VG-6831 (2/4/8/16) Conventional Fire Alarm Control Panel

Installation and Operation Manual

（Issue.1.06,Apr.2015）

16

0832-CPR-F1562

1174e/01/02/03/04

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Installation Precautions

This equipment must only be installed and maintained by a suitably skilled and technically competent person.

THIS EQUIPMENT IS A PIECE OF CLASS 1 EQUIPMENT AND MUST BE EARTHED.

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.
- ✧ Disconnect all sources of power before servicing. Control unit may be damaged and operator may be injured 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 batteries and printed circuit board location.

Accessories coming with the unit

- ➢ Installation and Operation Manual

  Instruct how to install, commission and maintain the FACP.

  Note: The manual should be accessed by unauthorized people.
- ➢ Cabinet key

  Use to open and close the cabinet door of the FACP
- ➢ Control lock key

  Use to open and close Control Lock on the FACP
- ➢ Components box including

  21 0.5W-4.7kΩ±5％ end of line resistor

  2 jumpers

  1 wiring tube base for batteries（including cables and 1 5A fuse）

  1 terminal for batteries

  1 5A fuse

Foreword EN54 Information

EN 54 √

✧ VG-6831(2/4/8/16) Conventional 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
Control	Delays to outputs	7.11
	Test condition	10
Outputs	Output to fire alarm devices	7.8

EN 54 √

✧ The power supply of the VG-6831(2/4/8/16) FACP complies with the following EN54-4 requirements.

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

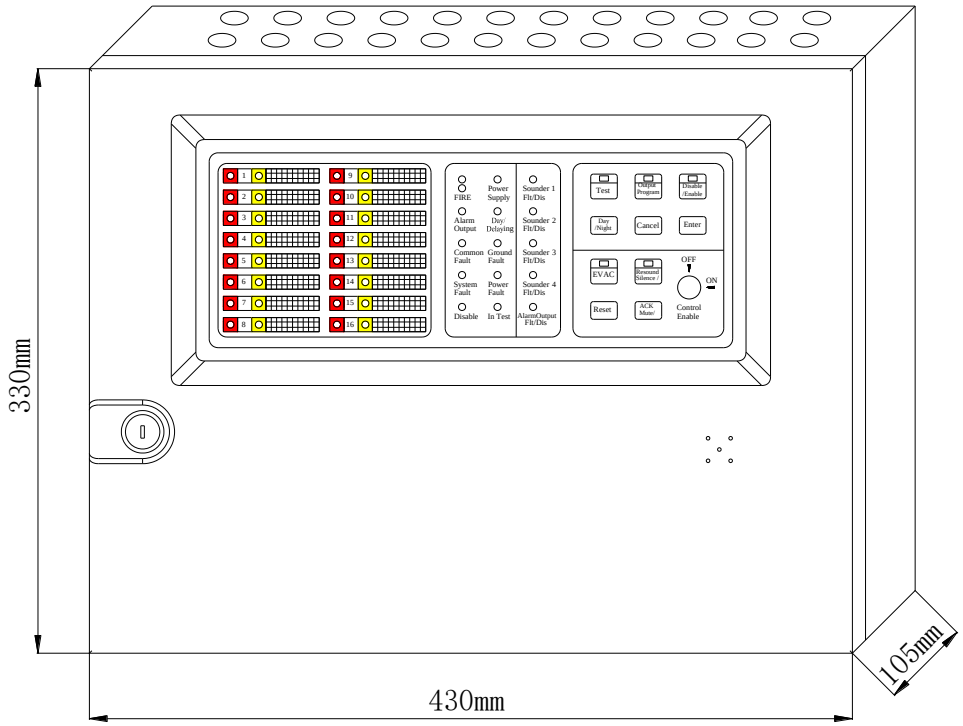
Product Overview and Features

VG-6831 (2/4/8/16) Conventional Fire Alarm Control Panel is designed in compliance with EN54-2. The panel is easy to install and operate. It has features as follows：

