GST200
Intelligent Fire Alarm Control Panel

Installation and Operation Manual

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CONTENTS

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.
- ✧ GST200 Fire Alarm Control Panel (FACP) shall only be installed and serviced by trained specialist.
- ✧ Disconnect all sources of power before servicing. 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 √

✧ GST200 Intelligent Fire Alarm Control Panel (FACP) complies with the requirements of EN 54-2: 1997 and EN 54-4: 1997. In addition to the basic requirements of these standards, the panel conforms to the following optional requirements.

Option		EN 54-2 Clause
Indication	Fault signals from points	8.3
Control	Delays to Outputs	7.11
	Coincidence detection	7.12
	Disablement of each addressable points	9.5
Outputs	Output to fire alarm devices	7.8
	Output to automatic fire protection equipment	7.10

EN 54 √

✧ The power supply of GST200 FACP complies with EN 54-4 requirements.

AC-DC 100W Power Supply Functions	EN 54-4 Clause
Derive Power supply from main source	5.1
Derive Power supply from a standby power battery	5.2
Charge and monitor the standby battery source	5.3
Detect & signal power supply 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
P-9901 Printer	3.2.2
RS232 output	2.3 & 3.2.2
GST852RP Repeater Panel	3.3.6
GstDef2.0 Defining Tool	3.4
Fire alarm output	4.4.3.3
RS485 output	2.3 & 4.4.3.5
Class change	4.4.3.1

Chapter 1 Product Introduction

GST200 Intelligent Fire Alarm Control Panel (FACP) is designed by EN 54-2 standard with qualities of simple installation, operation, and easy maintenance. It is used in fire alarm system with the following features:

1 It controls at most 30 zones. Each zone has its own alarm and fault/disable LEDs and a label.

2 Class A loop can have up to 235 addressable devices. It is compatible with a series of addressable GST products, which are intelligent sounder strobe (I-9403) complying with EN 54-3, photoelectric smoke detector (I-9102) complying with EN 54-7, rate of rise and fixed temperature heat detector (I-9103) complying with EN 54-5, intelligent manual call point (I-9202) complying with EN 54-11, intelligent reflective beam detector (I-9105R) complying with EN 54-12, input and output module (I-9300, I-9301) complying with GEI 1-084, and loop isolator (C-9503) complying with GEI 1-052.

3 The LCD can display 8 lines in total and 18 characters each line, assisting the 15 LEDs to display important information.

4 The memory does not lose data even if power supply is accidentally removed.

5 It has manual keys for each zone, which can activate/silence the sounder strobes separately.

6 Automatically prompting operation steps for every alarm device and for smoke exhaust and fire extinguisher by field programming.

7 Sounder strobe interface provides 0.5A/24V output, compatible with GST conventional sounder strobe (C-9403) designed according to EN 54-3.

8 RS232 interface enables communication with PC.

9 RS485 interface enables networking.

Chapter 2 Technical Specifications

2.1 Operating Voltage

- ✧ Input Voltage: 230VAC$^{+10\%}_{-15\%}$
- ✧ Frequency: 50Hz
- ✧ Input Current: 0.5A
- ✧ Fuse: 2A delay
- ✧ Recommended Wiring: 1.5mm^2 or above shield cable, complying with local installation code.

2.2 Standby Batteries

- ✧ Maximum Charge Current: 1.1A±0.1A
- ✧ Maximum Charge Voltage: 27.3V±0.3V
- ✧ Type: Sealed lead acid batteries
- ✧ Maximum Charge Capacity: 2 12V/17Ah batteries
- ✧ Recommended manufacturer and model of battery: Yuasa NP17-12I
- ✧ Recommended Wiring (subject to local installation codes):

  GST FireCable ® 2E/1.5 2 core and Earth 1.5mm^2 CSA
  Pirelli Cable Limited FP200 FLEX 2 core and Earth 1.5mm^2 CSA

2.3 Communication Loop Parameters

2.3.1 RS-485 Communication Loop

- ✧ NETWORK (A, B): Communication cable for connecting with up to 32 network FACPs.
- ✧ REPEATER (A, B): Communication cable for connecting with up to 10 repeater panels.
- ✧ Recommended Wiring (subject to local installation codes):

  GST FireCable ® 2E/1.0 2 core and Earth 1mm^2 CSA
  Pirelli Cable Limited FP200 FLEX 2 core and Earth 1mm^2 CSA
- ✧ Recommended Cable Length ≤1000m

2.3.2 RS-232 Communication Loop

RS232 communication loop is connected with a PC for running GstGMC2.0 Graphic Monitor Center (GMC) system PC through DB9 port.
Recommended Wiring: Standard RS-232 interface. The 2nd pin (for sending data), the 3rd pin (for receiving data), and the 5th pin (ground) are connected with PC through three-core shield cable **(Note: Wire length should be less than 15m; shield layer and computer's enclosure should be earthed).**

2.4 Detecting Loop Parameters

- ✧ **LOOP OUT (+, −):** Polarized signal cable from the FACP connecting up to 235 addressable devices.
- ✧ **LOOP IN (+, −):** Polarized signal cable returning to the FACP.
- ✧ Output Voltage: 21V～27V pulse
- ✧ Output Current: 0mA～300mA
- ✧ Type of Loop: Class A loop
- ✧ Recommended Wiring (subject to local installation codes):

  GST FireCable ® 2E/1.0 2 core and Earth 1mm^2 CSA
  Pirelli Cable Limited FP200 FLEX 2 core and Earth 1mm^2 CSA
- ✧ Recommended Cable Length ≤1000m

2.5 Output Loop Parameters

- ✧ Recommended Wiring (subject to local installation codes):

  GST FireCable ® 2E/1.0 2 core and Earth 1mm^2 CSA
  Pirelli Cable Limited FP200 FLEX 2 core and Earth 1mm^2 CSA
- ✧ Recommended cable length ≤1000m

2.5.1 FIRE ALARM OUTPUT (+, -)

- ✧ Output Voltage: 21VDC ～27VDC
- ✧ Output Current: 0mA～500mA
- ✧ End of Line Resistor: 4.7kΩ

2.5.2 F.P.E. OUTPUT (+, -)

- ✧ Output Voltage: 21VDC ～27VDC
- ✧ Output Current: 0mA～500mA
- ✧ End of Line Resistor: 4.7kΩ

2.5.3 SOUNDER CIRCUIT OUTPUT (+, -)

- ✧ Output Voltage: 21VDC ～27VDC
- ✧ Output Current: 0mA～500mA
- ✧ End of Line Resistor: 4.7kΩ

2.5.4 FAULT OUTPUT (NC, COM, NO)

- ✧ Contact Capacity: 24VDC @1.0A
- ✧ In fault state, NC and COM open, NO and COM close.

2.6 Dimensions

400mm×560mm×182mm

Chapter 3 Structure and Configuration

3.1 Appearance and Internal Structure

GST200 FACP is wall-mounted. Its appearance and internal structure are shown in Fig. 3-1 and 3-2.

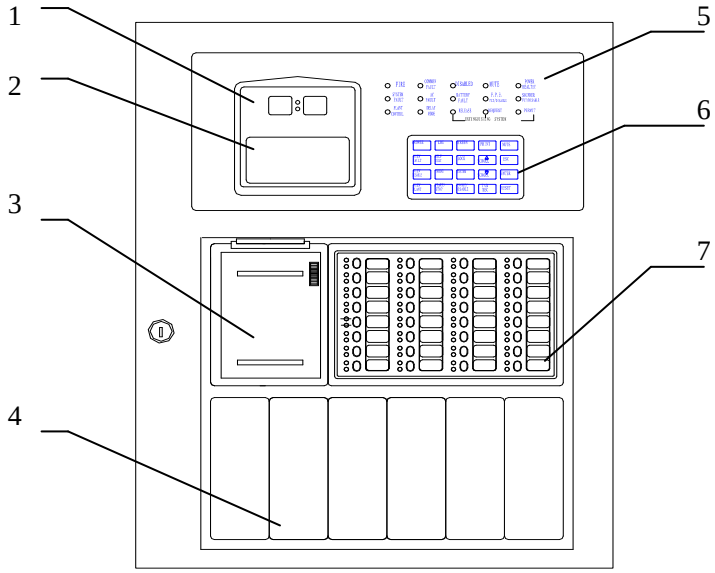


Fig. 3-1

1 Clock 2 LCD 3 Printer panel 4 Optional units 5 LED 6 Keypad
7 Zone indication and manual intervention panel (ZCP)

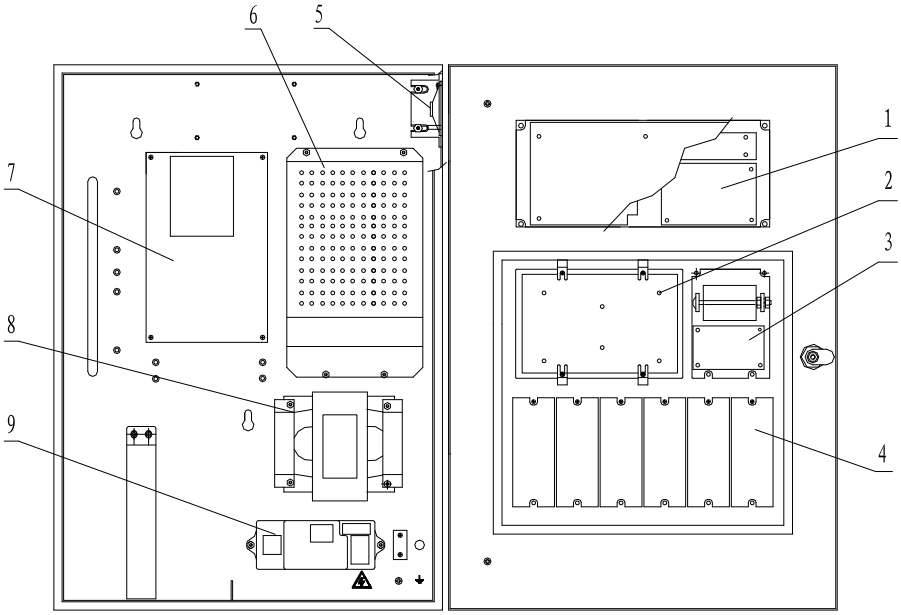


Fig. 3-2

1 Display control (main board, switch board, LCD) 2 Zone indication and manual intervention panel (ZCP) 3 Printer 4 Optional units (FCP-fireman's control panel) 5 Speaker 6 Power supply 7 Loop interface board 8 Transformer 9 PSU filter

3.1.1 Display Area

The display area consists of clock, LCD, LED and keypad, which are shown in Fig. 3-3.

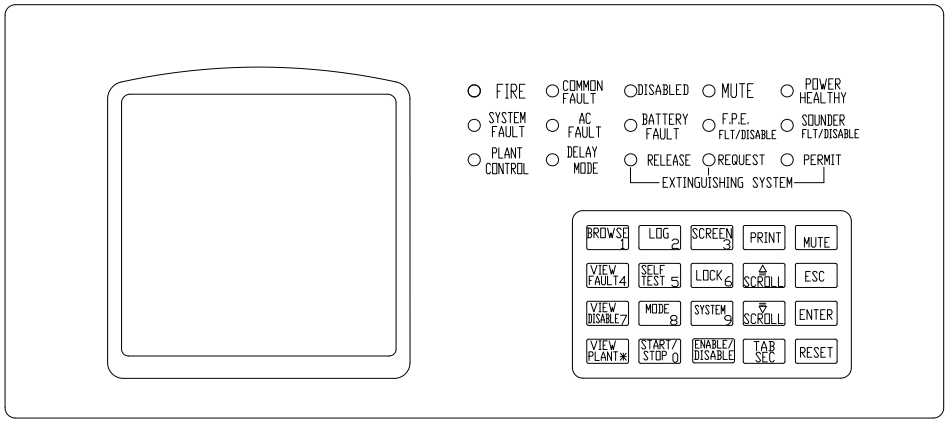


Fig. 3-3

3.1.2 Description of LEDs

- **FIRE:** Red. It illuminates when the FACP detects an alarm condition of connected detectors. After fire alarm condition is removed, the fire status can only be cleared by pressing Reset key, and this LED goes out simultaneously.
- **COMMON FAULT:** Yellow. It illuminates when the FACP detects fault of connected devices or itself. It goes out automatically after the fault condition is removed.
- **DISABLED:** Yellow. It illuminates when connected devices, FP.E. output or SOUNDER CIRCUIT OUTPUT are disabled and when the outputs are set in delay mode. It goes out when such status is canceled.
- **MUTE:** Yellow. It illuminates when the FACP is in mute state. It goes out only when new alarm sound comes.
- **AC FAULT:** Yellow. It illuminates when 230VAC power is down or damaged. After the AC power resumes, it goes out automatically.
- **SYSTEM FAULT:** Yellow. It illuminates if the program encounters a dead halt. After the system is rebooted, only by pressing *RESET*, can system fault be cleared, and this LED goes out.
- **POWER HEALTHY:** Green. It illuminates when main or standby power is normal.
- **BATTERY FAULT:** Yellow. It illuminates when standby power is in fault. After the fault is cleared, it will go out.
- **F.P.E. FLT/DISABLE:** Yellow. It flashes when F.P.E. output is in fault and illuminates steadily after the F.P.E. is disabled. It goes out after fault and disabled conditions are cleared.
- **SOUNDER FLT/DISABLE:** Yellow. It flashes when the sounder circuit output (Sounder A) and the sounders on the loop are in fault and illuminates steadily after the sounder is disabled. It goes out automatically after the fault and disabled status is cleared.

