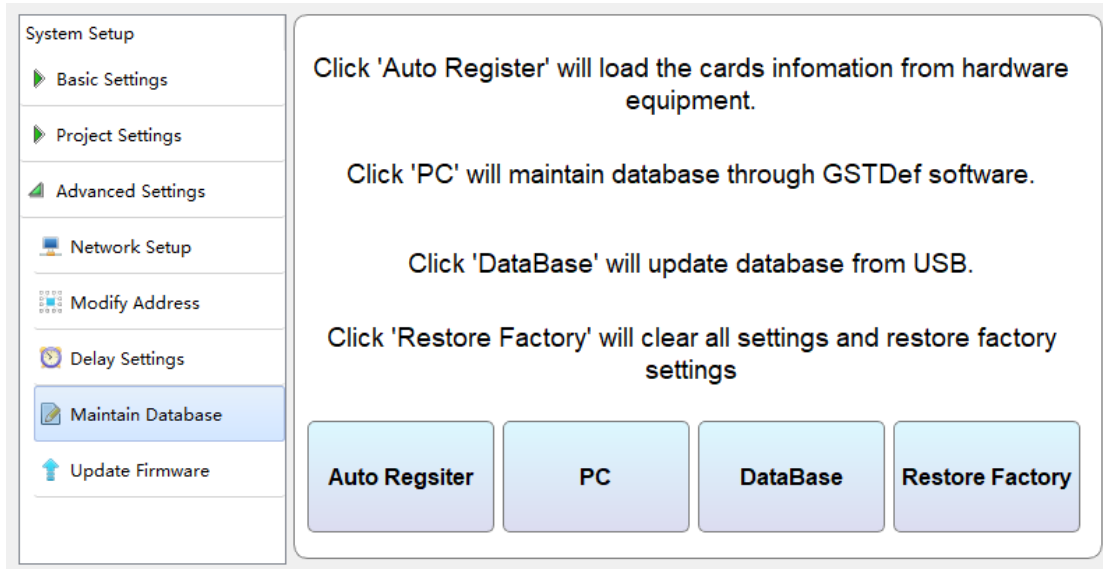


Fig. 4.30

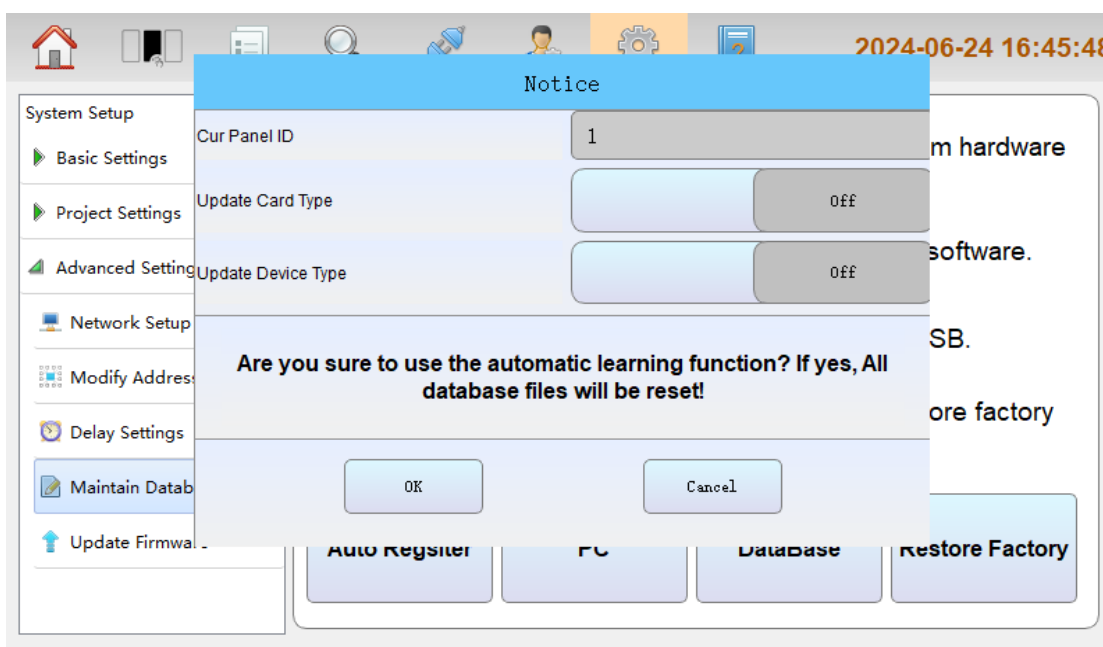


Fig. 4.31

- **Cur Panel ID:** Devices can be zoned by the current panel ID. For example: Those devices connected to panel 1 will be distributed to zone 1-8. Those devices connected to panel 2 will be distributed to zone 9-16. Address within a zone are physical addresses of devices.
- **Update Device Type:** If auto registration is set to On, the current device type can be updated based on its MAC. If auto registration is set to Off, on-line state and related zone are updated, but the current device type is not be verified.

Clicking OK, the system reboots and enters auto registration. Please wait.

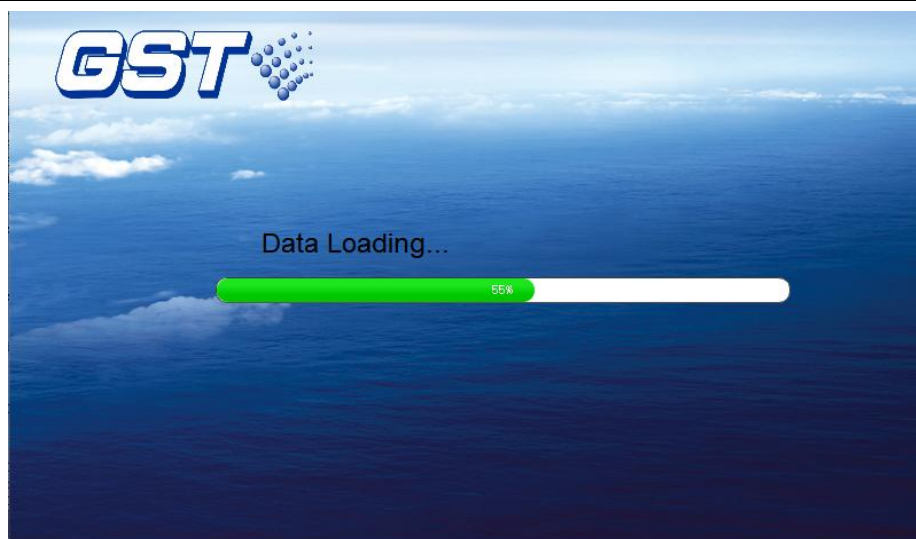


Fig. 4.32

4.2.2 Download through Ethernet interface

After programming the FACP using GST-DEF 4.1 Defining Software, connect Ethernet port of the programming computer to the Ethernet interface on FACP's MB-20E GST-IFP2E Main Board through a switch, a router or a cross-over Ethernet cable. In **Basic Settings** menu, select **TCP/IP Setup** in **Panel setup** as shown in the figure below Fig. 4.33 On the programming window to the right, key in IP Address, Subnet Mask and Gateway address. Note that FACP's IP address shall be in the same subnet as the programming computer.

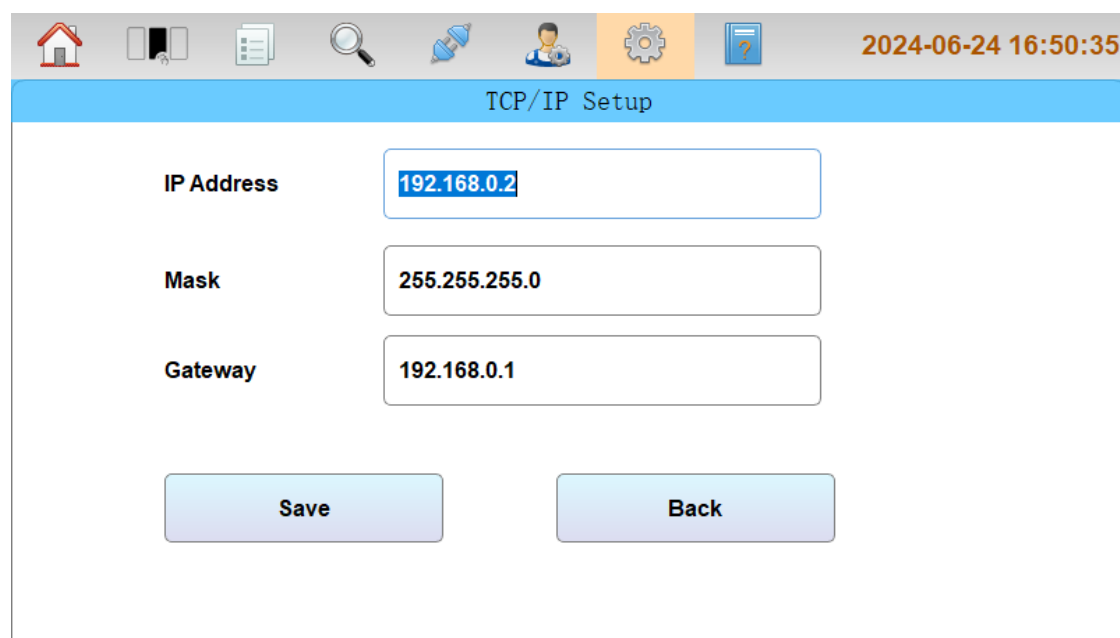
The image shows a software window titled "TCP/IP Setup". At the top, there is a toolbar with icons for home, back, forward, search, and other functions. To the right of the toolbar is a timestamp: "2024-06-24 16:50:35". Below the toolbar, the title "TCP/IP Setup" is displayed in a blue bar. The main area of the window contains three input fields: "IP Address" with the value "192.168.0.2", "Mask" with the value "255.255.255.0", and "Gateway" with the value "192.168.0.1". At the bottom of the window, there are two buttons: "Save" and "Back".

Fig. 4.33

Clicking **PC** in Fig. 4.30 pops up the screen as shown in Fig. 4.34. At this time, the configurations and definitions can be downloaded to the FACP from GST-DEF 4.1 Defining Software.

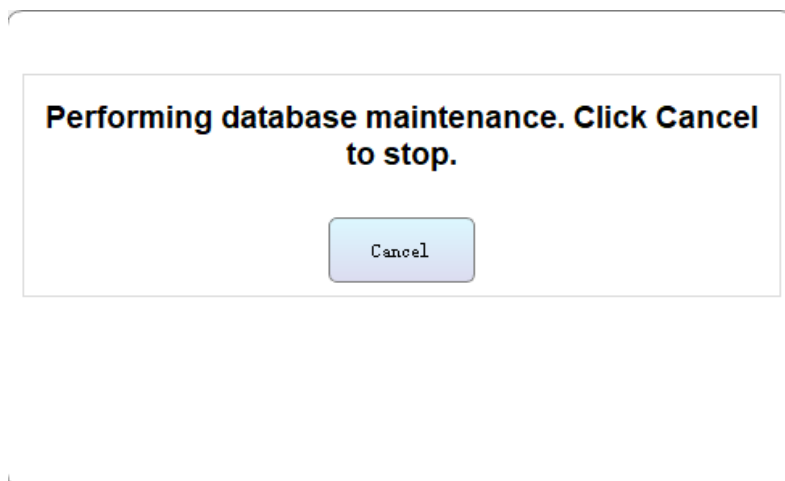


Fig. 4.34

4.3 User Setup

Clicking  button enters **User Setup** menu by inputting user password. Messages about soft keyboard, display, test, date/time, printer, day/night mode, language, project information, and so can be set in this screen. Refer to the figure below Fig. 4.35.