- ✧ 2 to 16 zones can be detected, compatible with conventional detectors and manual call points. Each of the 16 detection zones can be individually configured as maximum 15 conventional detectors. The total number of detectors and manual call points in a zone shall not exceed 32. VG-6831 will enter fire alarm condition within 10s when received first fire alarm signal from detectors，after interpreted process.
- ✧ 4 sounder outputs, 1 alarm output and 1 fault output.
- ✧ Able to report short circuit and open circuit of detection zones, sounder outputs and alarm output. VG-6831 will enter fault warning condition within 100s when received fault signal，after interpreted process.
- ✧ Designed with standby batteries compartment for two sealed lead-acid batteries.
- ✧ Test and disable functions.
- ✧ Day/night mode settable.
- ✧ Programmable on manual call point connection, sound modes, sounder delay modes and output delay modes.
- ✧ Three access levels settable via a key switch and an internal switch.
- ✧ Reserved repeater panel interface for fire alarm indication of multiple zones.
- ✧ Providing external ports includes RESET, SILENCE, EVAC and forced Night Mode.

1.Cabinet and Installation

1.1 Appearance

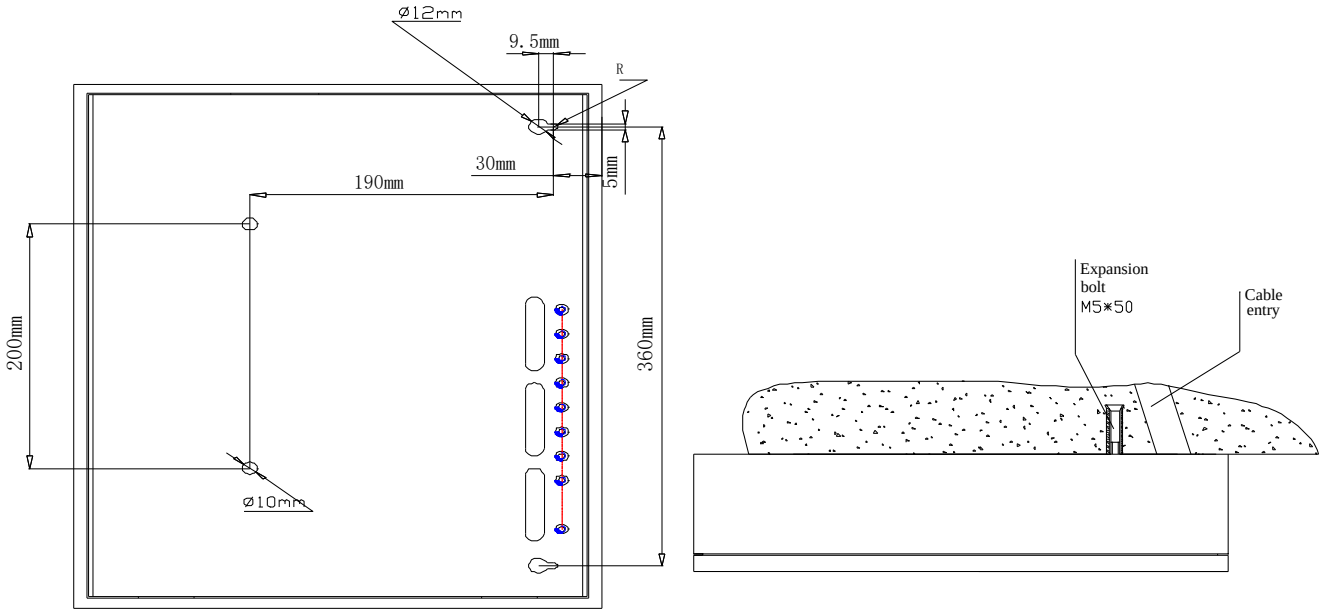


430mm×105mm×330mm (L×W×H)