- **PLANT CONTROL:** Yellow. Action message indication. It illuminates when there are feedback signals from fire-protective plant.
- **DELAY MODE:** Yellow, it illuminates when the output is set in delay mode.
- **EXTINGUISHING SYSTEM RELEASE:** Yellow. It illuminates when connected gas extinguishing equipment has been activated.
- **EXTINGUISHING SYSTEM REQUEST:** Yellow. It illuminates when the system is ready to start the gas extinguishing equipment but the FACP is in release-disabled or delayed state.
- **EXTINGUISHING SYSTEM PERMIT:** Yellow. It illuminates when extinguishing system is enabled.

3.1.3 Description of Keys

- **SYSTEM:** System set-up key (manager password required), used for setting system time, modifying operator password and manager password, setting network system, setting beginning zone number, setting output mode, system initialization and viewing supervisory data of intelligent devices.
- **PRINT:** Printing mode setting (operator password required).
- **SELF TEST:** Pressing this key in standby state can test the visual and audible indication of the panel (operator password required).
- **MODE:** Setting the panel to automatically start the gas extinguishing equipment or not (operator password required).
- **START/STOP:** Start/stop the loop devices (operator password required).
- **ENABLE/DISABLE:** Enabling/disabling addressable devices and delay mode.
- **TAB/SEC:** For setting up burglar mode (operator password required) in system setting (SEC), or used for moving the cursor when entering text (TAB).
- **RESET:** Resetting the FACP (operator password required).
- **BROWSE:** Browsing definition of loop devices, communication devices and ZCP devices.
- **LOG:** Looking through history record.
- **SCREEN:** Setting up the screen contrast, message display mode and browsing cause and effect (C&E) equations.
- **MUTE:** Muting the FACP.
- **VIEW FAULT:** Viewing fault message.
- **LOCK:** Locking the keypad when it is unlocked.
- △, ▽: Scroll among more than one piece of displayed messages.
- **ESC:** Canceling or quitting the operating menu. If it's pressed while the FACP is displaying messages, it will resume to display messages of the highest level.
- **VIEW DISABLE:** Viewing disabled messages.
- **ENTER:** Confirming inputs to be valid. In normal standby state, pressing it can

make the clock display change between month/day mode and hour/minute mode.

✧ **VIEW PLANT:** Viewing action messages.

3.1.4 Zone Indication and Manual Interventional Panel (ZCP)

Appearance of zone indication and manual intervention panel is shown in Fig. 3-4.

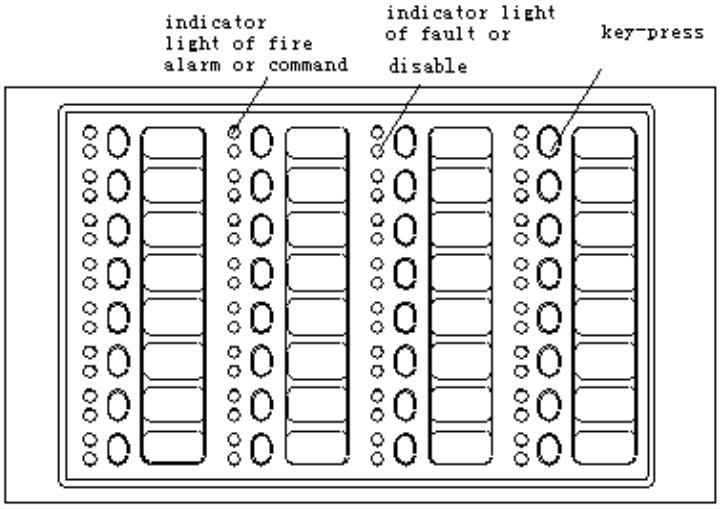


Fig. 3-4

On the ZCP, each unit consists of a key, two indicators and a label. The key is for start/stop control. Device labels can be stuck on the right side of the keys, and the user can put the corresponding names on them. Zone indication and manual intervention panel can complete the following functions through defining.

3.1.4.1 Zone Indication

1 LEDs

Fire: Red. It illuminates when a fire occurs in a zone. It goes out after the FACP is reset.

Fault/Disable: Yellow. It flashes when there is any fault with the zone. If all devices in this zone have been disabled, the LED illuminates steadily. It goes out after the fault conditions are cleared or the FACP is reset.

2 The key of a zone is used to activate/silence sounder strobes in the zone.

3.1.4.2 Device Operations

1 **Command LED:** Red. It illuminates when start command is given and goes out when stop command is given or the FACP resets.

2 **Keys:** Pressing it can start a device. If a device is started, pressing this key will stop it.

3.1.4.3 Operations of SILENCE key

1 **Command LED:** It lights after the key pressed. When new alarm comes, the FACP is reset or SILENCE key is pressed again, the LED goes out.

2 **Key:** Press the key in alarm state to silence all sounders, press again to resume them.

3.2 Configuration

3.2.1 Standard Configuration

A standard FACP consists of main board, loop interface board, power supply, display area, and zone indication and manual intervention panel (ZCP).

- **Main board**

  Main board is the core of the FACP, which contains CPU and interfaces to other main parts and optional parts.

- **Loop interface board**

  It is the signal interface of the FACP, contain ports for communication, detection, fire alarm output and fault output etc. The loop interface board connects field devices and the FACP into a complete fire alarm system.

- **Power supply**

  It provides power to the main board, loop interface board and printer. Its backup feature ensures that devices registered during commission will not be lost in case of power fault.

- **Display and operation part**

  This part is used to indicate and display different status of the system, and enables relative operations through keypad (browsing, setting, printing and etc).

- **Zone indication and manual intervention panel (ZCP)**

  The ZCP can indicate fire alarm, fault/disable state of corresponding devices, and start and stop them accordingly.

3.2.2 Optional Units

- **P-9901 Printer**

  It is a built-in micro printer. With dot matrix printing it can print 96 kinds of ASCII code characters (capital or lower case of Latin letters, figures and symbols), 128 coded non-standard characters and chart symbol (some Chinese characters, Greek letters, block symbol etc.), and 16 code characters (6×7 dot) which can be defined by the user through program, and replace any code font by commanding, so as to print characters of different language.

- **Communication card**

  GST200 Intelligent Fire Alarm Control Panel (FACP) provides a multi-functional communication port, connecting with network cards to realize networking among GST series FACPs, to form urban fire alarm supervisory network through public telephone network and to fulfill graphic supervision by connecting with GstGMC2.0 Graphic Monitor Center (GMC) system at the control center of buildings. The FACP monitors the running of network cards in real time so that the card can work after inserted.

  GST200 provides two kinds of network cards: Local Network Card (RS-485 card) and Monitor & Control Card (RS-232 card). Their structures are shown in Fig. 3-5.

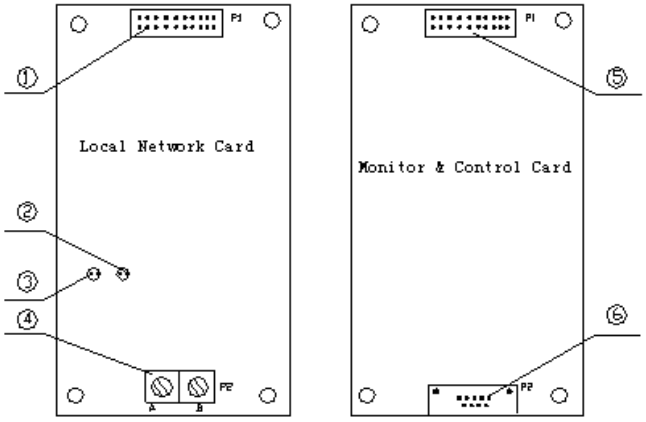


Fig. 3-5

Description:

1 20P data cable connecting with main board.

2 Red LED, which lights on receiving signals.

3 Green LED, which lights on sending signals.

4 RS-485 network communication cable (A and B).

5 20P data cable connecting with main board.

6 Standard RS-232 interface connecting with GMC.

Note: You need to include a RS-232 card in your first order of GST200. Only with this card, device definition and C&E equations can be downloaded from PC.

3.3 Periphery Devices

3.3.1 A Series of Intelligent Fire Detectors

GST200 can connect with a series of fire detectors, such as I-9102, I-9103, and I-9105R. The detectors mounted in the protected area transmit monitoring message to the FACP through Class A loop. Every detector has its own address with which the FACP can supervise the information of alarm, fault, and normal status of the detectors.

3.3.2 Modules

GST200 can connect with I-9300 Addressable Input Module and I-9301 Addressable Single I/O Module. I-9300 module is used for receiving normally open digital signal from associated devices and transmitting the signal back to the fire alarm control panel.

I-9301 module is for connecting associated devices that need to be controlled by the FACP, such as smoke valve, fresh air valve, and damper valve. It can also receive answer signal from the devices.

3.3.3 Loop Isolator

Loop Isolator can remove the shorted part of loop from the whole system to ensure

normal operation of other devices and to ascertain the location of the part in fault. After the fault is repaired, the loop isolator can automatically reset the removed part into the system.

3.3.4 Manual Call Points

A series of manual call point (such as I-9202) can be connected to the loop of GST200. When fire is confirmed manually, press the glass on the MCP, alarm signal can be sent to the FACP. After receiving the alarm signal, the FACP will show the number and location of the MCP, and sound alarm.

3.3.5 Sounder Strobes

Addressable sounder strobe is a kind of audible/ visual alarm device installed in the protected area, which can be activated by the FACP at the fire control center or by manual call points. A series of GST addressable sounder strobes (such as I-9403) can be connected to the loop of GST200. After activated, it will generate strong audible/ visual alarm signal.

3.3.6 GST852RP Repeater Panel

GST852RP Repeater Panel is designed with a microprocessor. When one or more detectors alarm fire, the repeater panel can display the location and alarm message of the detectors with audible and optical signals. Through communication loops, it can be connected with FACPs, disposing and displaying the data from the FACPs. When monitoring several floors or several zones with one fire alarm control panel, a repeater panel on each floor or in each zone can replace zonal fire alarm control panel.

3.4 GstDef2.0 Defining Tool

The software is used for editing and downloading definition of device and C&E equation. Before the system starts operation, you need to define the device and C&E using this software on a computer, and then download them to the FACP.

Chapter 4 Installation

The steps below are guidance for installation of the FACP.

1 Check if you have received all items ordered.

2 Install the cabinet.

3 Power up the FACP and carry out start-up inspection.

4 Connect field devices.

5 Inspect circuits and register devices.

6 Define devices and C&E equations using GST-DEF software on a PC and download them to the FACP through definition software according to engineering configuration.

7 Commission and inspect field devices.

4.1 Configuration Inspection

Before installation, check the following items:

✧ **Check Engineering Configuration**

Check the configuration according to packing list. The main items to be examined are: installation and operation manual, keys to the FACP, etc.

✧ **Check Internal Configurations and Interconnection of the FACP**

All internal parts have been connected (including optional units ordered) before the FACP leaves the factory. Therefore, you can mainly check the zone indication and manual intervention panel and power supply, and the connection among parts, including the connection between main board and power supply, switch board and loop interface board, the connection of the zone indication and manual intervention panel with switch board, and of speaker and main board etc. Please refer to Appendix 1 for the internal connection diagram.

4.2 Installing the Cabinet

Dimension of the cabinet is shown in Fig. 4-1.
Ambient conditions for installation of the FACP:

Temperature: 0℃～＋40℃

Relative humidity: ≤95%, non-condensing

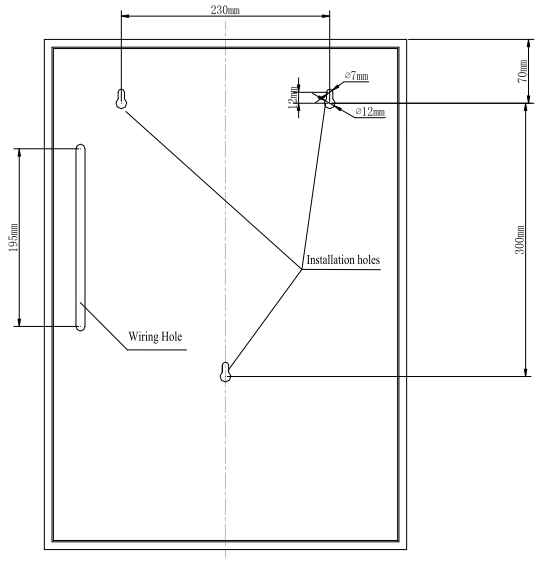


Fig. 4-1

4.3 Start-up Check

After installation, apply power to it as shown in Fig. 4-2. Turn on the main and standby power supply in the cabinet and check if the FACP can self-test. The procedures are as follows.