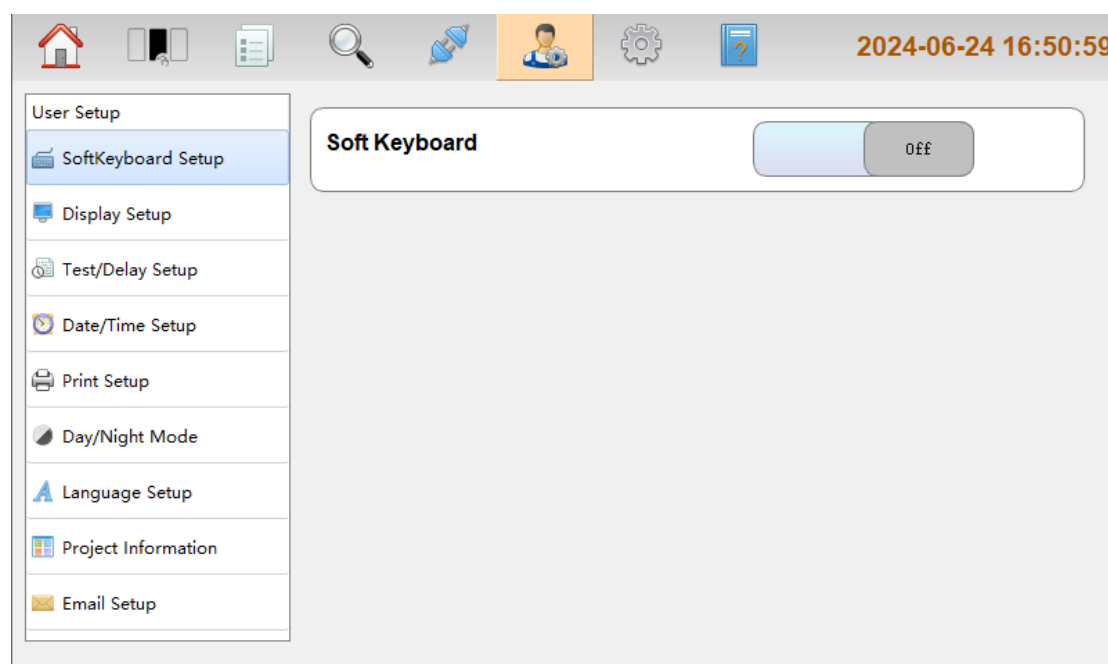


Fig. 4.35

4.3.1 Soft Keyboard Setting

Clicking Soft Keyboard Setup can set **On** or **Off** the soft keyboard through this option, refer to the figure above Fig. 4.35.

4.3.2 Display Setup

Clicking **Display Setup** in **User Setup** menu enters the screen for setting font size, LCD backlight time and so on. Refer to the figure below Fig. 4.36.

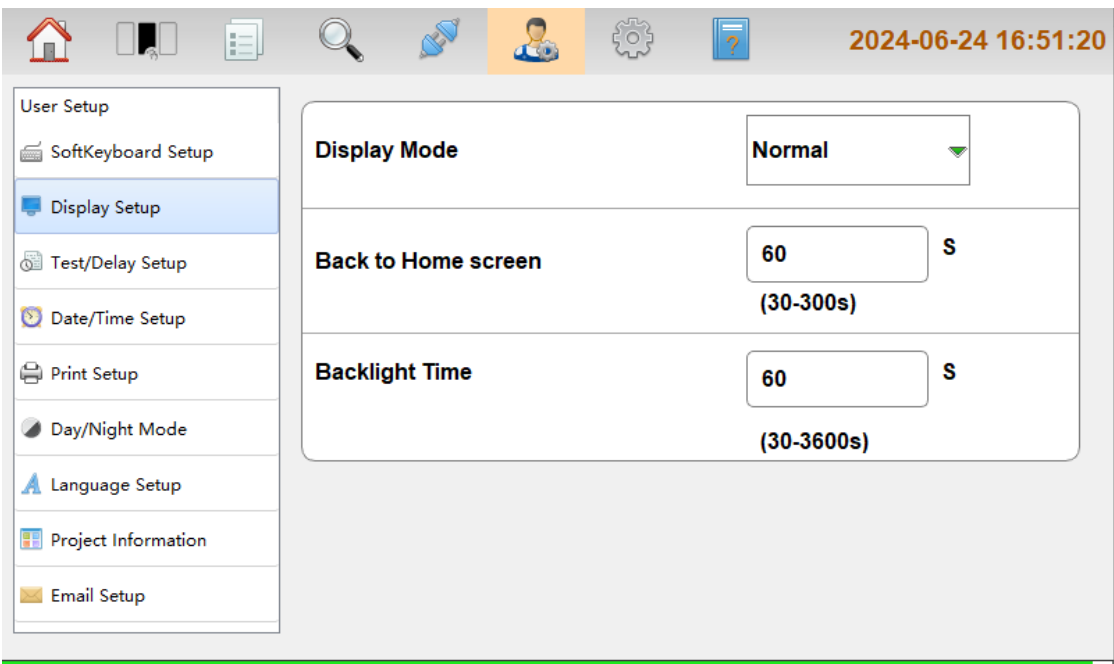


Fig. 4.36

4.3.3 Test/Delay Setup

In Test Setup Menu, there are three items as shown in Fig. 4.37.

Delay Mode: Delay Mode setting, 1 is on, 0 is off.

Activate ALARM/SOUNDER OUTPUT in Test Mode: EN listed notification appliances are connected to the OUTPUTs, User can set the activate time of notification appliances in test mode by the option

Fault Test Mode: when turn on the function, the panel will report devices fault within 10s if there are some devices fault.

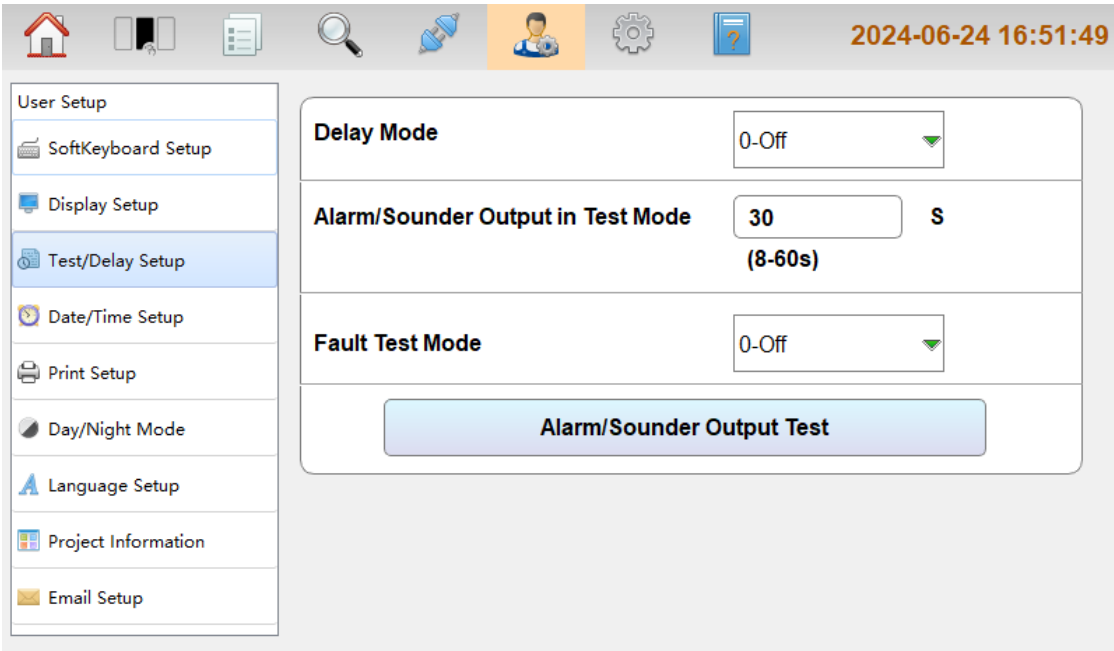


Fig. 4.37

4.3.4 Date/Time Setup

In user setup screen, users can set Data Format and Modify System Clock as required by clicking **Date/Time Setup** in **User Setup** menu. Refer to the figure below Fig. 4.38.

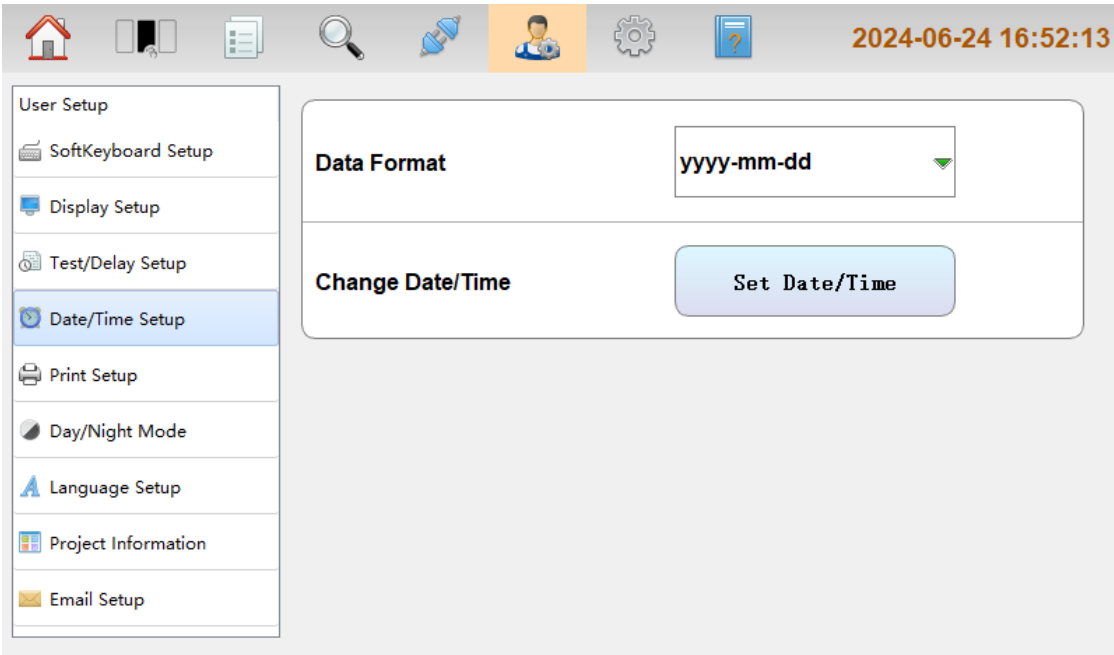


Fig. 4.38

Clicking **Set Date/Time** button behind **Change Date/Time** can modify the system time as shown in the figure below Fig. 4.39. When the time is configured, the time will synchronize with other panels in the network, and time will also synchronize every three hours

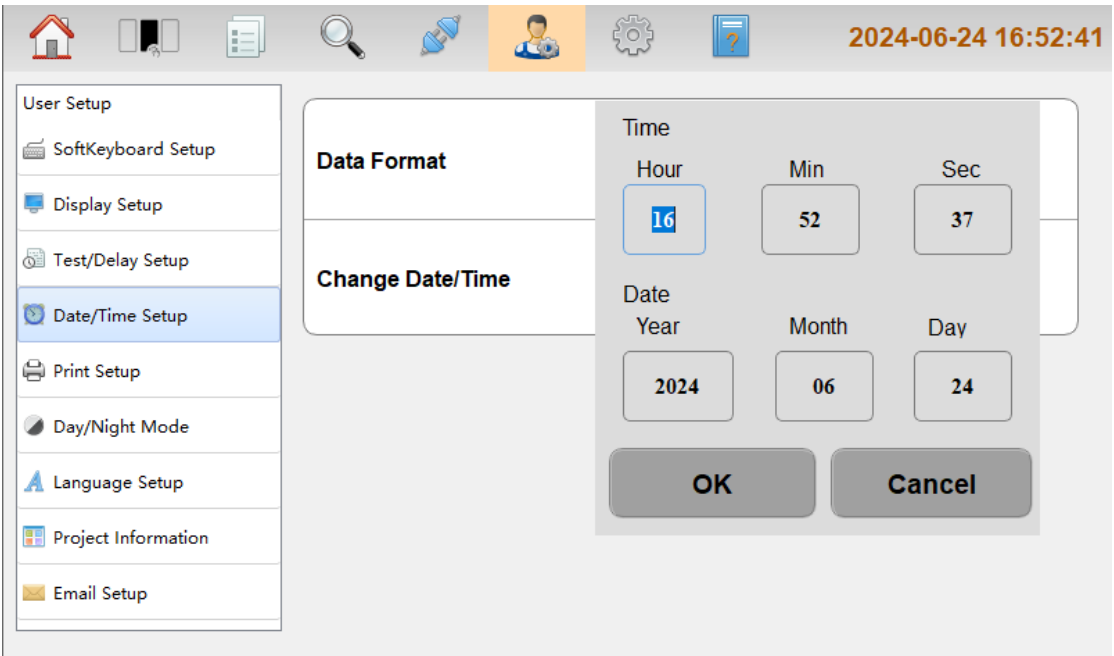


Fig. 4.39

4.3.5 Print Setup

Clicking **Print Setup** in **User Setup** menu enters the screen for setting the printer.