1.2 Cabinet Installation

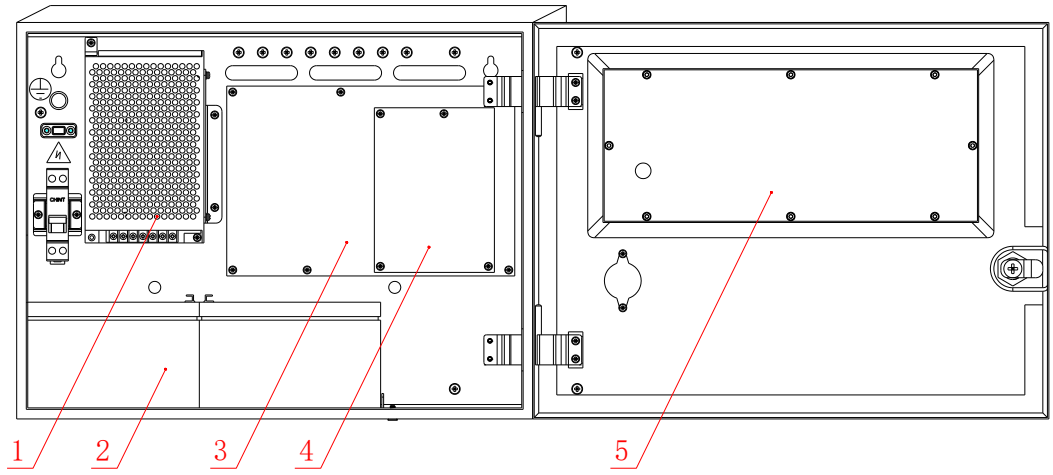
The FACP is wall-mounted, its mounting and dimensions are shown below.

Note: Position of knock out hole should be installed a cable plug to avoid abrasion and foreign objects.



1.3 Internal Construction

The internal construction of the FACP is shown below.



① AC/DC power module ② Batteries ③ Main control board and power board ④ Extension board or signal output interface ⑤ Display board

1.4 Environment

- ✧ Temperature: 0℃~40℃
- ✧ Relative humidity≤95％, non-condensation

2.External cables and Interfaces

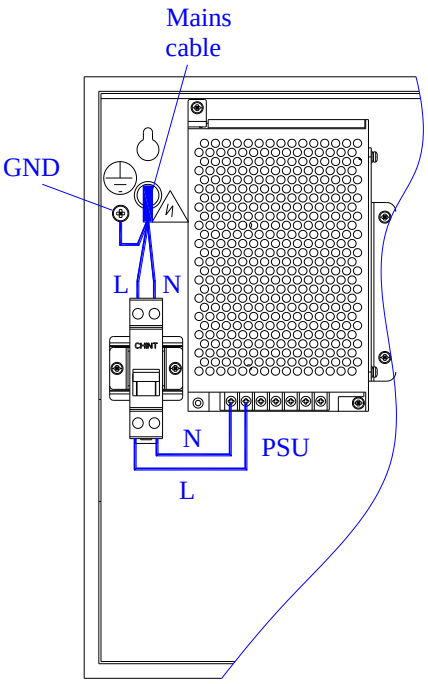
2.1 Power Supply

2.1.1 The Mains

2.1.1.1 Parameters

- ✧ Input voltage: 220V/230VAC$^{+10\%}_{-15\%}$
- ✧ Frequency: 50Hz
- ✧ Input Current : 0.35A
- ✧ Fuse : 2A delay
- ✧ It's recommended to use 1.5mm^2 or above screened cable complying with local installation codes.

2.1.1.2 Wiring Description



The figure shows, cable Earth (Green/Yellow) wire should be connected to terminal G to ensure reliable grounding. The live wire (brown) should be connected to the other terminal and connect the neutral wire (blue) to the N terminal.

Recommended Wiring: 1.5mm^2 or above screened cable, complying with local installation code.

Note:

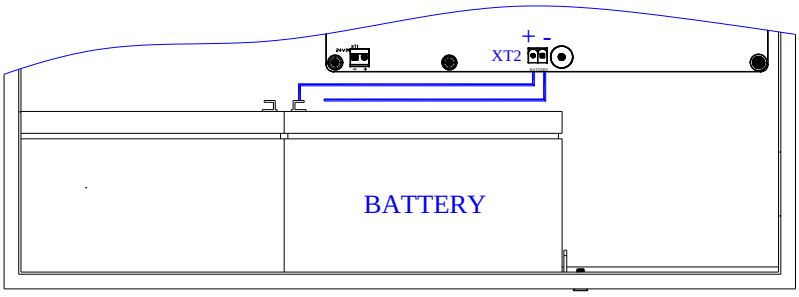
- ✧ Power line should be fixed on the cabinet by a holder to avoid broken.
- ✧ Don't power on the FACP unit the system is completely installed.