- ✧ Check if the digital displays showing time are illuminated one by one.
- ✧ Check if the LCD showing system messages such as fire alarm is illuminated.
- ✧ Check if the LEDs showing the state of system can be illuminated one by one.
- ✧ Check if the LEDs showing the device state in zone indication and manual intervention panel are illuminated in turn.
- ✧ Check if the speaker can give four kinds of obvious loud alarm sounds.

4.4 Connections of Field Devices

4.4.1 Connection of AC Power

- ✧ GST200 Fire Alarm Control Panel receives power from a 230V, 50Hz supply. The current flows through a filter to the transformer. The transformer converts the input mains voltage to 27VAC.
- ✧ The incoming power feed cable Earth (Green/Yellow) wire should be connected to the earth terminal.
- ✧ Connect the neutral wire to the N terminal and connect the live wire to the L terminal.

Note:

1） Do not power the system until the installation is complete.

2） The incoming mains cabling to the FACP should be supplied via a suitably located ‘Isolation’ switch to facilitate servicing.

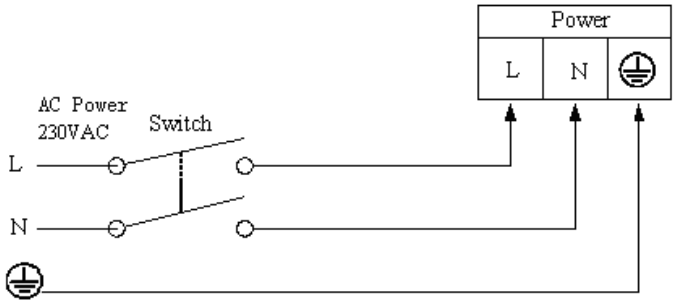


Fig. 4-2a

4.4.2 Connection of Batteries

Refer to the Standby Battery Calculations section for the size of the batteries required for a particular installation.

Connect the batteries according to Fig. 4-2b and then connect with the battery terminal P4.

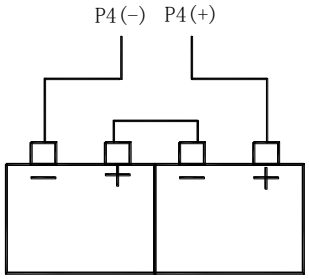


Fig. 4-2b

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

4.4.3 Connection of Field Devices

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!

GST200 connects with field devices by loop interface board.

Terminals of loop interface board are shown in Fig. 4-3.

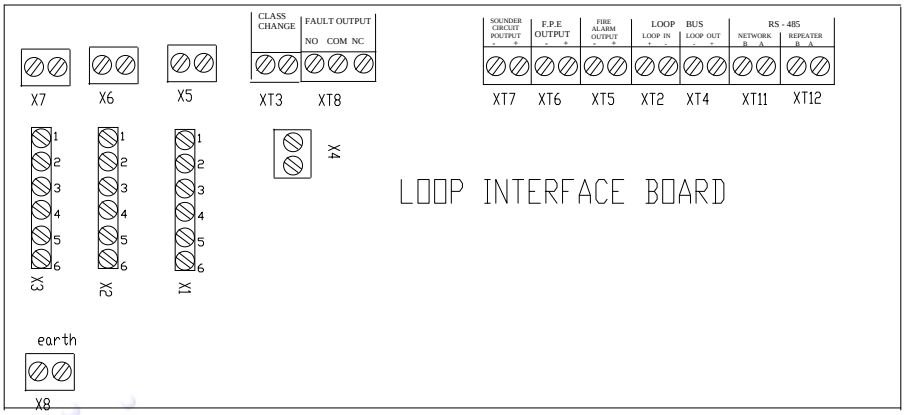


Fig. 4-3

Description:

- ✧ **CLASS CHANGE (XT3):** Shorting this terminal can make Sounder Circuit Output (XT7) output.
- ✧ **FAULT OUTPUT (XT8):** Fault relay is closed in normal condition, and it's disconnected in fault condition.
- ✧ **SOUNDER CIRCUIT OUTPUT (XT7):** It outputs according to settings in Section 6.4.5 when there is fire alarm, which can be stopped by pressing SILENCE key on ZCP. Output can be disabled, and there is no output in disabled state. It can be included into C&E equation, and can be set at delay mode. The FACP will report fault when connected cable in short or open circuit.
- ✧ **F.P.E. OUTPUT (XT6):** It outputs according to settings in Section 6.4.5 when there is fire alarm. It can be disabled, and does not output when fire alarm occurs in disabled state. It can be included into C&E equation, but cannot be set at delay mode. The FACP alarms fault when connected cable in short or open circuit.
- ✧ **FIRE ALARM OUTPUT (XT5):** It outputs when there is fire alarm and should give fault signals when connected circuit is shorted or opened.
- ✧ **LOOP BUS (XT2, XT4):** Class A loop can connect with up to 235 addressable devices. With loop isolator in Class A loop, the detector protected by loop isolator is not missing when there is short or open circuit. In this case, the FACP reports loop fault.
- ✧ **RS-485 (XT11, XT12):** To be connected with repeater panel and FACP.
- ✧ **earth (X8):** This terminal is for checking earth fault when shorted.

F.P.E. OUTPUT, SOUNDER CIRCUIT OUTPUT and FIRE ALARM OUTPUT can provide three output modes, which are 24VDC voltage output, normally open output and normally closed output. You can set up the three modes through Pin X1～X7. See more details in Table 4-1.

Table 4-1

Output	24VDC	Normally Closed	Normally Open
F.P.E. Output	Short 1 to 2 & 4 to 5 of X3 Short X7	Short 3 to 4 & 5 to 6 of X3 Disconnect X7	Short 2 to 3 & 5 to 6 of X3 Disconnect X7
Sounder Circuit Output	Short 1 to 2 & 4 to 5 of X2 Short X6	Short 3 to 4 & 5 to 6 of X2 Disconnect X6	Short 2 to 3 & 5 to 6 of X2 Disconnect X6
Fire Alarm Output	Short 1 to 2 & 4 to 5 of X1 Short X5	Short 3 to 4 & 5 to 6 of X1 Disconnect X5	Short 2 to 3 & 5 to 6 of X1 Disconnect X5

4.4.3.1 Connection of SOUNDER CIRCUIT OUTPUT

Connection of SOUNDER CIRCUIT OUTPUT is shown in Fig. 4-4.

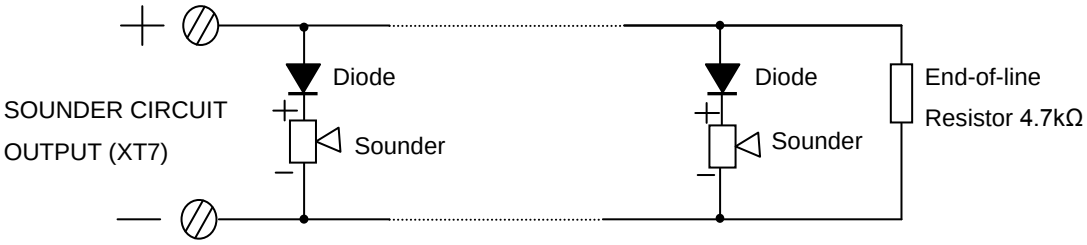


Fig. 4-4

A 4.7kΩ resistor is connected at the SOUNDER CIRCUIT OUTPUT (XT7) as factory default. Please remove it and keep it well before connection. Connect the loop in correct polarity and add the resistor to the end of the line.

NOTE: The sounder strobes are polarity-sensitive. Note polarity in connection. The maximum current of the circuit depends on the number of sounder strobes. Do not overload.

4.4.3.2 Connection of F.P.E. OUTPUT

F.P.E. OUTPUT is shown in Fig. 4-5.

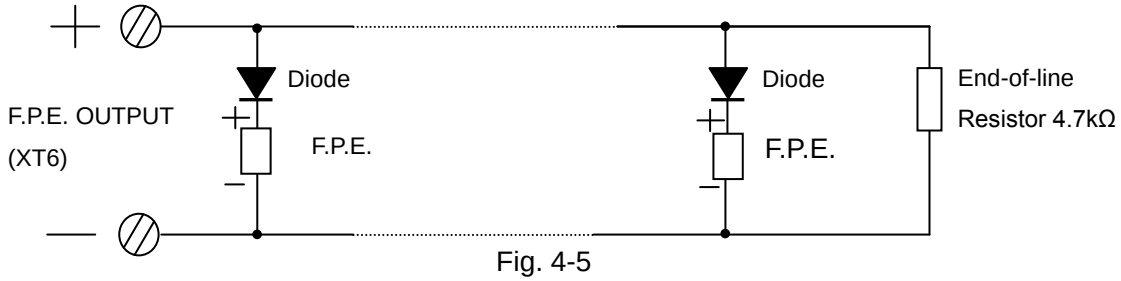


Fig. 4-5

A 4.7kΩ resistor is connected at the F.P.E. OUTPUT (XT6) as factory default. Please remove it and keep it well before connection. Connect the loop in correct polarity and add the resistor to the end of the line.

NOTE: F.P.E. are polarity-sensitive. Note polarity in connection. The maximum current of the circuit depends on the number of F.P.E. Do not overload.

4.4.3.3 Connection of FIRE ALARM OUTPUT

FIRE ALARM OUTPUT is shown in Fig. 4-6.

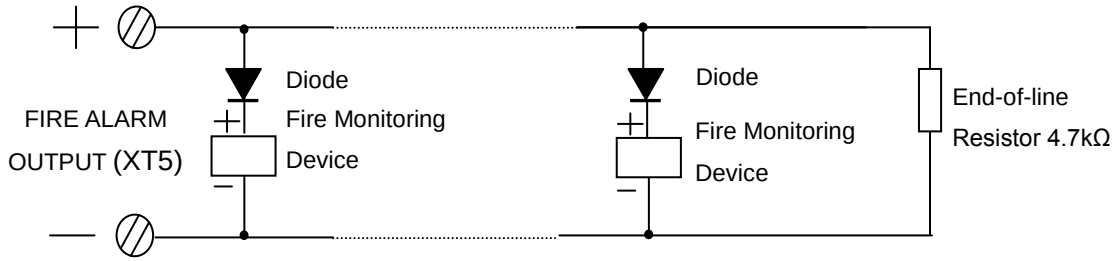


Fig. 4-6

A 4.7kΩ resistor is connected at the FIRE ALARM OUTPUT (XT5) as factory default. Please remove it and keep it well before connection. Connect the loop in correct polarity and add the resistor to the end of the line.

NOTE: Fire supervisory devices are polarity-sensitive. Note polarity in

connection. The maximum current of the circuit depends on the number of fire supervisory device. Do not overload.

4.4.3.4 Connection of Class A Loop

A Class A loop is shown in Fig. 4-7.

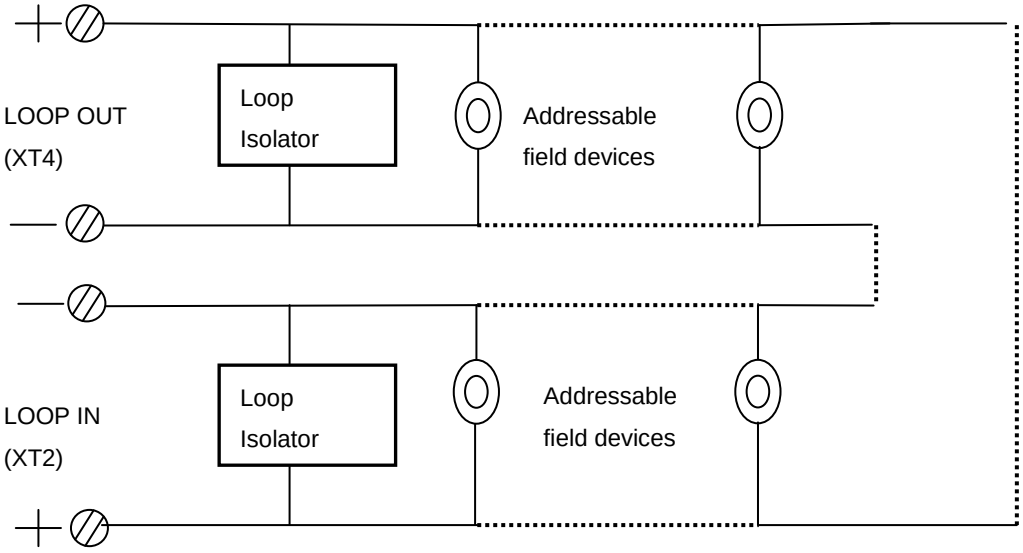


Fig. 4-7

Note: If more than 32 devices are connected to the loop, loop isolators shall be used and each loop isolator shall not cover more than 32 detectors.