Real-time print and printing types can be set. Refer to the figure below Fig. 4.40

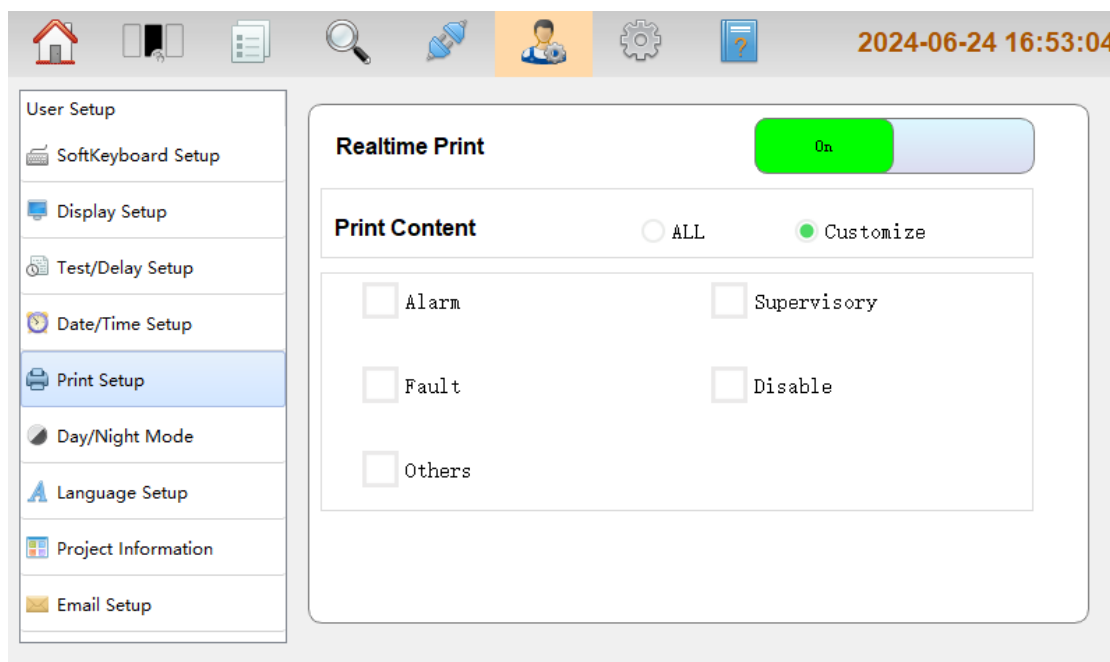


Fig. 4.40

4.3.6 Day/Night Mode

Clicking **Day/Night Mode** in **User Setup** menu, Day/Night mode can be set. Refer to the following figure Fig. 4.41.

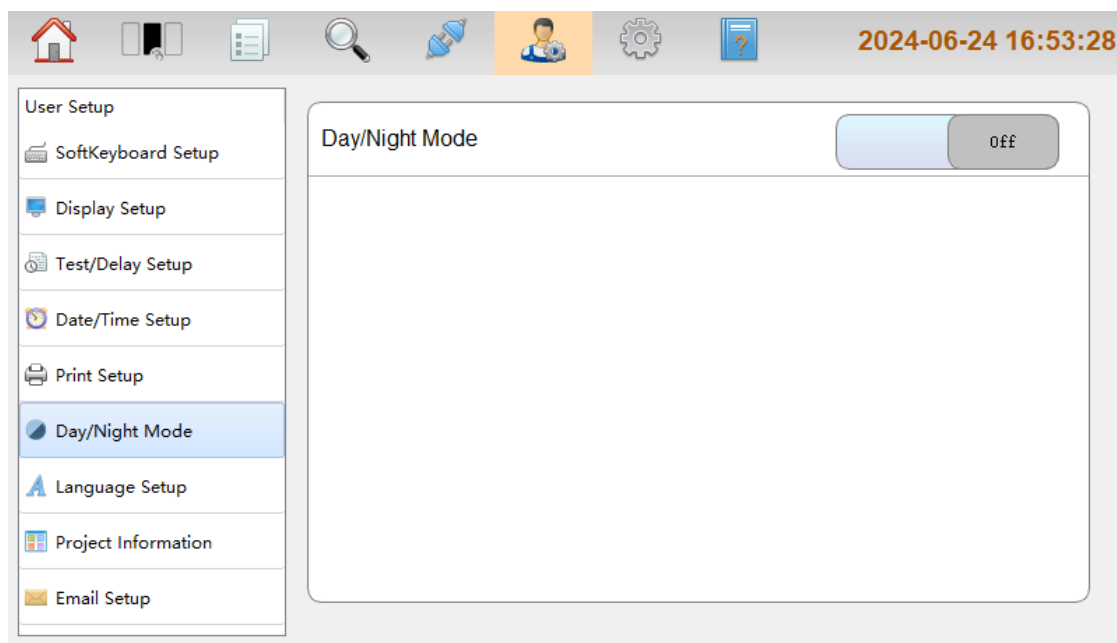


Fig. 4.41

In this mode, starting and ending time for the day can be set. Refer to the following figure Fig. 4.42.

In the **Day mode**, the sensitivity of the detector decreases,

In the **night mode**, the sensitivity of the detector increases.

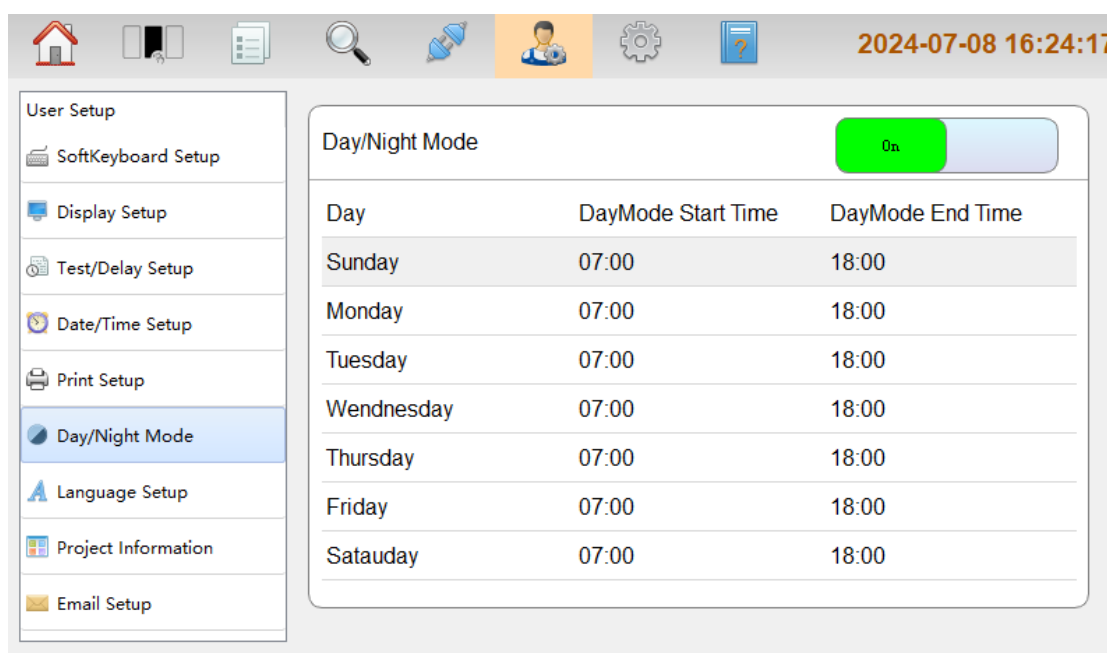


Fig. 4.42

4.3.7 Language Setup

Clicking **Language Setup** in **User Setup** menu enters the screen for setting the language. In this screen, the display language can be selected. Available languages are English, Arabic, Russian, Spanish, Hungarian, Italian, French, Portuguese, Turkish, Traditional Chinese. Refer to the figure below Fig. 4.43.

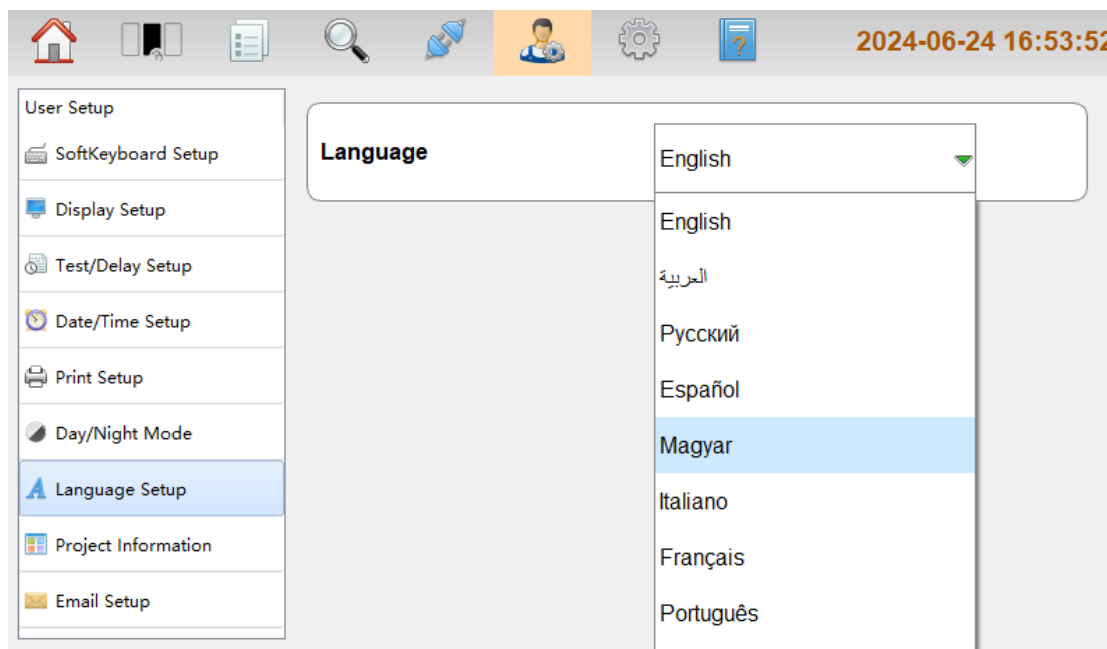


Fig. 4.43

4.3.8 Project Information

Clicking **Project Information** in **User Setup** menu enters the screen for setting the

project information. Refer to the figure below Fig. 4.44

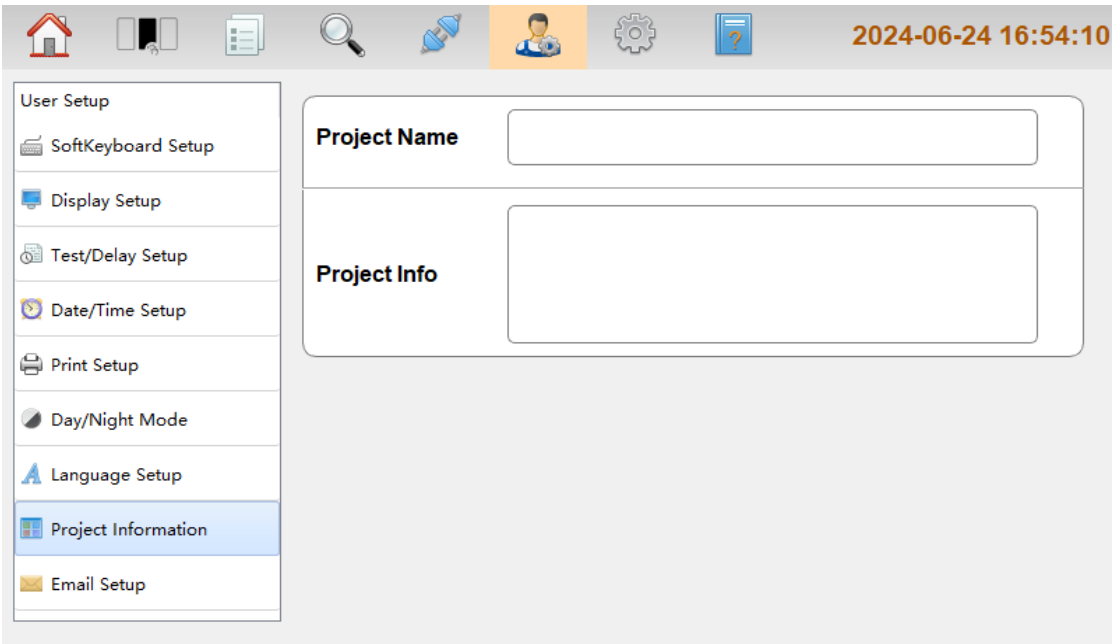


Fig. 4.44

4.3.9 Email Setup

Clicking **Email Setup** in **User Setup** menu enters the screen for setting the email that receive all events from panel. Refer to the figure below Fig. 4.45.