2.1.2 Standby Batteries

2.1.2.1 Parameters

- ✧ Type: Sealed lead acid batteries two 7Ah/12V in series
- ✧ Recommended manufacturer and model: Yuasa NP7-12
- ✧ Maximum Inner Resistance: 1Ω
- ✧ Minimum Operating Voltage: 21±0.5V
- ✧ Maximum Charge Current: 315mA
- ✧ Maximum Charge Voltage: 27.6V
- ✧ Maximum Operating Current: 2.5A

2.1.2.2 Wiring Description



The figure shows, connect two batteries in series through battery tube holder（coming with the unit）. Two ends are lead by red/black wire to battery terminals, and then insert to the XT2 on the control board.

Note:

- ✧ Do not make the final battery connections until the installation is complete.
- ✧ If polarity is reversed, fuse will be blown.
- ✧ Recommended cables and length (complying with local 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

2.1.3 Output Current Load

- The normal current in full load condition is 0.1A
- The maximum output current in standby condition is 430mA（Max. a as described in EN 54-4:1997 Clause 9.2.2 Table 1）.
- The maximum output current in alarm condition is 2.5A (Max. b as described in EN 54-4:1997 Clause 9.2.2 Table 1).

2.2 Detection Zone

2.2.1 Parameters

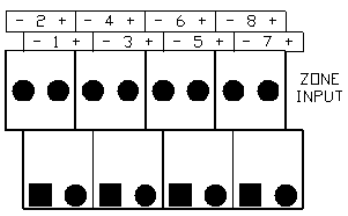
The FACP provides maximum 16 detection loops, each can have at most 40 conventional devices (detectors or MCPs)

- Loop Voltage: 15VDC~28VDC
- Static Current: less than 6mA
- Dynamic Current: Resistance range for fire alarm is 150Ω~1.5kΩ (normally 470Ω), using a 4.7kΩ end of line resistor or AEOL (active end of line unit). The alarm current for a zone depends on the number of conventional devices in the zone. The maximum number of detectors (MCPs) is 5 allowing to alarm in a zone.
- Maximum output current for the 16 zones is 400mA.
- Recommended cables and length (complying with 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
- Cable length≤1000m

2.2.2 Wiring of Zone Input

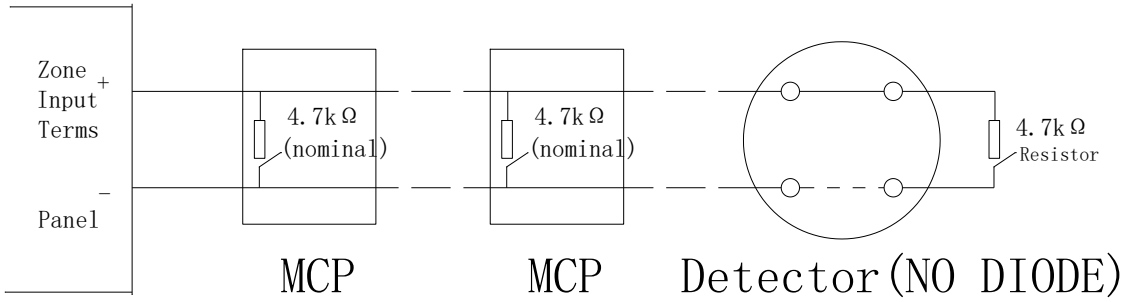
Detectors and call points in a zone can be connected in two ways. Terminals are shown below.



2.2.2.1 Using end of line resistor

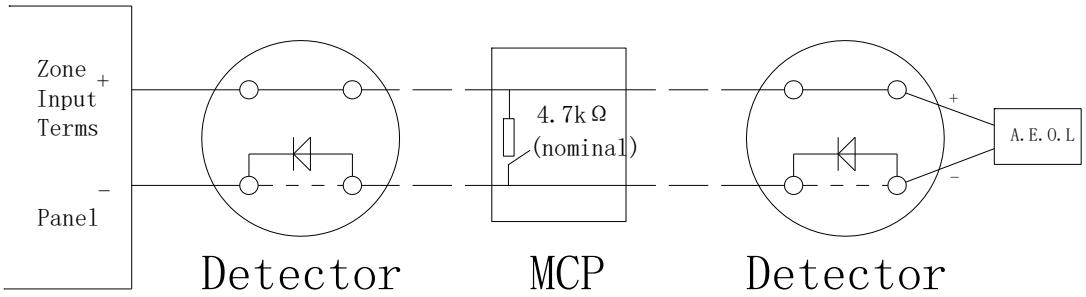
Connect all manual call points in front of the detectors and put a 4.7kΩ resistor at the end of the loop.