4.4.3.5 Connection of Communication Loop

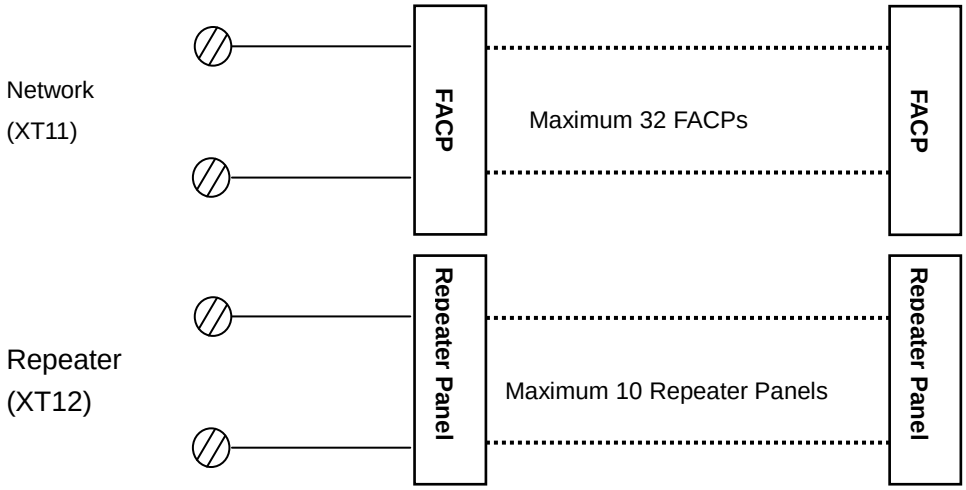


Fig. 4-8

4.5 Connection Inspection and Device Registration

4.5.1 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 FIRE ALARM OUTPUT, SOUNDER CIRCUIT OUTPUT and F.P.E. OUTPUT should be equal to the end-of-line resistance.

4.5.2 Device Registration

Press *SYSTEM* and input commission password. Then press *ENTER* to go to system setting menu. Then press *ESC* to exit system setting menu, the system enters commission state (there will be a "-" at the right bottom of the screen). Press *SELF TEST*, the FACP will register the devices automatically. Please check if the number of devices, programming, and operation state is in compliance with the project design and remove any problems.

4.6 Device Definition

Please define devices and C&E equations by the software GstDef2.0 Defining Tool through a PC, and download the definitions to the FACP. Refer to *GstDef2.0 Defining Tool User's Manual* for detailed operation.

4.7 Field Device Commission

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

1 Complete the labels of ZCP.

2 Test all the detectors and make sure their positions are correct.

3 Check all device definition, and modify improper part.

4 Check all C&E equations, modify improper parts, and test automatic activation by C&E equation.

Chapter 5 Display and Disposal of System Information

GST200 can be started after installation according to description in Chapter 4. Turn on the power supply, and main and standby power switch on the FACP, the FACP executes self-test and enter normal standby state. The system will display properly if it is in normal state, otherwise it will display abnormal information.

5.1 Normal Information

The normal display is shown in Fig. 5-1, which means the system is in working state. Then only *POWER HEALTHY* LED lights.

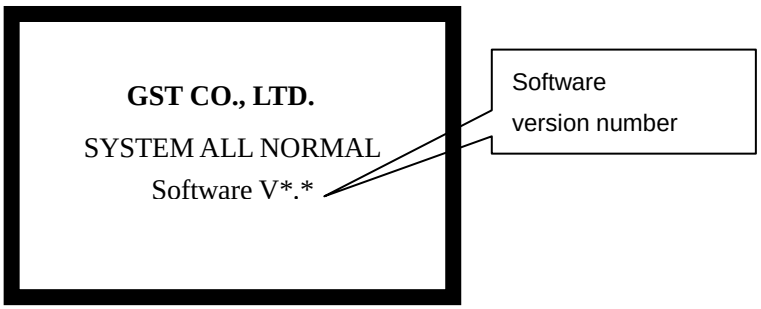


Fig. 5-1

Fig. 5-2 shows the system is in normal operation but with disabled devices. Pressing *VIEW DISABLE* can browse these devices.

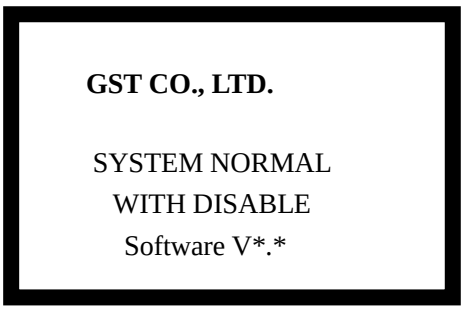


Fig. 5-2

5.2 Fire Alarm

5.2.1 Fire Alarm Screen

FIRE LED is lit when there is fire alarm signal. Speaker of the FACP sounds (fire truck sound), and corresponding *FIRE* LED on the ZCP is also lit.

1 Fire alarm screen is shown like Fig. 5-3 when in zone display mode.

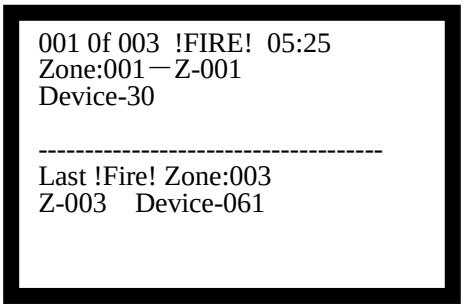


Fig. 5-3

- ✧ 001 0f 003 !FIRE! 05:25 // There are fire alarms in three zones and this is the first.
- ✧ Zone:001－Z-001 // The number of zones with fire alarm and description of the zone.
- ✧ Device-30 // The description of the device with fire alarm signal.
- ✧ Last !Fire! Zone:003 // Zone number of the last fire alarm.
- ✧ Z-003 Device-061 //Description of zone the last fire alarm and description of the device of that zone with the first fire alarm.

2 Fire alarm screen for loop display mode is shown in Fig. 5-4.

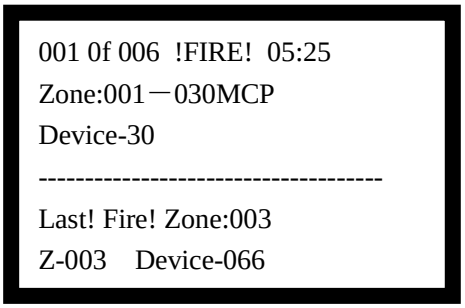


Fig. 5-4

- ✧ 001 0f 006 !FIRE! 05:25 // There are six devices with fire alarm signals, and this is the first.
- ✧ Zone: 001－030MCP // The number of zone with fire alarm and type and address of the device in fire alarm.
- ✧ Device-30 // Description of device in fire alarm.
- ✧ Last! Fire! Zone:003 //Number of the zone where the last fire alarm occurs
- ✧ Z-003 Device-066 // Description of zone and device of the last fire alarm.

5.2.2 Disposal of Fire Alarm Signal

When fire alarm occurs, first find out the location according to the information shown on the FACP to verify whether the fire really happened.

If it's a real fire, please take corresponding measures as outlined below.

Step 1: Evacuate the people in field.

Step 2: Call the fire department.

Step 3: Initiate extinguishers.

If it is a false alarm, please take the following measures.

Step 1: Press *SILENCE* to stop the sound.

Step 2: Remove the causes of the false alarm.

Step 3: Press *RESET* to make the FACP back to the normal state. If the device still gives false alarm, disable it and inform the installer or manufacturer for repair.

5.3 Fault

5.3.1 Fault Indication

The indication of the fault message depends on the type of fault.

- ✧ Mains fault: If the AC power is down, the panel reports AC fault, and
  - ➢ Light *COMMON FAULT* and *AC FAULT* LED.
  - ➢ The LCD displays “AC fault”.
  - ➢ The panel generates fault sound.
  - ➢ Fault relay outputs.
- ✧ Battery fault: The panel reports battery fault if the battery voltage is lower than 18.9V, and would:
  - ➢ Light *COMMON FAULT* and *BATTERY FAULT* LED.
  - ➢ The LCD displays “Bat Fault”.
  - ➢ The panel generates fault sound.
  - ➢ Fault relay outputs.
- ✧ System fault: The panel would report system fault if its control CPU and circuits is in fault and the panel cannot work normally.
  - ➢ It lights the *COMMON FAULT* and *SYSTEM FAULT* LED.
  - ➢ There is no display on the LCD.
  - ➢ The panel generates continuous alarm sound.
  - ➢ The panel cannot monitor fire alarm.
  - ➢ The keypad cannot be used.
  - ➢ If system fault indication remains for less than 5 seconds, the panel will assume that this is not a true fault and automatically clear the LED and sounder indication and return to normal monitor state. If system fault indication remains for more than 5 seconds, the panel will then interpret it as a genuine fault and the LCD displays “System fault must be reset manually. System time must be reset.” after it’s cleared. You need to press *RESET* key to clear the fault indication and reset system time.
  - ➢ Fault relay outputs.

- Keypad fault: The panel reports keypad fault if its keypad circuit is in fault:
  - It lights the *COMMON FAULT* and *SYSTEM FAULT* LED.
  - The LCD displays “Key fault”.
  - The panel generates continuous alarm sound.
  - Fault relay outputs.
  - The keypad cannot be used.
  - The panel can monitor fire alarm.
  - The panel can reset automatically after the fault is removed.
- Field device fault: If there is trouble with one of the field devices, the panel reports fault with it, and
  - The panel lights the *COMMON FAULT* LED.
  - The corresponding ZCP LED flashes.
  - The panel generates fault sound.
  - Fault relay outputs.
  - The LCD displays the fault message. The fault screen is as in Fig. 5-5 in zone display mode, and as in Fig. 5-6 in loop display mode.

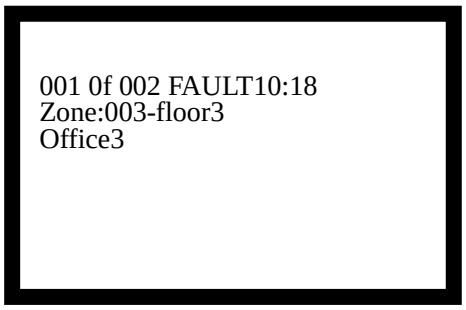


Fig. 5-5

  - 001 0f 002 FAULT10: 18 // There are two zones reporting fault, and this is the first fault message.
  - Zone:003-floor3 // The number description of the zone with fault message.
  - Office3 // Description of the device with the fault.

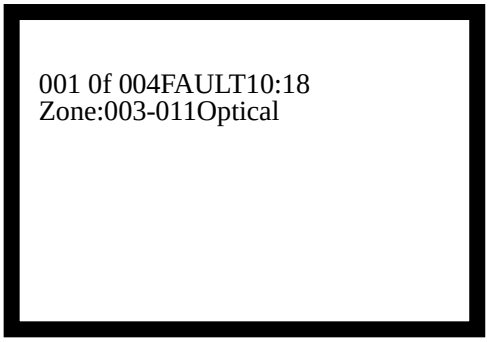


Fig. 5-6

- 001 0f 004 FAULT10:18 // There are four devices reporting fault, and this is the first fault message.
- Zone:003-011Optical // The number the zone with the fault message, the address and type of the device with the fault message.

5.3.2 Disposal of Fault Message

There are two kinds of fault message. One is system fault, like AC fault, battery fault, and loop fault. The other is field device fault, like fault with detectors and modules etc.

- ✧ If the system is powered by battery for longer time than its capacity, the panel will shut down to protect the battery. Please charge the battery in time to avoid any possible damage to it.
- ✧ If it is system fault, please check and repair in time. If the panel needs to be shut down, please make detailed notes.
- ✧ If it is field device fault, please repair it in time. You can disable it if the fault can't be cleared for some reason, and enable it when the fault is removed.

5.4 Rules for Message Display

If there are multiple messages in the system, they will be displayed in the following order: fire alarm, action, fault, start, disable.

1 The earliest fire alarm is displayed in priority. The latest action, fault, disabled message is displayed in priority.

2 There are zone and loop display modes for fire alarm, fault, and disabled messages. And start and action only has loop display mode.

3 In any display mode, the system will return to displaying of the highest priority if there is no operation within 20s (15s～30s).

5.5 Rules for Sound Indication

The FACP will sound to indicate fire alarm or fault messages.

- ✧ The FACP gives fire truck sound when fire alarm occurs.
- ✧ The FACP gives action sound when any device is activated.
  - Module action: --slow "tick" sound.
  - Gas extinguishing device action --police car sound
  - Delayed activation of devices by automatic C&E equation--quick "tick" sound.
- ✧ The FACP gives ambulance sound when fault occurs

The FACP will give sound of higher priority if two types of event occur simultaneously.

Chapter 6 Description of System Operation

6.1 Keypad

6.1.1 Keypad Functions

Most of the keys have double functions. Lower mark is a character and upper mark is a command that is only activated in monitoring state. Most function keys are controlled by password. The characters are only active after entering the menu. Pressing *ESC* will return to previous level of the menu.