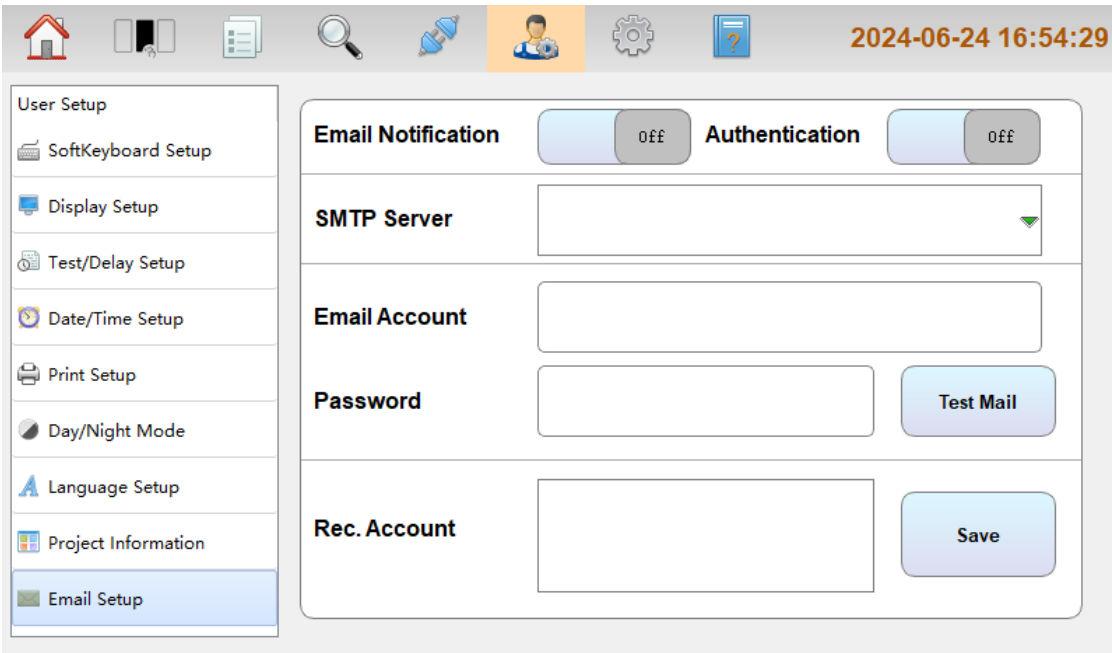


Fig. 4.45.

4.4 Forget Password

Clicking any enters a screen for you to enter the password. Refer to Fig. 4.46.

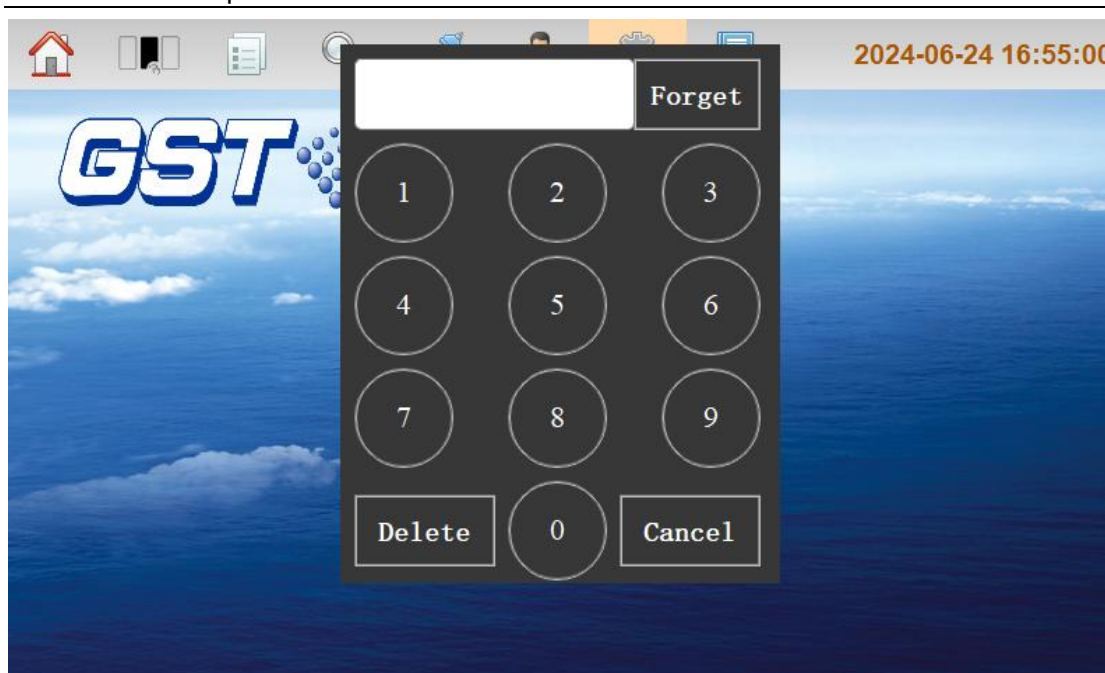


Fig. 4.46

Clicking “Forget” enters the screen as shown in Fig. 4.47.

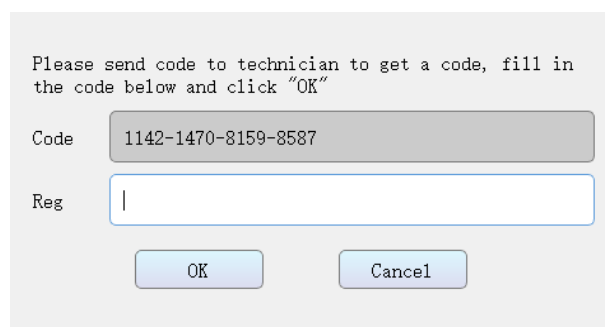
The image shows the 'Forget' screen. It has a light gray background. At the top, there is a text prompt: 'Please send code to technician to get a code, fill in the code below and click "OK"'. Below this, there are two input fields: 'Code' and 'Reg'. The 'Code' field is a text box containing the value '1142-1470-8159-8587'. The 'Reg' field is a text box with a single vertical line cursor. At the bottom, there are two buttons: 'OK' and 'Cancel'.

Fig. 4.47

Send the authentication code to a technician and you will receive a code in return. Enter the code on the same day you sent the authentication code, then click OK to complete.

4.5 GMC Connection

Switch on the GST-GMC switch as Fig. 4.7, connect the computer with GST GMC software and RJ45 of the panel. After that, Panel sends an alarm message to GMC and GMC displays it in real time.

The panel can check connections with GMC software in real time.

5 Equipment Operation and Information Browsing

5.1 Equipment Operation

Clicking  button on the left corner enters the menu for operating device including **Reset**, **Silence Buzzer**, **Silence Alarm**, **Self Check**, **Start**, **Stop**, **Disable** and **Enable**. Refer to the following figure Fig.5.1.

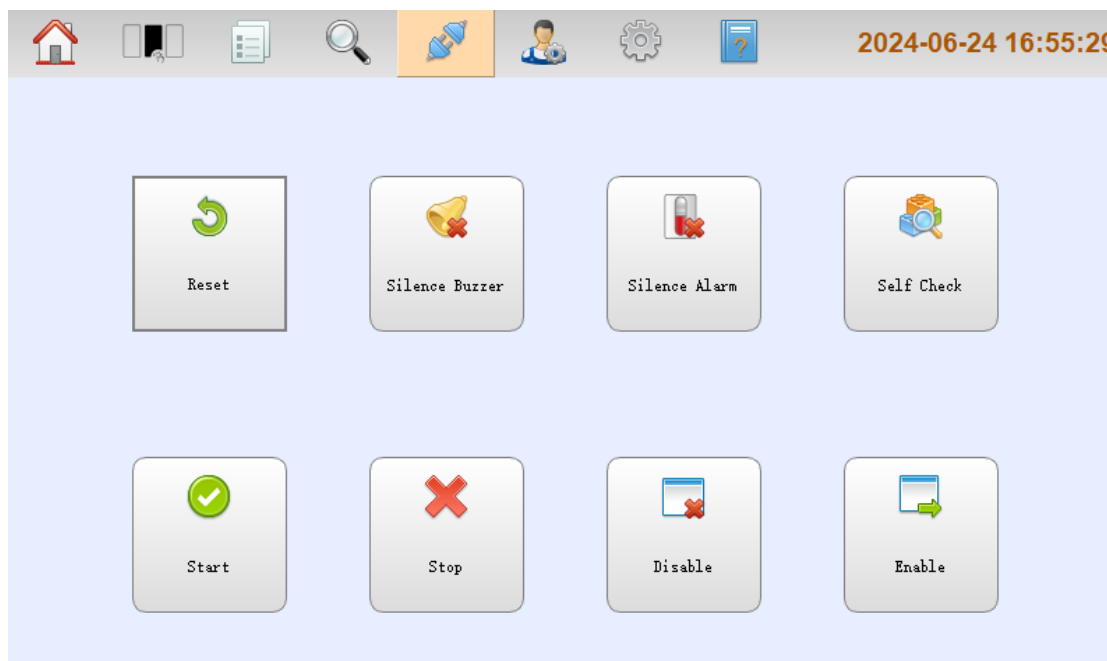


Fig. 5.1

- **Reset:** clicking this button resets the FACP.
- **Silence Buzzer:** clicking this button silences the buzzer sound of the FACP.
- **Silence Alarm:** clicking this button silences the sounds from notification appliances.
- **Self Check:** clicking this button checks LCD, LEDs and buzzer automatically.
- **Start:** clicking this button enters the screen for starting devices as shown below Fig. 5.2.