Refer to the figure below.



2.2.2.2 Using AEOL

If an AEOL is used at the end of the line, then the detectors and manual call points can be connected at any position. Ensure the detector base is fitted with a diode. Refer to the figure below.



2.3 Output Loop

2.4 Loop Parameters

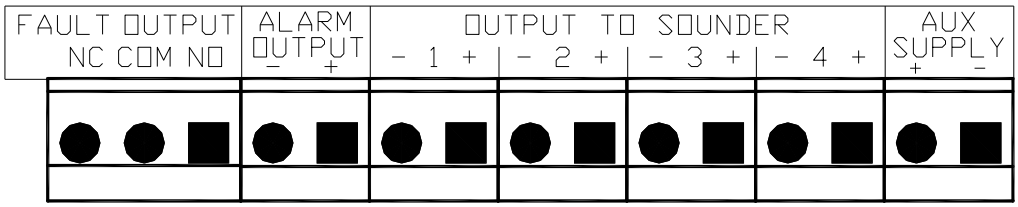
Output loop includes: 4 sounders output, 1 alarm output, 1 auxiliary power output, and 1 fault output. Refer to the following for the details.

- ✧ Sounder output (4 channels) and alarm output(1 channel)
  - ➢ Output Voltage: 18VDC~28VDC
  - ➢ Output Current: 300mA for each sounder output, and 300mA for fire alarm output.
  - ➢ End of Line Resistor: 4.7kΩ
- ✧ Auxiliary Power Output
  - ➢ Output Voltage: 18VDC~28VDC
  - ➢ Output Current: static 20mA；alarm 500mA
- ✧ Fault Output: Volt-free contact output, 1A/24VDC
- ✧ Recommended cables and length (complying with the local 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
- ✧ Cable length ≤1000m

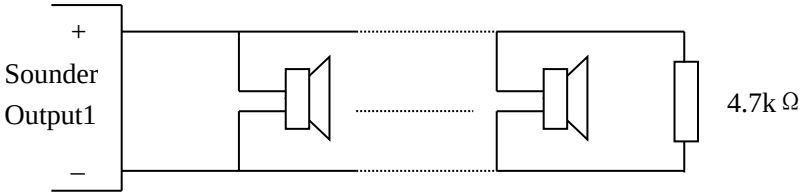
2.5 Loop Wiring

Terminals of output loop are shown below.



2.5.1 Sounder/Alarm Output Wiring

All sounders and remote devices shall be polarity-sensitive and be connected in correct polarity. A 4.7kΩ resistor shall be used at the end of the loop. Figure below shows the connection method of Sounder Output 1.



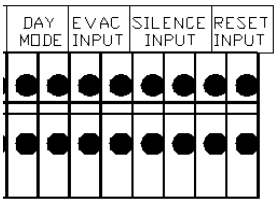
2.5.2 Auxiliary Power and Fault Output Wiring

Auxiliary Power Interface is DC24V output. “+” connects with positive of the powered device. “-” connects with negative of the powered device.

Fault output is volt-free contact output. “COM” is common contact, “NC” is normally close contact, and “NO” is normally open contact.

2.6 Remote Interface

Remote interface includes interfaces such as DAY MODE, EVAC INPUT, SILENCE INPUT, RESET INPUT. Adopt normally open volt free contact. Terminals for remote are shown below.



- ✧ Recommended cable and length (complying with 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

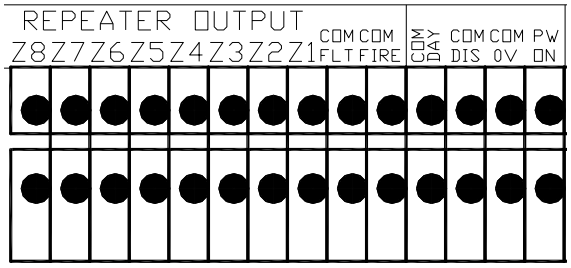
  And all LPCB approved Fire cables
- ✧ Cable length≤1000m

2.7 Terminals for Repeater Panel

FACP provides connection with repeater panel, external terminals are shown below.