6.1.2 Methods of Data Input

Pressing a character key, all characters disappear, and the display shows the newly input one. The cursor will indicate the next input position (The cursor always indicates the position of the next to input, and returns to the first character after completion of a line). Pressing $\overset{\Delta}{=}$ or $\overset{=}{\nabla}$, to move the cursor to modify any character.

Pressing *TAB*, the highlight moves to the next position and returns to the first after the last position. Wherever the cursor is, Pressing *ENTER* key, all the input data will be saved.

If there is no keypad operation for over 1 minute, the system will exit present state without saving the input data.

6.1.3 Unlocking and Locking the Keypad

✧ Unlocking the Keypad

The FACP is locked by default when powering up. If some operations are needed, the LCD will display a screen requiring proper password. Input the correct password and press *ENTER*, you can continue to operate, as the keypad is unlocked. See Fig. 6-1.

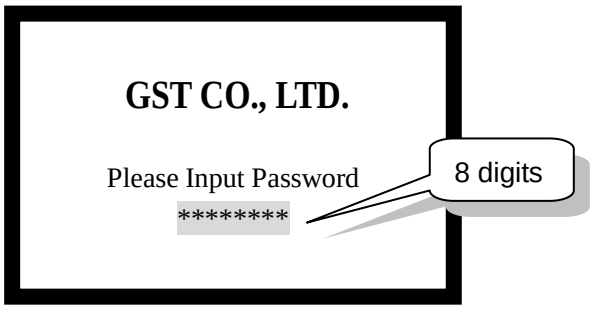


Fig. 6-1

✧ Locking the Keypad

The keypad shall be locked after operations are finished or personnel on duty leave. Pressing *LOCK*, the screen will display **"Press ENTER confirm"** like in Fig. 6-2. Pressing *ENTER*, the keypad is locked. You will have to input password again to unlock the keypad for any new operation.

Fig. 6-2

6.2 User Operation Instruction (No Password Requirement)

6.2.1 Changing time display

The clock is usually displayed in hour and minute. In normal monitoring state, pressing *ENTER*, month and date are displayed. Pressing *ENTER* again or after a minute, hour and minute is displayed again.

6.2.2 Browsing messages

6.2.2.1 Turning pages

You can look through information one by one by pressing △ and ▽.

6.2.2.2 Browsing more than one piece of message

The current information is highlighted when there is more than one piece of message on the LCD. You can view details of this item by pressing *ENTER* or exit by pressing *ESC*. When the printer is set as “All History” mode, pressing *PRINT* while browsing can print the current displayed message.

6.2.2.3 Setting LCD contrast and viewing C&E equation

Pressing *SCREEN*, the system enters the screen for setting LCD contrast and display mode and browsing C&E equation, as shown in Fig. 6-3.

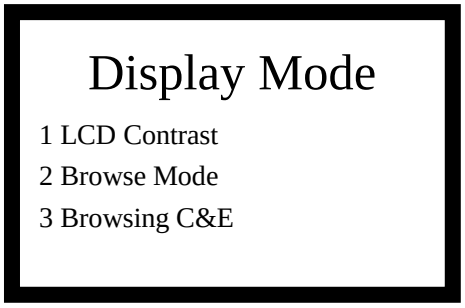


Fig. 6-3

From the above screen, you can operate as follows:

✧ Input number 1, you can enter the screen for setting LCD contrast. See Fig. 6-4. △ and ▽ are for increasing and decreasing LCD contrast.

Fig. 6-4

✧ Input number 2, you can enter the screen for setting browse mode, as shown in Fig. 6-5. 1 is for zone mode, and 2 is for loop mode.

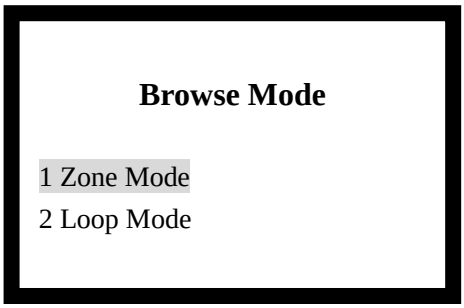


Fig. 6-5

✧ Input number 3, you can enter the screen for browsing C&E equation as shown in Fig. 6-6. The highlighted line is the current message.

Pressing $\overset{\Delta}{=}$ or $\overset{=}{\nabla}$ can choose a piece of message. Pressing *ENTER* then, the details of this message will be displayed. Pressing *ESC* will exit the operation.

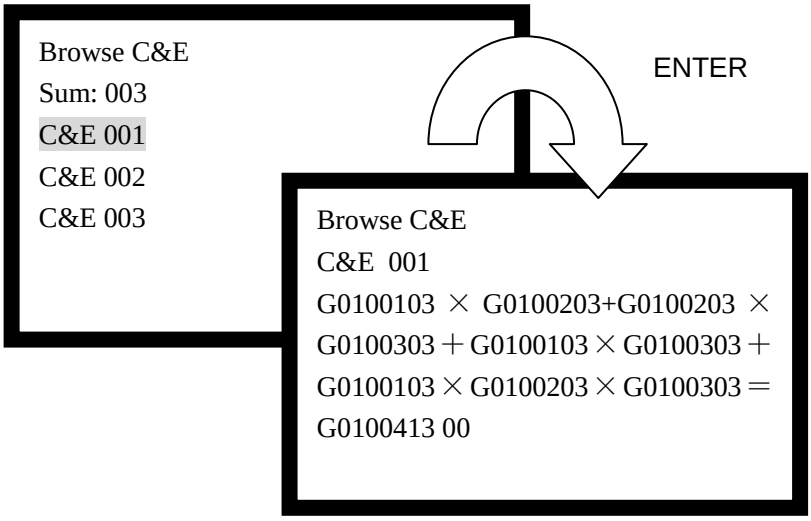
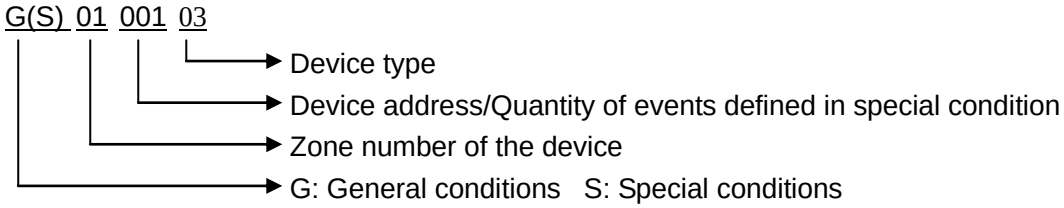


Fig. 6-6

✧ The part before "=" is the condition and that after it is the result.

✧ "×" means "and", and "+" means "or".

✧ A condition is composed of the following items:

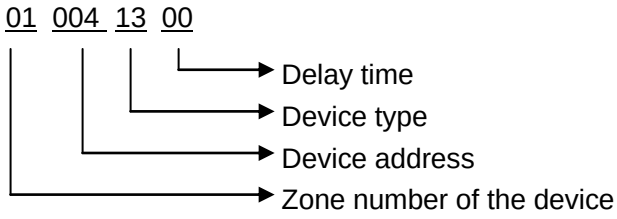


General Condition: A device can be activated if its zone number, code and device type are correct.

Special Condition: Both zone number and device type can be defined. If events with the same zone number and device type reach a defined number, this special condition comes into effect. Asterisk wildcard "*" represents any number used in special conditions.

Event: It is the message generated by the FACP when there is fire alarm or action of device.

✧ A result is composed of the following items.



6.2.2.4 Browsing registered devices

Pressing *BROWSE* can enter the screen for viewing registered devices, as shown in Fig.6-7.

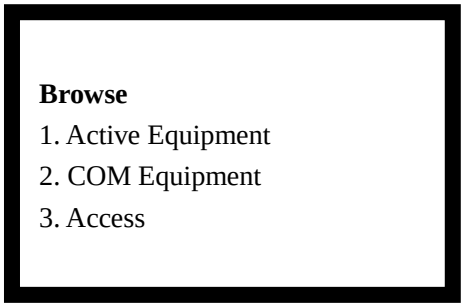


Fig. 6-7

✧ Input number 1, you can view loop devices. The display mode depends on what you have set according to Section 6.2.2.3, loop mode or zone mode.

(1) Zone display mode is shown in Fig. 6-8.

The present message is highlighted and can be chosen by pressing ▲ or ▼. Pressing *ENTER* can browse further messages and *ESC* for exiting.

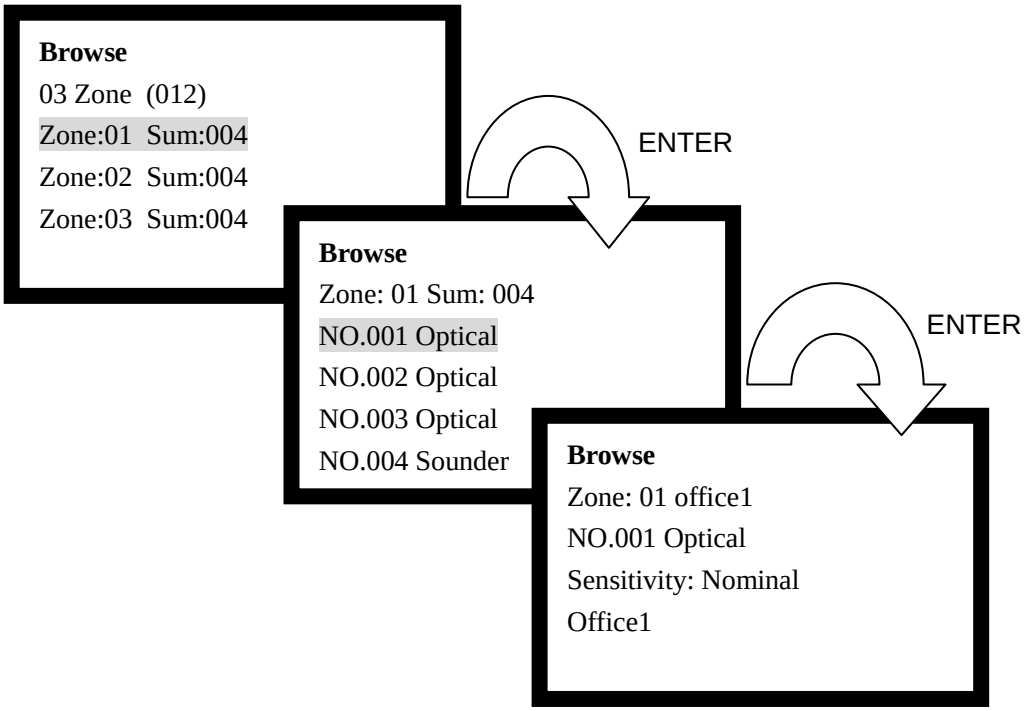


Fig. 6-8

- ✧ Zone: 01 office1 // zone number, description of zone location.
- ✧ NO.001 Optical // address and type of the device.
- ✧ Sensitivity: Nominal // property of the device.
- ✧ Office1// Description of device location.

(2) Loop display mode is shown in Fig. 6-9.

The present message is highlighted and can be chosen by pressing ≙ or ▽. Pressing *ENTER* can browse further messages and *ESC* for exiting.

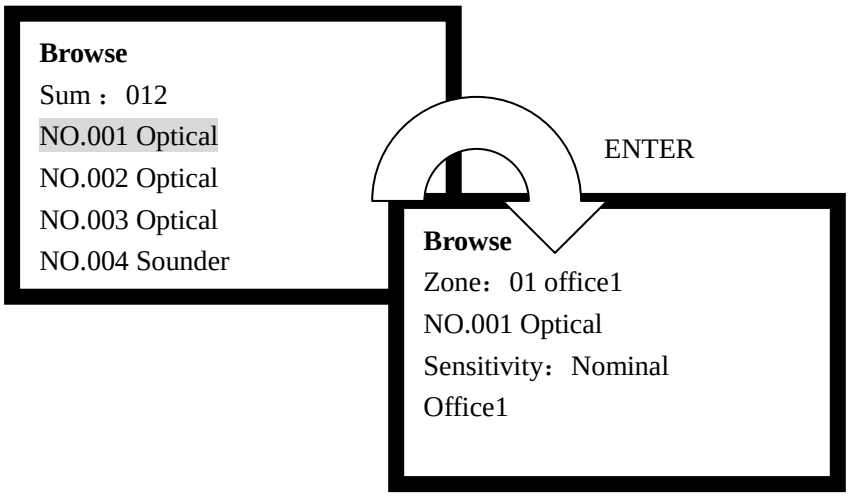


Fig. 6-9

- ✧ Zone: 01 office1 // zone number, description of zone location.
- ✧ NO.001 Optical // address and type of the device.
- ✧ Sensitivity: Nominal // device property.

- ✧ Office1 // Description of the device position.

✧ Input number 2, you can view FACPs and repeater panels in network.

✧ Input number 3, you can view definitions to ZCP keys as in Fig. 6-10.