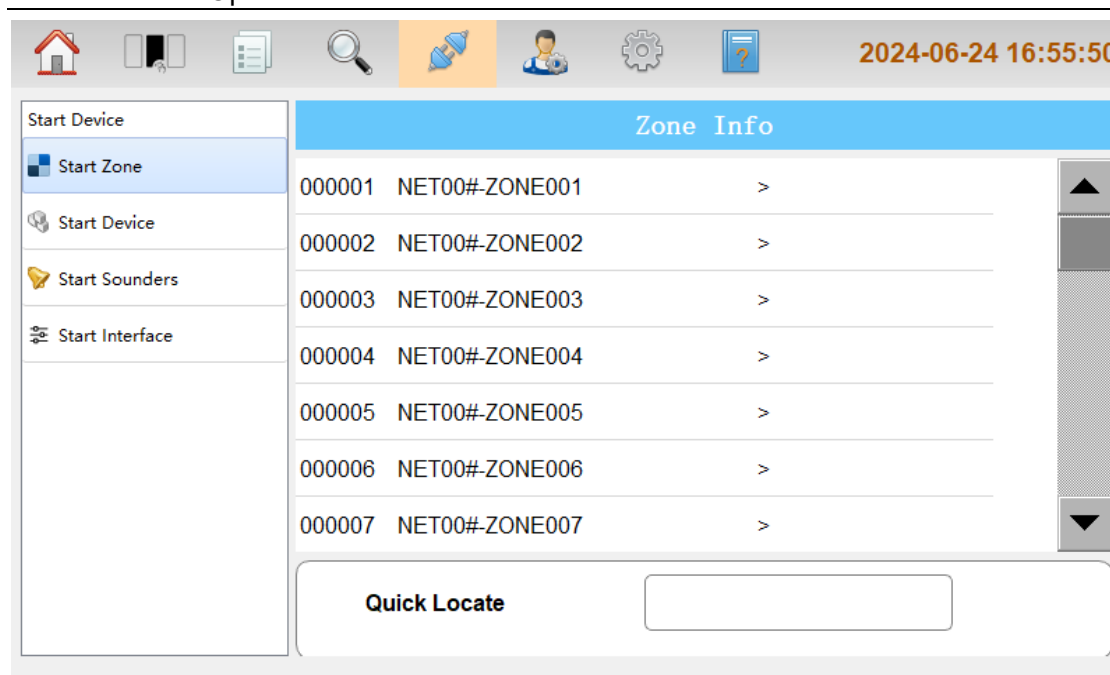


Fig. 5.2

Start Zone: starting devices by zone. Clicking a designated zone enters the screen shown in Fig. 5.3. Choosing device type and then clicking **OK** can confirm to start these devices in this zone.

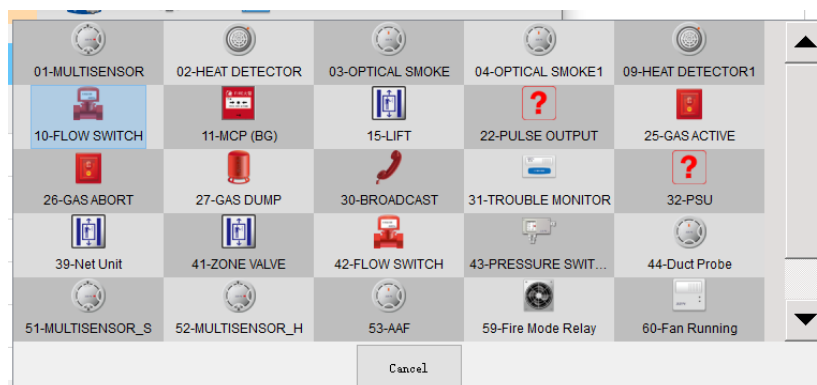


Fig. 5.3

To start all devices in a zone, you can choose 96-Whole Zone then click **OK** as shown in Fig.5.4. To start all alarm devices like detectors and manual call points, you can choose 92-Any Alarm. To start all sounders, you can choose 94-allSND.

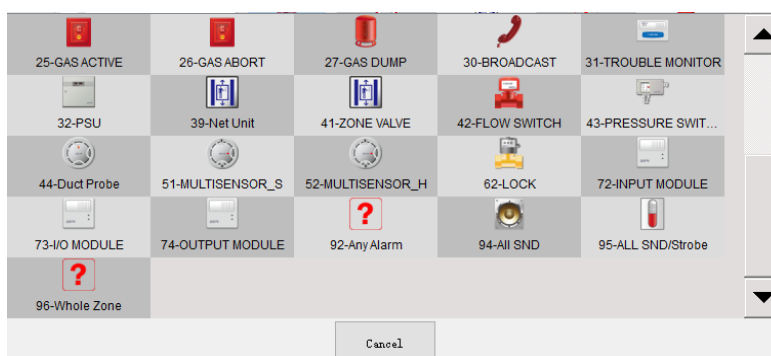


Fig. 5.4

Clicking **Start Device** enters the screen shown below Fig. 5.5 to start a designated device.

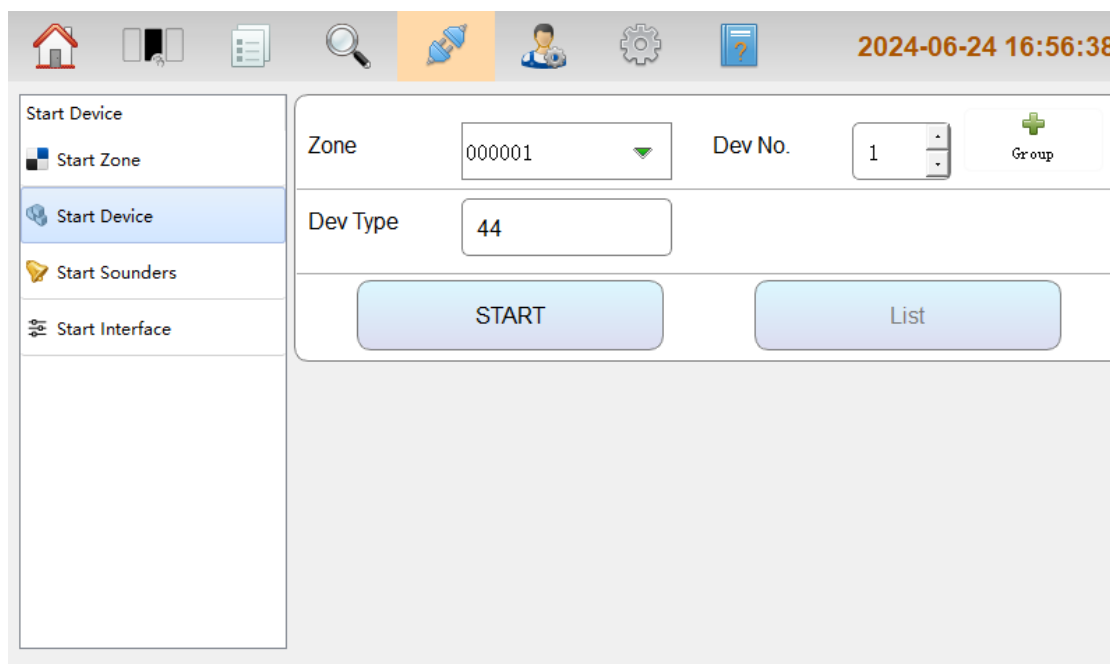


Fig. 5.5

Clicking  button, choosing start zone, zone code and stop zone, zone code and device type, then clicking **START** can start a range of the devices. Refer to the following figure Fig. 5.6.

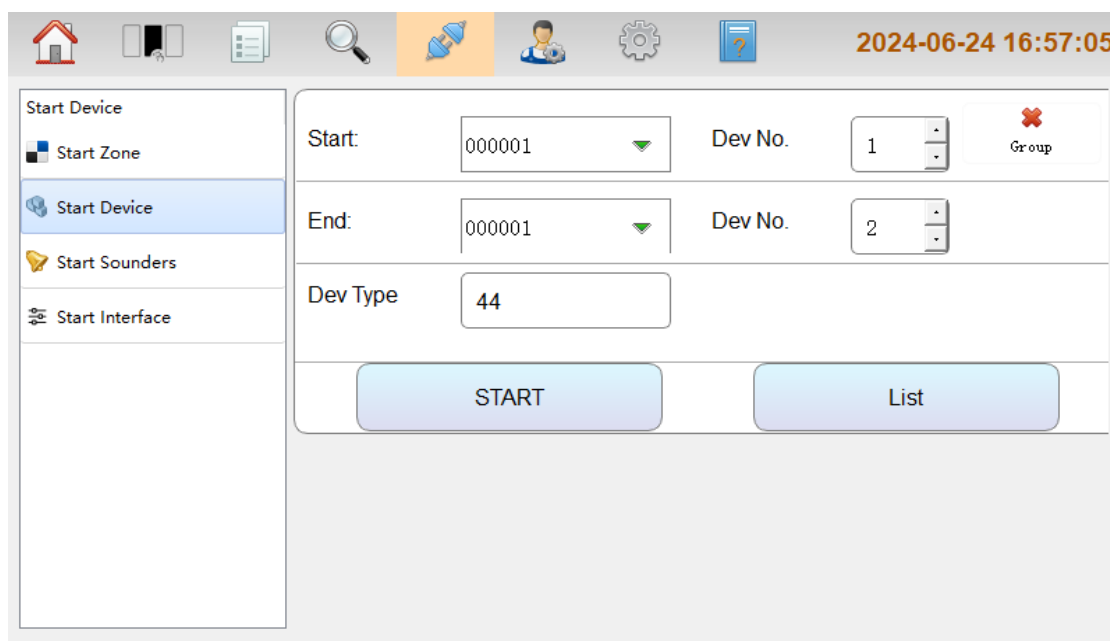


Fig. 5.6

Start Sounder: Clicking **Start Sounder** enters the screen for starting sounders. Choosing a designated zone and then clicking **OK** can confirm to start all sounders in the zone.

Refer to the figure below Fig. 5.7.

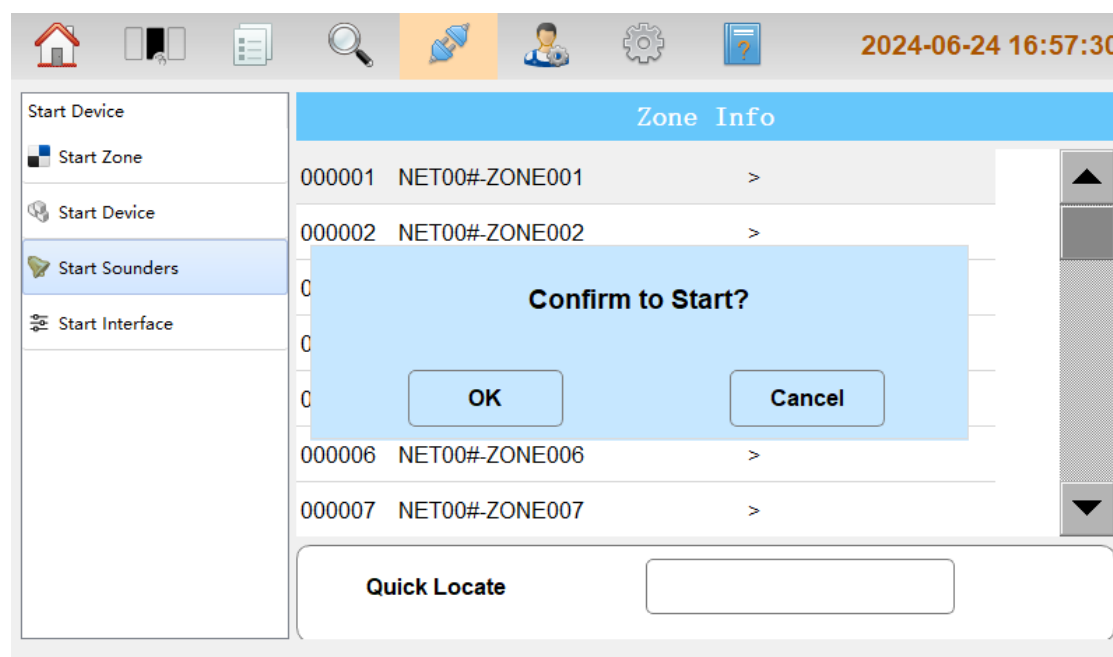


Fig. 5.7

- **Stop:** clicking **Stop** button enters the screen for stopping the device screen. Stopping operations also include options such as **Stop Zone**, **Stop Device** and **Stop Sounder**. The operation is the same as starting devices.
- **Disable:** clicking **Disable** button enters the screen for disabling the device screen. Disabling operations include options such as **Disable Zone**, **Disable Device** and **Disable ALARM OUTPUT or SOUNDER OUTPUT**. Users can disable devices of a whole zone by choosing 96-Whole Zone in Fig. 5.4 and disable all alarm devices by choosing 92-Any Alarm., The operation is the same as the starting devices.
- **Enable:** clicking **Enable** button enters the screen for enabling the device screen. Enabling operations include options such as **Enable Zone**, **Enable Device** and **Enable ALARM OUTPUT or SOUNDER OUTPUT** Its operation is the same as starting devices.