- ✧ **PW ON:** Power supply positive terminal for repeater connection.
- ✧ **COM 0V:** Power supply negative terminal for repeater connection.
- ✧ **COM DIS:** Disable terminal for repeater connection
- ✧ **COM DAY:** Day mode terminal for repeater connection
- ✧ **COM FIRE:** Fire alarm terminal for repeater connection

- ✧ **COM FLT:** Fault terminal for repeater connection
- ✧ **Z1~Z8:** Zone indication terminal of repeater panel for zone 1 to 8.

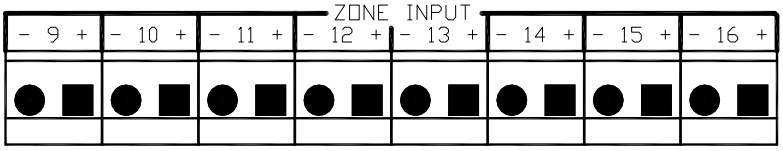


- ✧ Recommended cables and length (complying with local installation codes)
  - ➢ Vencroft Gold and Platignum
  - ➢ Nexans NX 200 and 200 Plus (LPCB tested)
  - ➢ Prysmian FP 200 and 200 Gold
  - ➢ Draka Firetuf and Firetuf Plus

  And all LPCB approved Fire cables
- ✧ Cable length≤1000m

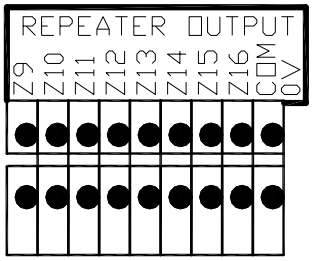
2.8 16-zone Extension Board

Providing input for zone 9 to 16 and repeater output for zone 9 to 16. 9~16 input terminals are shown below.



- ✧ **ZONE INPUT（9~16）:** 9~16 Zone input terminal

Terminals for the repeater panel are shown below.

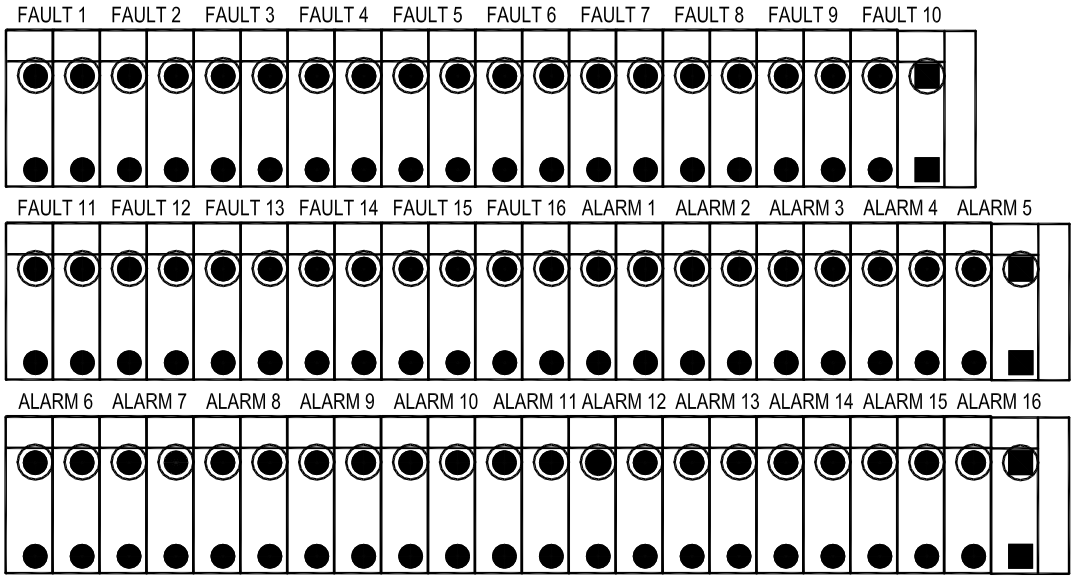


- ✧ **Z9~Z16:** Zone indication terminals of repeater panel for zone 9 to 16.
- ✧ **COM 0V:** Common earth terminal for repeater panels.