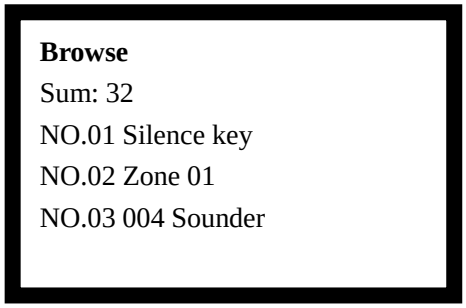


Fig. 6-10

- ✧ Sum: 32 // The total number of keys on the ZCP.
- ✧ NO.01 Silence key // Define key No. 1 as "**Silence**" key.
- ✧ NO.02 Zone 01 // Define key No. 2 as zone 1.
- ✧ NO.03 004 Sounder // Define key No. 3 as sounder whose start-up address is 004.

6.2.2.5 Browsing history log

Pressing *LOG*, the FACP enters the state of browsing history record. Using ≙ and ▽, you can browse every item, the screen is shown in Fig. 6-11.

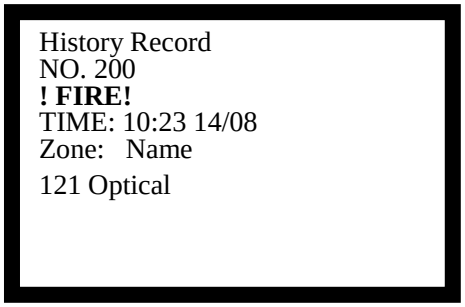


Fig. 6-11

✧ NO. 200 // The two hundredth history log

✧ ! FIRE! // Fire alarm message

✧ TIME: 10:23 14/08 // Date and time of the event

✧ Zone: Name // Zone number, zone name

✧ 121 Optical // Device address and type

6.2.2.6 Browsing fault messages

You can view fault messages by pressing *VIEW FAULT* when the screen is displaying non-fault messages. The display varies by the type of fault messages. Please refer to Section 5.3.

6.2.2.7 Browsing disable messages

You can view disable messages by pressing *VIEW DISABLE* when the screen is displaying non-disable messages. The screen of loop mode is shown in Fig. 6-12 and the screen for zone mode is shown in Fig. 6-13 and Fig. 6-14.

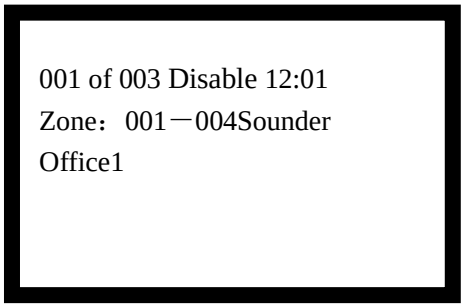


Fig. 6-12

- 001 of 003 Disable 12:01 //There are three disabled devices in the system and this is the first.
- Zone: 001－004Sounder //The zone number, address and device type of the disabled device.
- Office1 //Description message of the disabled device.

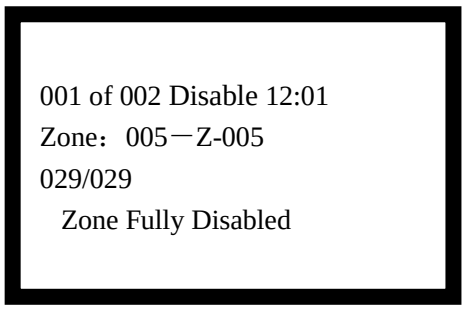


Fig. 6-13

- 001 of 002 Disable 12:01 // There are devices from 2 zones that are disabled, and this is the first zone.
- Zone: 005－Z-005 // Zone number and description message of the disabled zone.
- 029/029 // All 29 devices of the current zone are disabled.
- Zone Fully Disabled // Current zone are completely disabled.

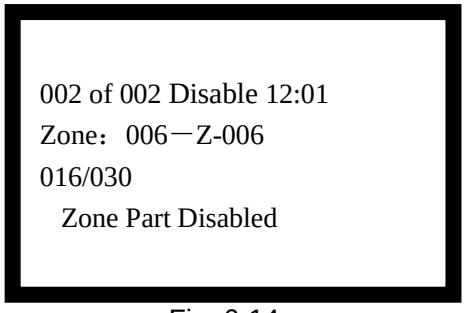


Fig. 6-14

- 002 of 002 Disable 12:01 // There are devices from 2 zones that are disabled，and this is the second zone.
- Zone: 006－Z-006 // Zone number and description message of the disabled zone.
- 016/030 //There are 16 disabled devices in all 30 devices of the current zone.
- Zone Part Disabled // The zone is partially disabled

6.2.2.8 Browsing action messages

You can view action messages by pressing *VIEW PLANT* when the screen is displaying non-action messages. The screen is shown in Fig. 6-15.

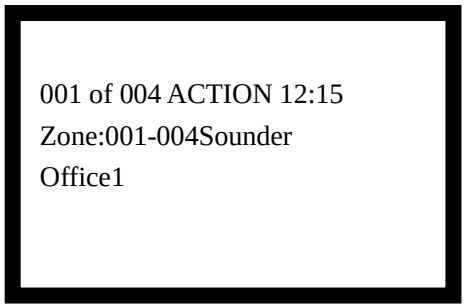


Fig. 6-15

- 001 of 004 ACTION 12:15 // There are 4 action messages in the system and this is the first, time 12:15.
- Zone:001-004Sounder //The zone number, device address and device of the device in action.
- Office1 //Description message of the device in action.

6.2.3 Silencing the panel

Pressing *MUTE* can stop the sound of speaker; pressing *MUTE* again, the FACP is still in mute state. It will sound by priority when new event appears.

6.3 Instructions for Operator (Operator Password Required)

6.3.1 Resetting the system

Pressing *RESET* can turn off all the control modules, local outputs and reset all the detectors, but will leave the disabled devices as they are. The LCD displays "**RESET IN SYSTEM**". LEDs will be turned off (Except for "**POWER HEALTHY**", "**DELAY MODE**", "**EXTINGUISHING SYSTEM PERMIT**" LEDs). "**RESET**" information will be written into running log. If there is still fire alarm, fault and action not acknowledged after pressing the *RESET* key, the FACP will remain relative sound indications. If all messages have been acknowledged by pressing *RESET* key, the system returns to normal display state.

6.3.2 Enable and Disable

The disabling/enabling of devices is mainly used when a trouble condition of a device cannot be removed in time. This device can then be temporarily disabled, and enabled after it's repaired.

The disabling/enabling of delay can be set as needed. For example, if there is person on duty, the system delay can be enabled, so that the system can select delay by C&E equation or by the pre-set local delay in case of an alarm. If there is nobody on duty, the delay can be disabled and the system outputs immediately.

Pressing *ENABLE/DISABLE*, the screen will be shown as in Fig. 6-16.

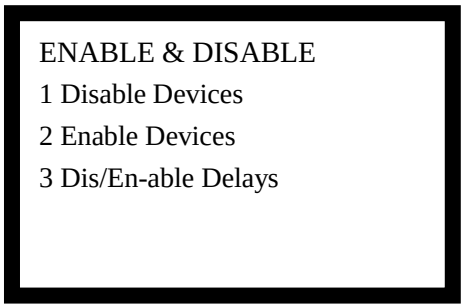


Fig. 6-16

6.3.2.1 Disabling a Device

In the screen shown in Fig. 6-16, input number "1", you can enter disable screen as shown in Fig. 6-17, where you are able to disable devices. The panel provides two methods for disabling devices. You can disable a single device (single-device disable) or all devices of a zone or multiple devices by using asterisk mark "*" (multi-device disable). The wildcard character "*" represents any number between 0 and 9.

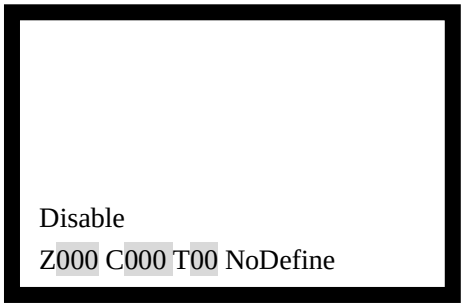


Fig. 6-17

You can input 3-digit number or asterisk after "Z" for zone number.
You can input 3-digit number or asterisk after "C" for device code.
You can input 2-digit number or asterisk after "T" for device type.

1 Example for disabling a single device

In order to disable the photoelectric smoke detector No. 001 in Zone No. 1, you need to input zone number 001, device number 001 and device type 03 in sequence.

2 Examples for disabling multiple devices

✧ In order to disable all devices with type number 001～11 of Zone No.1, you need to

input in sequence the zone number 001, device code *** and device type **.

✧ For device with type number 12～65, the asterisk mark is not allowed for the type number.

3 Example for disabling sounder circuit output (Sounder A) and F.P.E.

The address for the Sounder circuit output on the loop interface board is 240, and its device type is 55-SounderA. The address for F.P.E. Output is 241, and its device type is 65-F.P.E. The system defaults these two outputs into zone No .0. To disable them, you need to operate as follows:

✧ You can disable sounder circuit output by inputting in sequence the zone number 000, device type 240 and device type 55. The panel will light the *SOUNDER FLT/DISABLE* LED.

✧ You can disable F.P.E output by inputting in sequence the zone number 000, device type 241 and device type 65. The panel will light the *F.P.E FLT/DISABLE* LED.

6.3.2.2 Enabling Devices

In the screen shown in Fig. 6-16, input number 2, you can enter device enable screen as shown in Fig. 6-18. Same as disabling devices, you can also enable a single device or multiple devices with the same methods of disabling them.

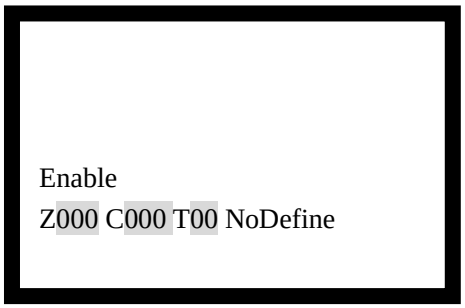


Fig. 6-18

6.3.2.3 Disabling/Enabling Delays

Inputting number 3 in the screen shown in Fig. 6-16 can enter the screen of disabling/enabling delays, as shown in Fig. 6-19 Here you can select to enable or disable the system delay.

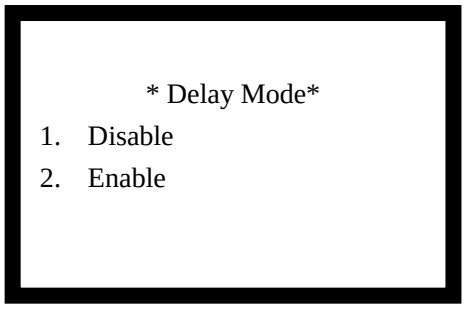


Fig. 6-19

In the above screen, you can operate as follows:

1 Selecting number 1 will disable all delay settings in the system.

2 Selecting number 2 will enable system to output according to the edited delay time, and light the *DISABLE* and *DELAY MODE* LED. Pressing *VIEW DISABLE*， the LCD will display “immediate actioning of outputs is disabled”.

Note: If the fire alarm is from a manual call point, then the system will output immediately despite any delay settings.

6.3.3 Operation through STAR/STOP Key

Pressing *START/STOP* can start or stop loop devices, as shown in Fig. 6-20.

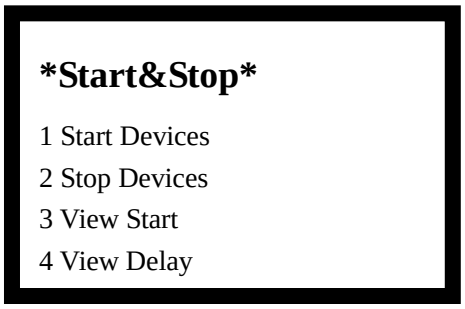


Fig. 6-20

6.3.3.1 Starting Loop Devices

In the screen shown in Fig. 6-20 you can enter loop device start screen by entering number “1”, as shown in Fig. 6-21. Similar to disabling devices, you can also start a single device or multiple devices by using the asterisk wildcard.

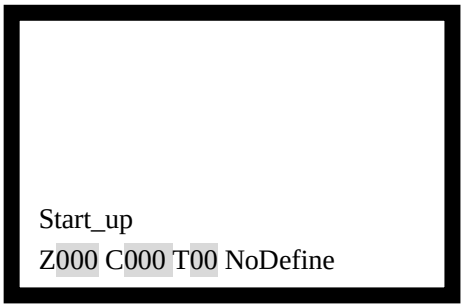


Fig. 6-21

6.3.3.2 Stopping Loop Devices

In the screen shown in Fig. 6-20, you can enter loop device start screen by entering number “2”, as shown in Fig. 6-22. The operation is the same as starting device.

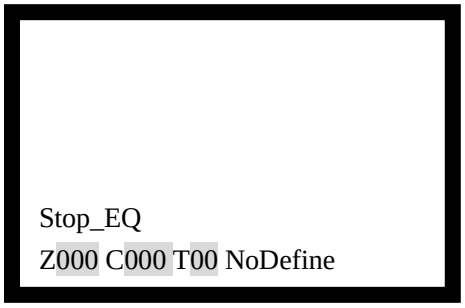


Fig. 6-22

6.3.3.3 Viewing Devices being Started

In the screen shown in Fig. 6-20, you can view the started devices by entering number "3" followed by *ENTER*, as shown in Fig. 6-23.