Start Interface: Clicking **Start Interface** enters the startup interface selection screen, select the interface to start, and click OK to confirm. Refer to the figure below Fig. 5.8.

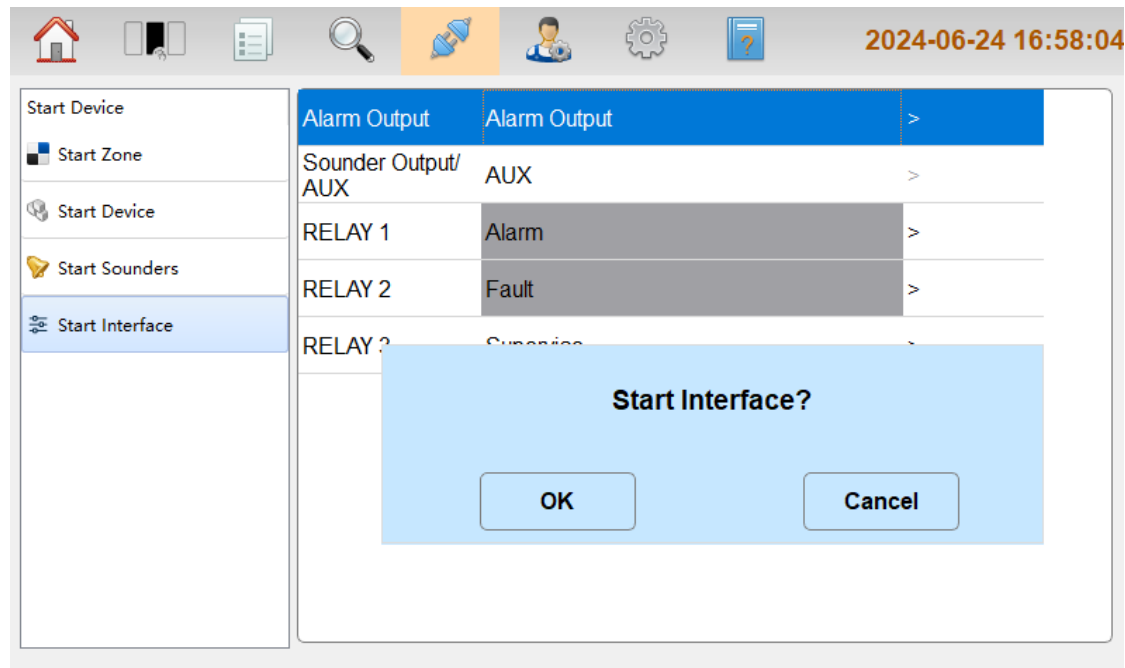


Fig. 5.8

5.2 Devices Information Browsing

Clicking  button on the left corner enters the menu for browsing devices as shown in the figure below Fig. 5.9.

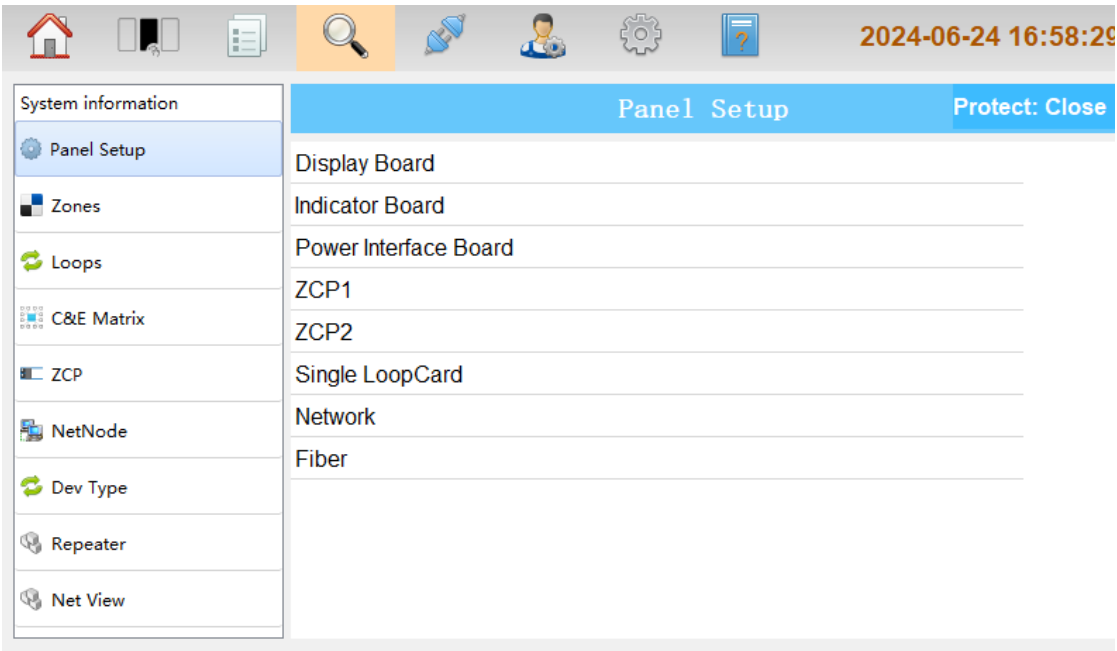


Fig. 5.9

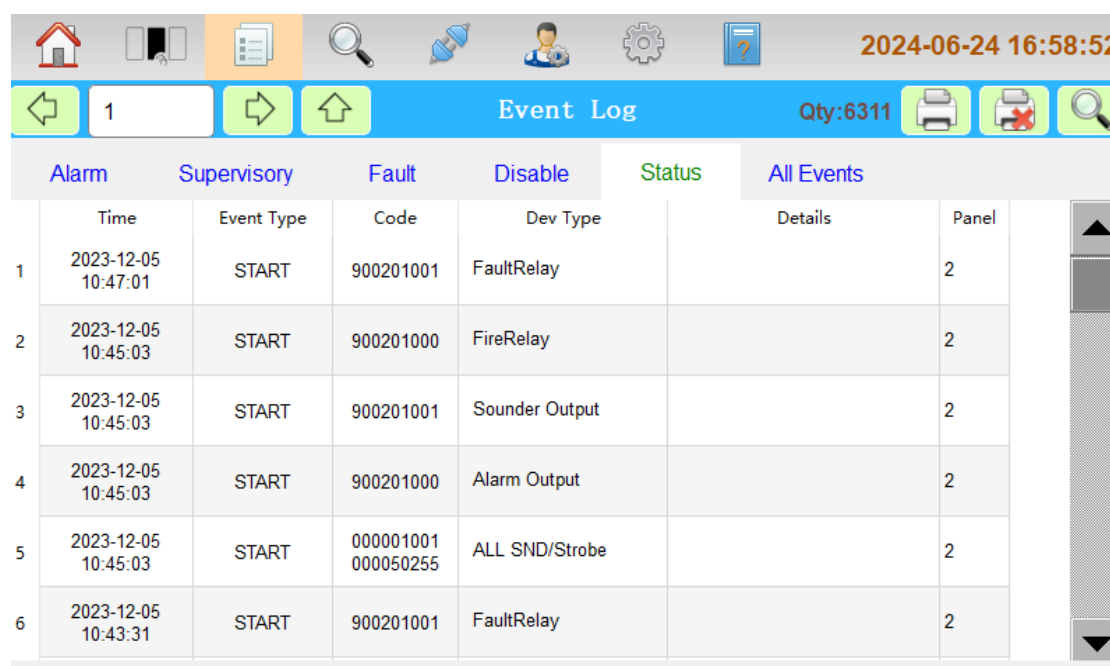
- **Panel Setup:** clicking **Panel Setup** can browse the hardware versions and firmware versions of all boards.
- **Zones:** clicking **Zones** can browse all loop devices by zone. Device browsing screen

is the same as the editing screen, but the function is different. Device browsing screen is only for viewing devices without editing them.

- **Loops**: clicking **Loops** can browse all loop devices by loop. Clicking any loop can browse device list of this loop.
- **C&E Matrix**: clicking **C&E Matrix** can browse all cause & effect matrixes. Clicking any type can browse the detailed matrix.
- **ZCP**: clicking **ZCP** can browse all zone panels. Clicking one zone panel can browse specific description for keys and LEDs.
- **Dev Type**: clicking **Dev Type** can browse all loop devices by type. Clicking any device type can browse device list of this type.

5.3 Record Browsing

Clicking  button on the left corner enters the screen for browsing history record. There are six kinds of history records including **Fire**, **Supervisory**, **Fault**, **Disable** and **All Events**. Refer to the figure below Fig. 5.10.



Event Log							Qty:6311			
Alarm	Supervisory	Fault	Disable	Status	All Events					
Time	Event Type	Code	Dev Type		Details	Panel				
1 2023-12-05 10:47:01	START	900201001	FaultRelay			2				
2 2023-12-05 10:45:03	START	900201000	FireRelay			2				
3 2023-12-05 10:45:03	START	900201001	Sounder Output			2				
4 2023-12-05 10:45:03	START	900201000	Alarm Output			2				
5 2023-12-05 10:45:03	START	000001001 000050255	ALL SND/Strobe			2				
6 2023-12-05 10:43:31	START	900201001	FaultRelay			2				

Fig. 5.10

Each message includes **Time**, **Event Type**, **Code**, **Device Type**, **Details** and **Panel**.

6 Operating Instructions

6.1 Panel Control Keys

6.1.1 **ACKNOWLEDGE** (User password)

Pressing **ACKNOWLEDGE** key will acknowledge a new fire, fault, or supervisory event.

Pressing **ACKNOWLEDGE** key will result in the following actions:

- ✧ Lighting the **ACKNOWLEDGE** LED.
- ✧ Marking an acknowledgement to the event displayed.
- ✧ Writing acknowledgement record in history file.
- ✧ Information of higher level will be displayed if there is more information. Pressing **ACKNOWLEDGE** repeatedly can toggle between different types of information and pressing up and down key can view them.

6.1.2 **SILENCE ALARM** (User password)

SILENCE ALARM key is used to silence the notification appliances. When this key is pressed, the following actions will be produced:

- ✧ Silencing the notification appliances.
- ✧ Lighting the **SILENCE ALARM** LED.
- ✧ Writing silence alarm records in history file.
- ✧ If new alarm occurs, the silenced notification appliances will resound, and **SILENCE ALARM** LED turns off.

6.1.3 **MANUAL ALARM** (User password)

When the **MANUAL ALARM** key is pressed, the following actions will be produced:

- ✧ Displaying a manual alarm message in LCD.
- ✧ Lighting the **FIRE ALARM** LED and **MANUAL ALARM** LED.
- ✧ Extinguishing the **SILENCE ALARM** LED if it illuminates.
- ✧ Turning on the buzzer.
- ✧ Turning on all notification appliances and Alarm Relay.
- ✧ Writing manual alarm record in **FIRE ALARM INFORMATION** and history file.

6.1.4 **RESET** (User password)

Pressing the **Reset** key, the following actions will be produced:

- ✧ Displaying *System resetting...* in LCD.
- ✧ Extinguishing all LEDs except of **POWER** LED and turning off the buzzer.
- ✧ Turning off all notification appliances.
- ✧ Resetting all loop devices.
- ✧ Writing system resetting record in history file.
- ✧ System self-check after resetting.

6.2 Pre-alarm

6.2.1 Type-A Warning

- 1) When Type A zone device alarms, the control panel will immediately enter Phase 1 of Type A. User can setup the Phase I delay time(10~180s).
- 2) During the phase I of Type A, pre-alarm is maintained without fire conditions.
 - ✧ As a new alarm (as many times as they can) from the same zone is received, the control panel stays on the pre-alarm state.
 - ✧ As a new alarm from other zones is received, the control panel responds according to how the zone where the new alarm comes from is set. The previous Type A remains.
 - ✧ After Phase 1 delay, the control panel enters Phase 2 of Type A delay, user also can set up the phase 2 delay time(10~180s).
- 3) During the phase 2 of Type A:
 - ✧ As a new alarm from the same zone is received, the control panel changes to fire alarm state.
 - ✧ As a new alarm from the other zones is received, the control panel responds according to how the zone where the new alarm comes from is set.
 - ✧ As no alarm is received, the control panel will clear pre-alarm state and turn to standby state after the delay time runs out.
- 4) Inputting pre-alarm signal of Type A, the Pre-alarm LED lights, but other LEDs, buzzers, output and loop devices cannot be activated.