Wring way of detection zone interface and repeater panel interface on the extension board is as the same as that of zone1-8.

2.9 16-zone Signal Output Interface Board

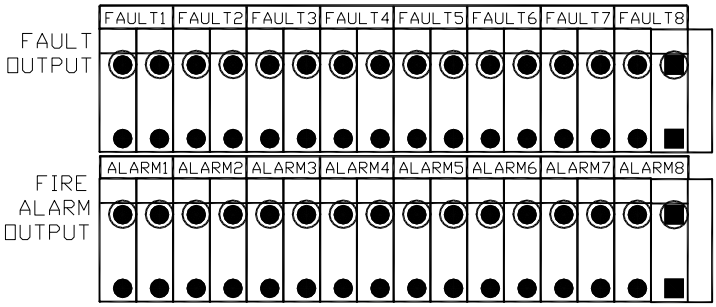
16-zone signal output interface board provides input for zone 9 to 16 and repeater output for zone 9 to 16, zone 1-16 zone alarm, and fault signal output. Detection zone interface and repeater panel interface is as the same as 16-zone extension board.
Alarm, fault output interfaces of Zone 1~16 is shown below.



- ✧ **FAULT1~FAULT16:** zone 1～16 fault output terminals, volt-free normally open contact, capacity is 1A/24VDC.
- ✧ **ALARM1~ALARM16:** zone 1～16 alarm output terminals, volt-free normally open contact, capacity is 1A/24VDC.

2.9.1 8-Zone Signal Output Interface Board

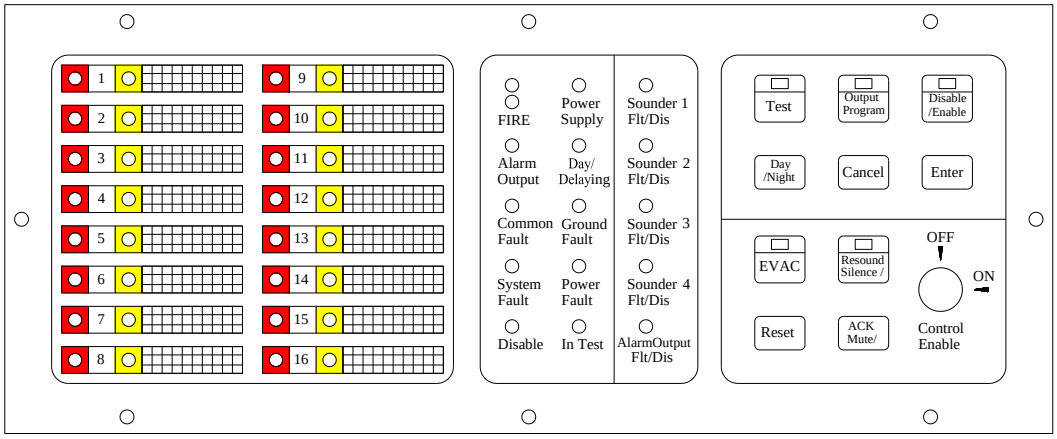
8-zone signal output interface board provides zone 1~8 alarm, fault signal output for the FACP. Output interface is shown below.



- ✧ **FAULT1~FAULT8:** zone 1 ～ 8 fault output terminals, volt-free normally open contact, capacity is 1A/24VDC.
- ✧ **ALARM1~ALARM8:** zone 1～8 alarm output terminals, volt-free normally open contact, capacity is 1A/24VDC.

3.Keys and Indicators

3.1 Operation Panel



3.2 Zonal State Indication

Left part of operation panel is zonal indication for 1-16 detection zones respectively. Each zone has two LEDs: red LED and yellow LED.

- **Zone RED LED**－Fire alarm LED. It flashes （0.5s：0.5s） when its indication zone is in fire condition. After pressing “Mute/ACK” key, it illuminates steadily.
- **Zone AMBER LED**—Fault/Disable/Test LED. It flashes （0.5s: 0.5s） when its indication zone is in fault, and it illuminates when in disabled or test condition.