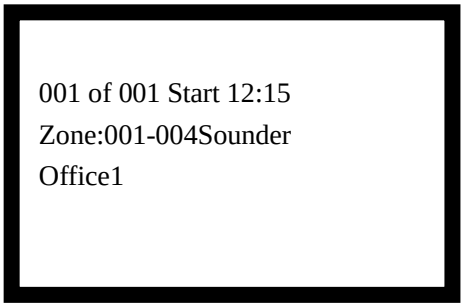


Fig. 6-23

- ✧ 001 of 001 Start 12:15 //There is totally one device being started in the system, and this is the first, occurring at 12:15.
- ✧ Zone:001-010Sounder //Zone number, device address and device type of devices being started.
- ✧ Office1 //Zonal description of the devices being started.

6.3.3.4 Viewing delayed devices

In the screen shown in Fig. 6-20, you can view delayed devices by entering number "4", as in Fig. 6-24.

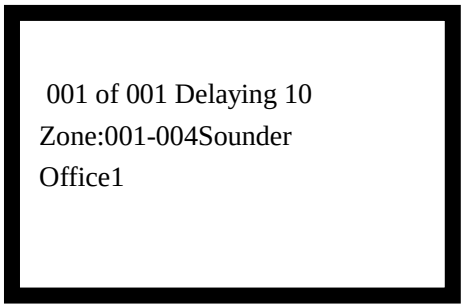


Fig. 6-24

- ✧ 001 of 001 Delaying 10 // There are totally one device being delayed, and this is the first. The left delay time is 10 seconds.
- ✧ Zone:001-010Sounder // The zone number, device address and device type of the device being delayed.
- ✧ Office1 // The zonal description of the device being delayed.

6.3.4 Operation of the Devices by ZCP

According to definition of the ZCP, press the key corresponding to a device, and input the requested password, you can start the device. Corresponding command LED of the key is lit. Press the key and input password again, you can stop the device, and the command LED turns off.

6.3.5 Setting work mode of printer

Press *PRINT* to enter print mode as shown in Fig. 6-25.

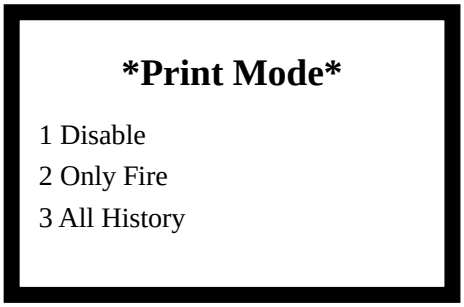


Fig 6-25

Entering “1”, printing will be disabled.
Entering “2”, only fire alarm records are printed.
Entering “3”, you can print the current messages while browsing history records by pressing *PRINT*.

6.3.6 Checking all visual and audible indications

In normal monitoring state, you can check all visual and audible indications of the FACP by pressing *SELF TEST*.

6.3.7 Gas Extinguishing Equipment

Pressing *MODE*, you can set up gas extinguishing equipment. The screen is shown in Fig. 6-26.

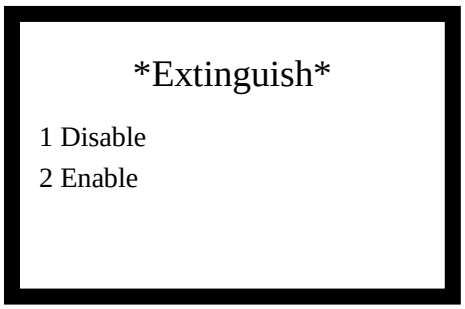


Fig. 6-26

Entering “1” means not to start gas extinguishing equipment by C&E automatically.
Entering “2” means to start gas extinguishing equipment by C&E automatically. *EXTINGUISHING SYSTEM PERMIT* LED will illuminate.

6.3.8 Burglar Mode Setting

Pressing *SEC*, you can set up burglar mode. The screen is shown in Fig. 6-27.

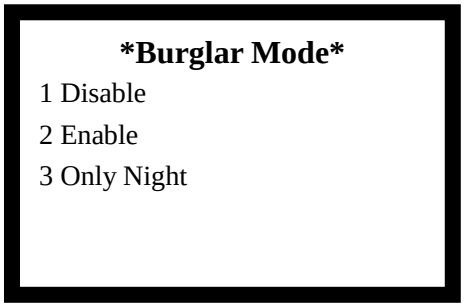


Fig. 6-27

If “1” is input, burglar mode is disabled. The system doesn’t respond to the action of security modules.

If “2” is input, burglar mode is enabled. The system responds to the action of security modules.

If “3” is input, burglar mode is only effective during night. The screen will then show a request for on and off time. Its window is shown in Fig. 6-28.

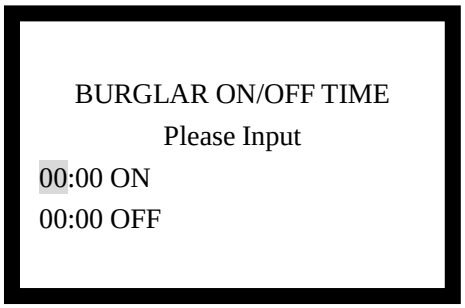


Fig. 6-28

If you input 19 at highlighted position, then press *TAB*, and input 30, the ON time of burglar mode is 19: 30. Pressing *TAB* again, you can set up the OFF time. Input 07, press *TAB*, then input 30 again, the OFF time is 07: 30. Pressing *ENTER* to confirm, and the system returns to the setting screen.

6.4 Instructions for System Administrator (Manager Password Required)

Press *SYSTEM* to enter the system setting screen. The screen is shown in Fig. 6-29.

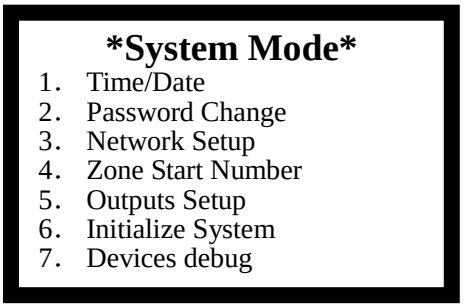


Fig. 6-29

6.4.1 Modifying System Time

Inputting “1” in the screen of Fig. 6-29, the system enters Time/Date setting screen. See Fig. 6-30. After inputting time on highlighted position and press *TAB*, then next data is highlighted. Press *ENTER* to save modification.

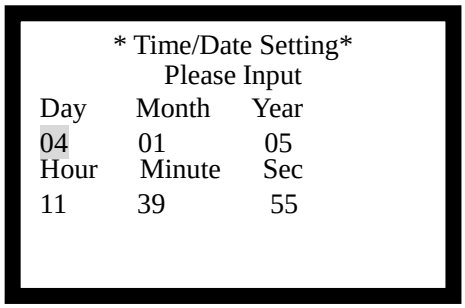


Fig. 6-30

6.4.2 Modifying Password

Inputting “2” on the screen in Fig. 6-29, the system enters the window of password modification. See Fig. 6-31. Now the passwords can be modified.

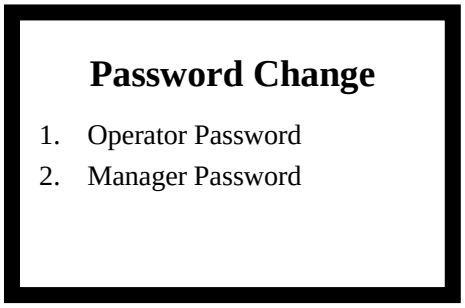


Fig. 6-31

Input “1” or “2” to choose password to be modified, the system enters the window in Fig. 6-32.

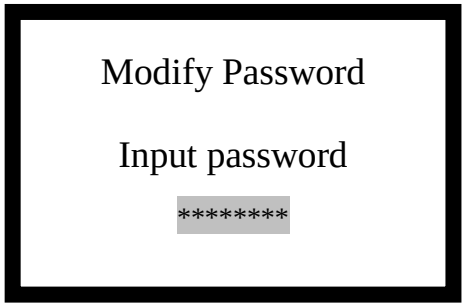


Fig. 6-32

After the password (8 digits from 0-9) is input, the LCD will display the screen shown in Fig. 6-33, requesting to confirm password.

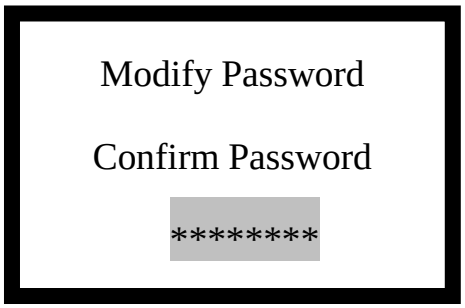


Fig. 6-33

Input password again, if the two passwords are the same, the LCD will display the window shown in Fig. 6-34, meaning the modification is successful.

Fig. 6-34

6.4.3 Network Setup

Input “3” on the screen in Fig. 6-29, the screen shown in Fig. 6-35 will be displayed.

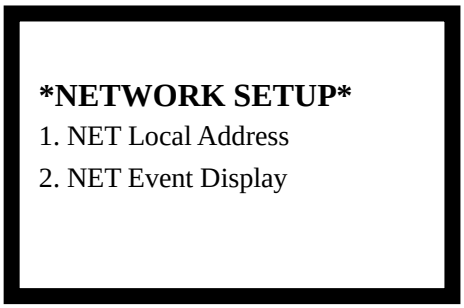


Fig. 6-35

In the above screen,

✧ You can set the panel’s network address by entering number 1, as shown in Fig. 6-36.

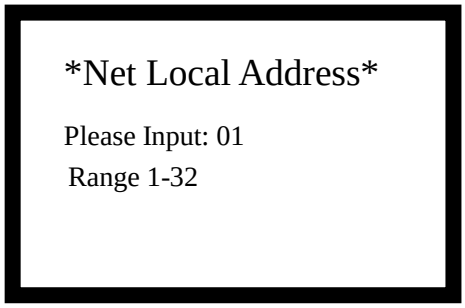


Fig. 6-36

✧ You can set the panel to display network message or not by entering number 2, as shown in Fig. 6-37.

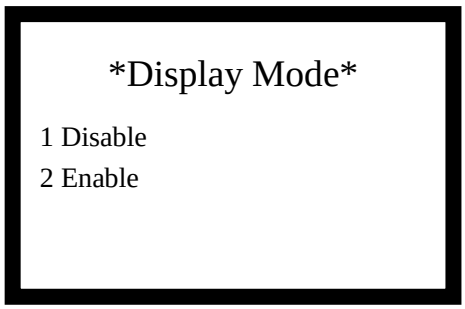


Fig. 6-37

6.4.4 Setting up Beginning Zone Number

Pressing “4” on the screen shown in Fig. 6-29, you can set beginning zone number of the FACP. The screen is shown in Fig. 6-38. After inputting the number of zones in the network on highlighted position, press *ENTER* to confirm and return. The zone numbers of the FACP will start from this number. For example, if the beginning number is 003, then the FACP zone number will be 003, 004, 005….in sequence.

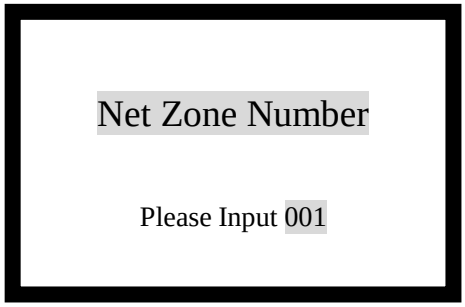


Fig. 6-38

6.4.5 Outputs Setup

Inputting number 5 in the screen in Fig. 6-29 will enter outputs setup screen, as shown in Fig. 6-39.

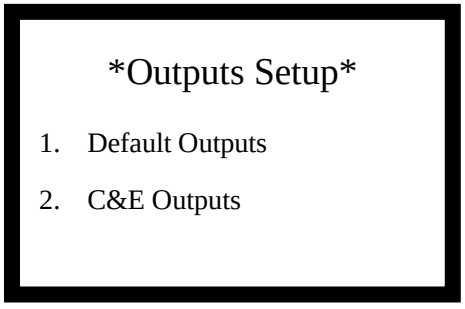


Fig. 6-39

6.4.5.1 Default Outputs

Selecting 1 in the screen of Fig. 6-39 will set SOUNDER CIRCUIT OUTPUT (Sounder A) on loop interface board and F.P.E. OUTPUT (F.P.E.) and the zonal sounder to default output. That is, if any fire alarm comes,

✧ If you have set the “Delay Mode” in Section 6.3.2.3 to “Disable”, Sounder A, zonal

sounder and F.P.E. will be automatically started.

✧ If you have set the “Delay Mode” in Section 6.3.2.3 to “Enable”, Sounder A and zonal sounder output after 30-second delay, and F.P.E. immediately outputs.