6.2.2 Type-B Warning

- 1) As Type B device alarms, it will immediately enter Type B delay that can be set up to 100~600s.
- 2) During Type B:
 - ✧ As a new alarm either from the same zone or the other is received, the control panel changes to fire alarm state.
 - ✧ As a new alarm from different zones is received, the control panel responds according to how the zone where the new alarm comes from is set.
 - ✧ As no alarm is received, the control panel will clear pre-alarm state and turn to standby state after the delay time runs out.
- 3) Inputting pre-alarm signal of Type B, the local Pre-alarm LED and zone LED light with buzzer sounding alarm sounds. However, other LEDs, output and loop devices cannot be activated.

7 Default Setting

Program Option	Factory Default
BANNER	GST CO., LTD.
Engineering Password	999999
User Password	123456
Userwords	Undefined
Userdefine	Userdefine01-15
C&E Matrix	Undefined
Device Max Address	242
Zone Max Index	255
Type	0 Undefined

8 Maintenance

The FACP shall only be repaired by specially trained GST technical service personnel. Please disconnect the power before repair!

Warning: The key to the FACP shall be kept by specially assigned maintenance personnel!

8.1 Replacing the Battery

Type of battery: Sealed lead-acid battery

Recommended period for replacing the battery: 5 years (25°C)

Recommended manufacturer and model: Power-Sonic PHR-1290

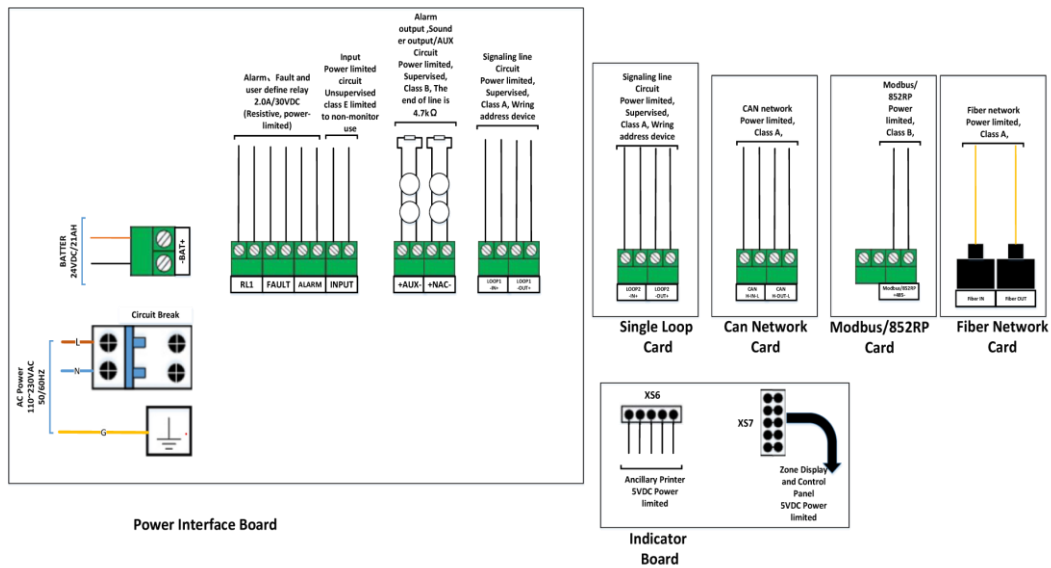
Disposal of used batteries: Please properly dispose the used batteries according to your local rules and regulations.

NOTE: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

8.2 Replace of Fuse

Position	Mark	Rating
Power Switch Board	T	3.15A delay

Appendix A Basic System Connection



Appendix B Electrical Specifications

B.1 Electrical Specifications

B.1.1 AC Power

- 110VAC~230VAC, 50/60Hz, 0.6A~1.2A(Maximum Alarm)
- Wire size: Minimum 14AWG (2.0mm²) with 600V insulation. The FACP shall be connected to max branch circuit of 15A.

Note:

Please note the AC power input (with ground bonding wire) must be in compliance with ratings on the FACP's label.

B.1.2 Battery

The FACP uses only sealed lead-acid batteries for secondary standby power.

- Rated voltage: 24VDC
- Float charging voltage: 27.3VDC
- Maximum charging current: 1.4A
- Maximum Internal Resistance: 1 Ω
- The maximum output current in standby condition (I_{max a}): 0.73A
- The maximum output current in alarm condition (I_{max b}): 2.28A
- The minimum quiescent current when the FACP is without load (I_{min}): 0.45A
- Maximum battery capacity: 21Ah
- Fuse ratings: 10A/250VAC, Fast, Low breaking capacity glass tube fuse
- Battery capacity: two 12V / 21Ah batteries in series

B.1.3 Signaling Line Circuit (SLC)

- Class A, power-limited and supervised.
- Nominal operating voltage: 24VDC
- Maximum voltage: 28VDC
- Average current: 130mA
- Maximum alarm current: 400mA
- Maximum wiring resistance: 18ohms (each line).
- Maximum length is 1300m with 16AWG (1.32mm²) or 2000m with 14AWG (2.08mm²).
- Recommended Wiring (subject to local installation codes):
 - Vencroft Gold and Platignum
 - Nexans NX 200 and 200 Plus (LPCB tested)
 - Prysmian FP 200 and 200 Gold
 - Draka Firetuf and Firetuf Plus

And all LPCB approved Fire cables

B.1.4 Alarm/Sounder Circuit (OUTPUTs)

- Class B, power-limited, supervised, and regulated circuit
- Nominal operating voltage: 24VDC
- Maximum signaling current: 1A (Shared by both ALARM OUTPUT and SOUNDER OUTPUT/AUX)
- End-of-line resistor: 4.7kΩ (Part No. 30107866)
- Maximum wiring voltage drop: 2.0VDC
- Recommended Wiring (subject to local installation codes):

Vencroft Gold and Platignum

Nexans NX 200 and 200 Plus (LPCB tested)

Prysmian FP 200 and 200 Gold

Draka Firetuf and Firetuf Plus

And all LPCB approved Fire cables

B.1.5 Auxiliary Power (SOUNDER OUTPUT/AUX programmed as AUX)

- Class B, power-limited, supervised, special application. Compatible with I-9300 module.
- Programmable as resettable or non-resettable
- Nominal operating voltage: 27VDC
- Maximum standby current: 0.1A
- Maximum signaling current: 1A (Shared by both ALARM OUTPUT and SOUNDER OUTPUT/AUX)
- Recommended Wiring (subject to local installation codes):

Vencroft Gold and Platignum

Nexans NX 200 and 200 Plus (LPCB tested)

Prysmian FP 200 and 200 Gold

Draka Firetuf and Firetuf Plus

And all LPCB approved Fire cables

B.1.6 Relays

- Two fixed relays: Alarm, Fault.
- One programmable relays: RL1, can be programmed as Alarm, Supervisory, Fault, AC Fault, Disable, Silence Alarm, Reset.
- Contact rating: 2.0A @ 30VDC (resistive), power limited.
- Recommended Wiring (subject to local installation codes):

Vencroft Gold and Platignum

Nexans NX 200 and 200 Plus (LPCB tested)

Prysmian FP 200 and 200 Gold

Draka Firetuf and Firetuf Plus

And all LPCB approved Fire cables

B.1.7 Input

- Maximum current: 1.7mA (short circuit)
- Recommended Wiring (subject to local installation codes):
 - Vencroft Gold and Platignum
 - Nexans NX 200 and 200 Plus (LPCB tested)
 - Prysmian FP 200 and 200 Gold
 - Draka Firetuf and Firetuf Plus
 - And all LPCB approved Fire cables

B.1.8 CAN Network

- Class A.
- Maximum distance between two neighbor nodes is 2500m with 1mm² or 3000m with 1.5mm².
- Maximum 250 model GST-IFP2E FACP's for networking.
- Recommended Wiring (subject to local installation codes):
 - Vencroft Gold and Platignum
 - Nexans NX 200 and 200 Plus (LPCB tested)
 - Prysmian FP 200 and 200 Gold
 - Draka Firetuf and Firetuf Plus
 - And all LPCB approved Fire cables

B.1.9 Fiber-Optical Network

- LC mode fiber.
- Maximum distance between two neighbor nodes is 20000m.
- Maximum 250 model GST-IFP2E FACP's for networking.

B.2.0 Modbus Communication – for supplementary use only

- RS485
- Maximum distance is 1200m from GST-IFP2E FACP to the third party equipment.

B.2.1 Repeater Communication

This port is used to connect with repeater panels. The parameters are shown below.

- Class B
- Maximum length: 1200m with 1mm²;
- Maximum quantity: 64 GST Remote Display panels(GST852RP) for networking.
- Recommended Wiring (subject to local installation codes):
 - Vencroft Gold and Platignum
 - Nexans NX 200 and 200 Plus (LPCB tested)

Prysmian FP 200 and 200 Gold

Draka Firetuf and Firetuf Plus

And all LPCB approved Fire cables

B.2 Typical Configuration of SLCs

The typical configurations of SLCs include Intelligent Photoelectric Smoke Detector, Intelligent Rate of Rise and Fixed Temperature Heat Detector, Digital Manual Call Point, Addressable Input Module, Addressable Output Module and Loop Isolators. Refer to table B.1 for maximum length of wires in different configurations.

Table B.1

	Configuration 1	Configuration 2	Configuration 3	Configuration 4
No. of smoke detectors	60	80	100	120
No. of heat detectors	8	10	10	15
No. of MCPs	8	10	10	15
No. of input modules	4	4	4	10
No. of output modules	4	4	4	10
No. of loop isolators	4	5	5	7
Max. length with 1.5mm ²	3000m	2300m	1900m	1400m
Max. length with 1.0mm ²	2000m	1500m	1200m	900m

Appendix C Compatible Devices

C.1 Series Addressable Detectors

Intelligent, addressable detectors provide information to the FACP on an SLC (Signaling Line Circuit). This allows the FACP to continually monitor the status (alarm, fault, maintenance or normal) of each detector.

C.1.1 Smoke Detectors (Photoelectric)

DI-9102E Intelligent Photoelectric Smoke Detector is developed on the principle of infrared scattering. With integrated microprocessor and amplifier, the detector has the following features:

- Addressable code written by a programmer makes the detector easy and reliable to commission.
- The microprocessor disposes data by sampling and can save 14 history records. The curve displayed on the FACP shows the field conditions.
- Compensating excursion of temperature and humidity, detecting dust accumulation fault.

C.1.2 Heat Detectors

DI-9103E Intelligent Rate of Rise and Fixed Temperature Heat Detector uses a thermistor as its sensor. The built-in microprocessor processes the signal from the sensor by intelligent algorithm. The detector has the following features:

- Addressable code is written by programmer.
- The microprocessor disposes data by real-time sampling and can store 14 history records. The curve displayed on the FACP shows the field condition.
- The detector can be set by programmer to be rate-of-rise detector or fixed temperature detector.

C.1.3 Intelligent Combination Heat Photoelectric Smoke Detector

DI-9101E Intelligent Combination Heat Photoelectric Smoke Detector integrates photoelectric detection and fixed temperature detection technology by combining smoke sensor and semi-conductor heat sensor in mechanism and circuitry structure. The detector has the following features:

- Address can be set in field.
- Fault self-diagnostic.
- Built-in MCU can store 14 history messages.
- Polling LED can be set to close.

C.1.4 Intelligent Reflective Beam Detector

DI-9105E Intelligent Reflective Beam Detector (hereinafter referred to as the detector) is an addressable smoke detector with infrared optical beam. Combining a transmitter and a receiver, the detector connects reflector on the opposite wirelessly. In this way, it is

simple for on-site wiring. One reflector or four reflectors are used based on different mounting distance from a detector to a reflector. The detector has the following features:

- Combining a transmitter and a receiver, one end connects wires simply.
- Judging fire alarms and faults intelligent with a built-in MCU.
- Commissioning in field becomes easier than before with the help of the visible indicator and 2 bits digital tube.
- Monitoring faults inside the detector due to self-diagnosis ability.
- Providing compensation for such sensor signal changes caused by the build-up of dirt, position offset or a component aging.
- Four sensitivities are available in field.

C.2 Manual Pull Stations

DI-9204Exd and DI-9204E Digital Manual Call Point can be connected to the panel directly to complete a fire alarm system.

C.3 Loop Isolators

In loop type fire alarm system, short circuit of part of the loop often affects normal operation of the whole system. DC-9504E/DC-9503E Loop Isolator can disable the shorted part of loop from the whole system to ensure normal operation of other parts and can easily find the location of the disabled part.

C.4 Control Modules

- ✧ DI-9300E Addressable Input Module is used to receive normally open switch signals from connected fire protection devices, and transmit the messages back to the FACP.
- ✧ DI-9301E/DI-9302E Addressable Output Module can be connected on an SLC to receive the start command from the FACP. When receiving the command, it will close the output relay to output normally-open / normally closed contact signal and illuminate the active indicator.
- ✧ DI-9305E Digital Single Riser Output Module, the module is designed to connect controlled devices with 70V/100V input audio signal cables or 24VDC input cable, When the module receives a command from the FACP, it will open or close their connection.
- ✧ DI-9319E Digital Zone Monitor Unit is designed to connect with conventional detectors, occupying one address. When any device in the loop reports alarm signal, the Unit will transmit the signal to the FACP which generates fire alarm and displays the address of the Unit

C.5 Horns / Strobes Module

- ✧ Horns: EN listed DI-9405 manufactured by GST
- ✧ Strobes: EN listed I-9314 manufactured by GST.



- ✧ Horns / Strobes: EN listed I-9403/I-9404/ DI-9406 manufactured by GST.

Appendix D Battery Calculations

Power Requirements (All currents are in amperes)							
Model Type	Description	Qty.		Standby	Total Standby	Alarm	Total Alarm
GST-IFP2E	FACP	1	X	0.30	=	0.50	=
GST-IFP2E	AUX Load	1	X	(max.0.1)	=	(max.0.1)	=
PR-200B	Ancillary Printer	1	X	0.01	=	0.30	=
LC-200E	Single Loop Card	1	X	0.040	=	0.060	=
P-9981E	Zone Display Panel		X	0.008	=	0.016	=
P-9981EF	Zone Display Panel		X	0.008	=	0.016	=
P-9982E	Zone Display and Control Panel		X	0.008	=	0.016	=
P-9982EF	Zone Display and Control Panel		X	0.008	=	0.016	=
P-9967EA	CAN Class A Network Card		X	0.050	=	0.050	=
DI-9102E, I-9102	Intelligent Photoelectric Smoke Detector		X	0.0008	=	0.002	=
DI-9101E I-9101	Intelligent Combination Heat Photoelectric Smoke Detector		X	0.0008	=	0.0018	=
DI-9102E I-9102, I-9105R	Intelligent Photoelectric Smoke Detector		X	0.0008	=	0.0018	=
DI-9103E, I-9103	Intelligent Rate of Rise and Fixed Temperature Heat Detector		X	0.0006	=	0.0015	=
DI-9204Exd, DI-9204E	Digital Manual Call Point		X	0.0006	=	0.0018	=
C-9503E	Loop Isolator		X	0.00015	=	0.00015	=
DC-9504E	Base Mount Isolator		X	0.00015	=	0.00015	=

I-9300, I-9303	Addressable Input Module		X	0.001	=	0.005	=
DI-9300E	Addressable Input Module		X	0.00026	=	0.0005	=
DI-9301E	Addressable Input/Output Module		X	0.00026	=	0.0007	=
DI-9302E	Addressable Input/Output Module		X	0.00028	=	0.0007	=
I-9301	Addressable Input/Output Module		X	0.002	=	0.003	=
DI-9305E	Digital Single Riser Output Module		X	0.00026	=	0.0005	=
DI-9319E	Digital Zone Monitor Unit		X	0.00038	=	0.00038	=
I-9314	Strobes Module		X	0	=	0.103	=
DI-9405	Horn Module		X	0.001	=	0.006	=
I-9403, I-9404	Horn / Strobes Module		X	0	=	0.075	=
DI-9406	Horn / Strobes Module		X	0.001	=	0.006	=
Total currents (Add above currents)					(A)		(B)

Battery Capacity Requirement

Battery (AH) = (Standby Current Total x Discharge Time) + (Alarm Current Total x Alarm Time)

([STANDBY (A) _____] X [(24 Hours) _____]) + ([ALARM (B) _____] X [Alarm in Hr.] _____) = (C) _____ (AH)

SOUNDER OUTPUT and AUX interfaces should not exceed 1A, and the standby current of AUX interface should not exceed 0.1A.

Battery Selection

Battery Size = Multiply (C) by 1.20 to derate battery.

Power-Sonic PHR-1290(21AH) are the recommended batteries for use with this panel.

Use of alternative batteries may result in failure of the FACP to meet agency and regulatory requirements, and may result in shortened battery life. Batteries should be tested regularly, and replaced at least every three years. If the Battery Fault indicator activates, obtain required service.

Replacing the Fuses

There is a fuses in the CIE, located on the battery cable respectively as shown in Table.

Position	Mark	Rated value
Battery Cable	10A/250V	10A/250VAC, Fast, Low breaking capacity glass tube fuse

Follow the Steps Below to Replace 10A Fuse,

- 1 Unfasten the fuse holder in the battery connection to find 10A fuse.
- 2 Replace the 10A fuse
- 3 Fasten the fuse holder.

Note: Please disconnect power before replacing the fuse.

Appendix E Operating Instructions

Normal Standby

With no alarm or fault in the system, the display message is *System Normal*.

Alarm

If fire alarm condition occurs, the Fire Alarm Control Panel (FACP) will indicate the following:

- *FIRE ALARM* LED illuminates.
- The buzzer sounds fire alarm.
- The LCD displays the alarm message.

Fault

If a fault condition occurs, the FACP will indicate the following:

- *FAULT* LED illuminates. If it is system fault, AC fault, battery fault, charger fault, ALARM OUTPUT fault, SOUNDER OUTPUT fault or ground fault, corresponding LEDs will simultaneously illuminate.
- The buzzer sounds fault.

The LCD displays the fault message.

ACKNOWLEDGE

Pressing *ACKNOWLEDGE* key shall acknowledge new alarm, fault and supervisory events.

SILENCE ALARM

If an alarm exists, pressing this key shall silence all silenceable OUTPUTs. A subsequent new alarm will re-sound the system OUTPUTs.

MANUAL ALARM

When this key is pressed, the *FIRE ALARM* LED and *MANUAL ALARM* LED shall be lighted, the buzzer shall be turned on, all OUTPUTs and the Alarm Relay shall be activated and a manual alarm message shall be displayed in *FIRE ALARM INFORMATION*.

RESET

Pressing this key can turn off all OUTPUTs and control modules, and reset all loop devices. If any alarm or fault still exists, alarm will be activated again. If all alarms and faults are cleared, the LCD displays *System Normal*.

Regular Maintenance

We recommend maintenance of the FACP and connected devices every 6 months.

Battery Maintenance & Replacement

Type of battery: Sealed lead-acid battery

Recommended period for replacing the battery: 5 years (25°C)

Recommended manufacturer and model number: Power-Sonic PHR-1290

Disposal of used batteries: Please properly dispose the used batteries according to your local rules and regulations.

Note: Risk of explosion if battery is replaced by an incorrect type

Appendix F Devices type list

Device Type Group	No.	Device Type
Undefined	00	UNDEFINED
ALARM	01	MULTISENSOR
	02	HEAT DETECTOR
	03	OPTICAL SMOKE
	04	USER DEFINED
	05	GAS DETECTOR
	06	BEAM DETECTOR
	07	FLAME DETECTOR
	08	CONVENTIONAL P
	09	HEAT DETECTOR1
	10	FLOW SWITCH
	11	MCP (BG)
ACTIVITY	12	SOUNDER STROBE
	13	SOUNDER
	14	FLASHER
	15	LIFT
	16	FIRE DAMPER
	17	FIRE DOOR
	18	AHU
	19	EXTRACT FAN
	20	BMS
	21	USER DEFINED
	22	PULSE OUTPUT
	23	USER DEFINED
	24	USER DEFINED
	25	GAS ACTIVE
	26	GAS ABORT
	27	GAS DUMP

	28	USER DEFINED
	29	USER DEFINED
	30	BROADCAST
FAULT	31	TROUBLE MONITOR
	32	PSU
	33	USER DEFINED
	34	USER DEFINED
	35	USER DEFINED
	36	USER DEFINED
	37	USER DEFINED
	38	USER DEFINED
	39	Net Unit
	40	Repeater
SUPERVISORY	41	ZONE VALVE
	42	FLOW SWITCH
	43	PRESSURE SWITCH
	44	DUCT PROBE
	45	USER DEFINED
	46	USER DEFINED
	47	USER DEFINED
	48	USER DEFINED
	49	USER DEFINED
	50	USER DEFINED
ALARM	51	MULTISENSOR_S
	52	MULTISENSOR_H
	53	USER DEFINED
	54	USER DEFINED
	55	USER DEFINED
	56	USER DEFINED
	57	USER DEFINED
	58	USER DEFINED

ACTIVITY	59	USER DEFINED
	60	USER DEFINED
	61	USER DEFINED
	62	LOCK
	63	USER DEFINED
	64	USER DEFINED
	65	USER DEFINED
	66	USER DEFINED
	67	USER DEFINED
	68	USER DEFINED
	69	USER DEFINED
	70	USER DEFINED
	71	USER DEFINED
	72	INPUT MODULE
	73	I/O MODULE
	74	OUTPUT MODULE
	75	USER DEFINED
	76	USER DEFINED
	77	USER DEFINED
	78	USER DEFINED
	79	USER DEFINED
	80	USER DEFINED

9 Limited Warranty

GST will repair or replace the product to the original purchaser free of charge, if defective in materials or workmanship during the warranty period, subject to the terms below. GST and KDSS are not responsible for defects or problems as a result of conditions or applications including normal wear and tear; catastrophe; fault or negligence of any user or any party other than GST and KDSS; improper installation, application, storage, maintenance, or use of products; other causes external to products; or failure to conform to any applicable recommendations of GST and KDSS. In no event shall GST and KDSS be liable for incidental, indirect, special or any other consequential damages. To the fullest extent permissible by law, the foregoing limited warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. Subject to applicable law, in no event shall the liability of GST and KDSS exceed the purchase price of the products. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. Anybody, including the agents, distributors or employees, is not in the position to amend the contents of this warranty.

10 Product Warnings and Disclaimers

THESE PRODUCTS ARE INTENDED FOR SALE TO AND INSTALLATION BY QUALIFIED PROFESSIONALS. KIDDE GLOBAL SOLUTIONS AND ITS AFFILIATE COMPANIES (TOGETHER AND EACH INDIVIDUALLY "KGS") CANNOT PROVIDE ANY ASSURANCE THAT ANY PERSON OR ENTITY BUYING ITS PRODUCTS, INCLUDING ANY "AUTHORIZED DEALER" OR "AUTHORIZED RESELLER", IS PROPERLY TRAINED OR EXPERIENCED TO CORRECTLY INSTALL FIRE AND SECURITY RELATED PRODUCTS.

For more information on warranty disclaimers and product safety information, please check <https://firesecurityproducts.com/policy/product-warning/> or scan the following code:



For Article33 information, please refer to the following website:

<https://www.gst.com.cn/en/reacharticle33.asp>



Gulf Security Technology Co., Ltd.

No. 80 Changjiang East Road, ETDZ, Qinhuangdao, Hebei,

P. R. China 066004

Tel: +86 (0) 335 8502434

www.gst.com.cn

30314655