6.4.5.2 C&E Outputs

Selecting 2 in the screen of Fig. 6-39 will set Sounder A on loop interface board and F.P.E. and the zonal sounder to output by C&E.

✧ The above Default Output does not take effect.

✧ Sounder A, zonal Sounder and F.P.E need to be edited into C&E equation.

✧ Sounder A, zonal Sounder and F.P.E are started according to C&E.

Note:

1 If you have set the “Delay Mode” in Section 6.3.2.3 to “Disable”, the delay time set here will not take effect.

2 Under no conditions will F.P.E output be delayed.

6.4.6 Initialization of System

Input “6” on the screen shown in Fig. 6-29, you can initialize system data.

6.4.7 Viewing Supervisory Data of Addressable Devices

Input “7” on the screen shown in Fig. 6-29 to enter the window shown in Fig. 6-40. Entering the equipment number and the order number can view the supervisory value of addressable devices.

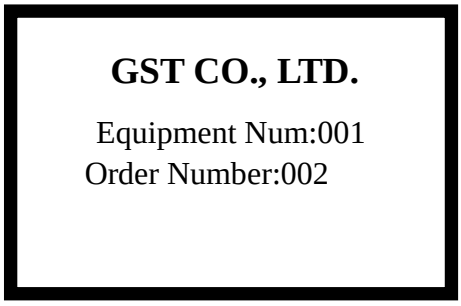


Fig. 6-40

Pressing different number keys represent different commands:

✧ “0” represents the command “Polling”. If the displayed value is between 450～650, the device is in normal operation; if it’s between 900～1200, the device is in alarm status, and if it’s between 0～120, the device is in fault.

✧ “1” represents “registration” command, and around 720 for normal status.

✧ “2” represents the command for monitoring the commission status of I-9105R beam detector. If the displayed value is between 680～750, this means the commission is completed.

✧ “15” means “Start” command, which can start the output of corresponding modules, or light the alarm LED of addressable devices.

Other numbers are reserved for future expansion.

Chapter 7 Standby Battery Calculations

Equation for calculating the battery capacity:

Battery capacity（Ah）=I_{Qmax}×T_1+(I_{Qmin}+I_{Lmax}+I_{Fout}) ×T_2

In which:

I_{Qmax}＝0.6A, which is the quiescent current when the FACP is full-loaded;

I_{Qmin}＝0.42A, is the quiescent current when the FACP is with no load;

I_{Lmax} ＝0.3A, is the maximum loop current;

I_{Fout}＝0.5A×3＝1.5A, which is the alarm output current (The FACP provides 3 fire alarm outputs, output current of each is 0.5A).

T_1 is the monitoring time when the FACP is full-loaded, which shall be at least 24 hours according to EN 54-4.

T_2 is the alarm time which shall be at least 30 minutes according to EN 54-4.

From the above equation, we can get the battery capacity is 15.51Ah, so that a 17Ah battery is recommended.

Chapter 8 Maintenance

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

8.1 Replacing the Battery

Type of battery: Sealed lead-acid battery
Recommended period for replacing the battery: 5 years (25℃)
Recommended manufacturer and model: Yuasa/NP17-12I
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 Replacing the Fuses

Table 8-1

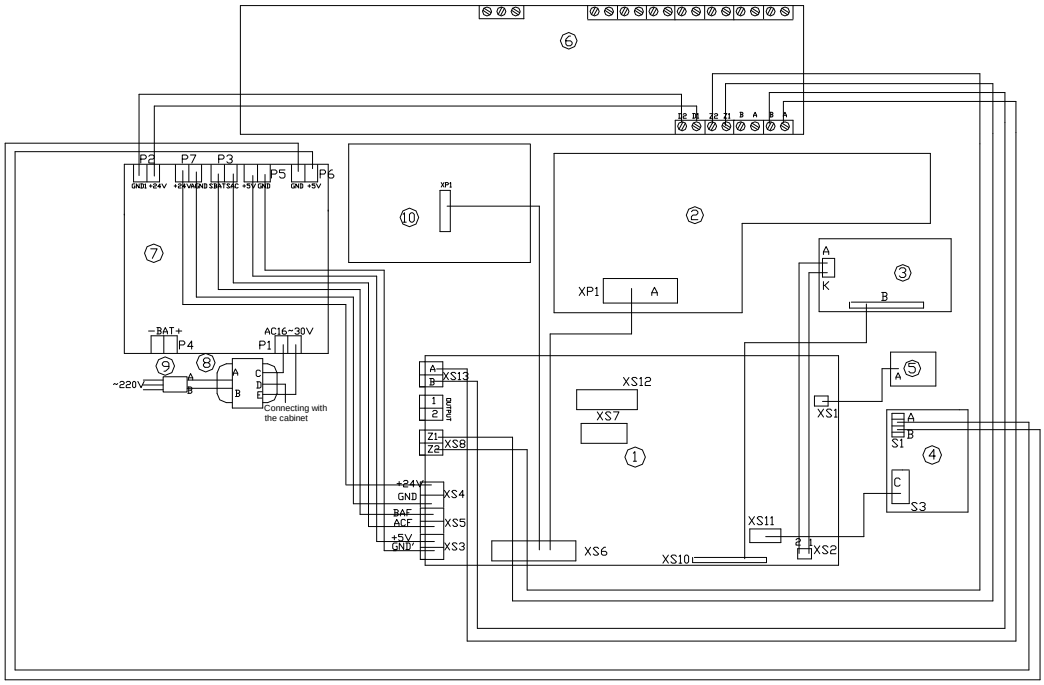
Location	Mark	Rated Value
Power filter F7.820.323	F1	2A Delay
Power board F7.820. 829	F1, F2	5A
Loop interface board F7.820. 828	F1, F2, F3	2A

8.3 Troubleshooter

Table 8-2

No.	Problems	Possible Causes	Solutions
1	No indication on the panel or abnormal indication	a. AC input fuse blown b. Power is abnormal c. Loose connection with switchboard.	a. Replace fuse. b. Check and replace low-voltage switch power. c. Check the connection to display board.
2	Display “AC Fault” after power-up.	a. No AC power b. AC fuse blown	a. Check and connect AC wire. b. Replace AC fuse（refer to the specification on the label）
3	Display “Bat Fault” after power-up.	a. Loose connection with battery. b. Battery discharged or damaged.	a. Open the power box and check relative parts. b. Power up for more than eight hours with the AC power supply, if the fault still exists, replace the batteries.
4	Unable to register loop equipment	Bus wrong or loose connection	Check the loop
5	Unable to register repeater panels	Wrong or loose connection of communication cables	Check power supply to repeaters and communication wires
6	Cannot print	a. Print mode is not set. b. Loose connection with printer. c. Printer damaged	a. Set the print mode. b. Check and connect the printer well. c. Replace the printer.
7	No response after pressing keys on zone indication and manual intervention panel	a. Loose connection with ZCP. b. The circuit board of ZCP damaged.	a. Check and connect, then register again. b. Replace the circuit board of zone indication and manual intervention panel.
8	Equipment fault	a. Equipment disconnected. b. Equipment damaged.	a. Check connection b. Replace equipment
9	Loop fault	Loop is shorted	Check the loop and repair.
10	Clock or memory fault.	a. External interference. b. Corresponding parts are aging.	a. Check whether ground is properly connected. b. Inform our technical service

Appendix 1 Internal Connection Diagram



1 Main Board 2 Switch Board 3 LCD 4 Printer 5 Speaker 6 Loop Interface Board 7 Power Board 8 Transformer 9 Power Filter 10 ZCP

Appendix 2 Device Type List

Undefine	00	Undefined
ION	01	Ionization detector
R+F.Heat'	02	Rate of rise and fixed temperature detector
Optical	03	Photoelectrical smoke detector
Fix Temp	04:	Fixed temperature detector
Gas Det	05	Gas detector
Beam Det	06	Infrared beam detector
FlameDet	07	Ultraviolet flame detector
CableDet	08	Cable heat detector
Heat Det	09	Analogue heat detector
ION	10	Combination detector
MCP	11	Manual call point
VAModule	12	Voice alarm module
Sounder	13	Sounder strobe
FTModule	14	Fire telephone module
HR MCP	15	Hydrant pump
HR Pump	16	Hydrant pump
SPKR Pmp	17	Sprinkler pump
PS.SW	18	Stabilized pressure pump
Extract	19	Smoker exhauster
Presuriz	20	Blower
FreshAir	21	Fresh air
Damper	22	Fire damp
SM Vent	23	Smoke vent
AirInlet	24	Air inlet
SolValve	25	Solenoid valve
SM CURT	26	Roller shutter door middle point
RSD Clse	27	Shutter screen door close point
FireDoor	28	Fire door
PS.DIFF	29	Pressure switch
Flow SW	30	Water flow indicator
Elevator	31	Elevator
AHU	32	Air handling unit
GENI	33	Diesel generator
Light.DB	34	Power for lightening
Power.DB	35	Power distribution

WTR.CURT	36	Solenoid valve for water curtain
Gas Dump	37	Gas start-up
GasAbort	38	Gas stop
Net Unit	39	Net unit
Repeater	40	Repeater panel
Module	41	Flash-locks valve
DryPower	42	Dry powder fire extinguisher
FoamPump	43	Foam pump
FieldPSU	44	Power supply unit
EM Light	45	Emergency light
EscapeLT	46	Escape light
GasActiv	47	Gas activation
Security	48	Security module
ZoneValv	49	Zone valve
Cylinder	50	Cylinder
DelugePM	51	Deluge pump
Undefine	52	Undefined
Stop Mod	53	Device stop
Silence	54	Mute key
SounderA	55	Fire alarm sounder
SounderF	56	Fault sounder
Loop SW	57	Loop switch
CRTFault	58	GMC fault
Loop	59	Loop
PSU.Bat	60	Battery
PSU.AC	61	AC power
Lock	62	Multi-wire lock
PART	63	Partial devices
ZoneDir	64	Zone direction
F.P.E	65	Fire protection equipment

Appendix 3 Operation Menu

Menu

- **BROWSE** To look through equipment
  - **Active EQ** Loop equipment
  - **COM EQ** Communication equipment, including repeater panels and slave FACPs
  - **Access** ZCP
- **LOG** To view history record
- **SCREEN** To set screen menu
  - **LCD Contrast** To set LCD contrast
  - **Browse Mode** browsing Information
    - **Zone Mode** Zone display mode
    - **Loop Mode** Loop display mode
  - **Browsing C&E** To view C&E equation
- **PRINT** To set printer menu [operator password required]
  - **Disable** Printing disabled
  - **Only Fire** Only printing fire information
  - **All History** When viewing history records, you can print the information being viewed by pressing the “PRINT”.
- **MUTE** You can silence the alarm sound by pressing “MUTE”
- **VIEW FAULT** Viewing fault information when in non-fault state.
- **SELF TEST** Audible-visible self-test key. In normal monitoring state, you can check all the audio-visible devices by pressing this key [operator password required].
- **LOCK** When keypad is in unlocked state, press this key to lock the keys.
- △ or ▽ When there is more than one piece of information, you can scroll the screen by pressing this key.
- **ESC** Pressing this key cancels output or exits menu. In information display state, you can return the system to the highest level.
- **VIEW Disable** In non-disable state, press it to display the disabled information.
- **MODE** Setting gas extinguishing equipment (operator password required)
  - **Disable** Do not automatically link gas-extinguishing system
  - **Enable** Link gas extinguishing system automatically
- **SYSTEM** Setting system menu [manager password required]
  - **Time/Date** Setting the system time
  - **Password Change** Setting password
  - **Network Setup** Setting network address
  - **Zone Start Number** Setting beginning number of zones
  - **Outputs Setup** Setting output mode
  - **Initialize System** To initialize the system
  - **Devices debug** View supervisory data of intelligent devices

- **ENTER** Confirming the input is valid. In monitoring state, press this key to change time display between month/day and hour/minute modes.
- **VIEW PLANT** Press this key to display action information when in non-action mode.
- **START/STOP** [operator password required]
  - **Start Devices** Starting loop equipment. Device code should be input when starting devices in loop mode. Zone number should be inputted when start all loop devices in zone mode.
  - **Stop Devices** Stop loop equipment. In loop mode, input the device code to stop it. In zone mode, input the zone number to stop all devices of the zone.
  - **View Start** In the state of non –startup displayed, press the View Start key to display the startup information.
  - **View Delay** Viewing delay message of the device
- **ENABLE/DISABLE** [operator password required]
  - **Disable Devices** Enabling field device with fault
  - **Enable Devices** Disabling repaired field device
  - **Dis/En-able Delays** Setting delay mode
- **SEC** Setting security mode [operator password required]
  - **Disable** Burglar mode is invalid. The system doesn't respond to the action of security modules.
  - **Enable** The burglar mode is enabled. The system responds to the action of security modules
  - **Only Night** Burglar mode is only effective during night. The screen shows a request for on and off time.
- **RESET** Reset GST200 to normal monitoring state from fire alarm or fault state [operator password required]

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