3.3 General State Indication

- **FIRE**—Red twin LED, general fire LED. It illuminates steadily in fire condition.
- **Alarm Output**—red. Fire output LED. It illuminates steadily when fire output is activated.
- **Common Fault**—Yellow, general fault LED. It flashes when the system is in fault. After pressing “Mute/ACK” key or the system is in safety state, it illuminates steadily.
- **System Fault** —Yellow, system fault indication. It illuminates steadily when the CPU is in fault and the system goes into safety state.
- **Disable**—Yellow, loop disable LED. It illuminates steadily when any zone, output is disabled, or in day mode with delay time.
- **Power Supply**—Green, power supply LED. It illuminates when the FACP is powered on.
- **DAY/DELAYING**—Yellow, delay LED. It illuminates when the system is in day mode (delay allowed). It flashes when an output is in delay state.
- **Ground Fault**—Yellow, ground fault LED. It illuminates steadily when there is ground fault.
- **Power Fault**—Yellow, power fault LED. It illuminates steadily when power supply is in fault（AC fault, battery fault, charger fault or inner resistor fault）.
- **In Test**—Yellow, test LED. It illuminates steadily when any zone is in test state.

3.4 Output State Indication

- **Sounder 1 Flt/Dis**—Yellow, it flashes when Sounder 1 output is in fault, and illuminates steadily when Sounder 1 output is disabled.
- **Sounder 2 Flt/Dis**—Yellow, it flashes when Sounder 2 output is in fault, and illuminates steadily when Sounder 2 output is disabled.
- **Sounder 3 Flt/Dis**—Yellow, it flashes when Sounder 3 output is in fault, and illuminates steadily when Sounder 3 output is disabled.
- **Sounder 4 Flt/Dis**—Yellow, it flashes when Sounder 4 output is in fault, and illuminates steadily when Sounder 4 output is disabled.
- **Alarm Output Flt/Dis**—Yellow, it flashes when alarm output is in fault, and illuminates steadily when alarm output is disabled.

3.5 Keys Operation

- Five Keys with LED
  - **Test**—Green for test state. It illuminates steadily in test state.
  - **Output Program**—Green for output programming. It illuminates steadily during output programming.
  - **Disable/Enable**—Green for disabled/enable operation. It illuminates steadily when disabling or enabling.

- **EVAC—Red for** EVAC operation to activated sounder output. It illuminates steadily when in EVAC operation.
- **Silence/Resound—Yellow for** Silence and Resound operation. Press “Silence/Resound” key for the first time to silence all the sounders. In fire alarm condition, pressing this key again, the silenced sounder will output again. It illuminates steadily in silence operation.

✧ Five Operation Keys without LEDs

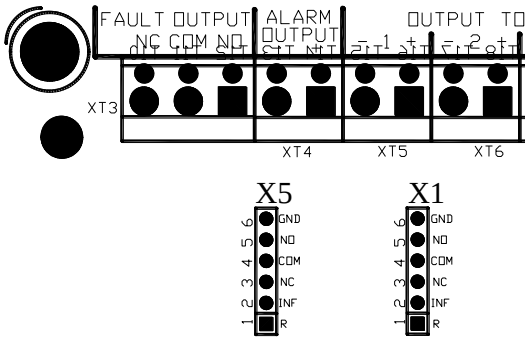
- **Day/Night**—For selection when programming and switching between day and night.
- **Cancel—**For canceling programming.
- **Enter—**For confirming programming.
- **Reset —**For resetting.
- **Mute/ACK**—Change the silence of the buzzer.

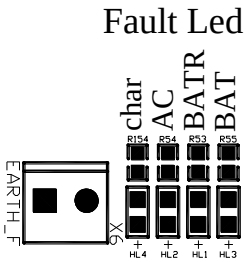
✧ Control Enable Lock

- **Control Enable**—for control access level. When it is at “OFF” position, only the function keys under Level 1 can be available.

3.5.1 Control Board State Indicator

Fault indicator in the control board is shown as the figure below.





✧ **AC—Yellow.** AC fault indicator. When the main is in fault, it illuminates steadily.

✧ **BAT—Yellow.** Battery fault indicator. When the battery is in fault, it illuminates steadily.

✧ **Char—Yellow.** Charger fault indicator. When the charger is in fault, it illuminates steadily.

✧ **BATR — Yellow.** Battery inner resistor indicator. When the inner resistance is high, it illuminates steadily.

4.System Setup

4.1 Setting Access Levels

The FACP provides three access levels:

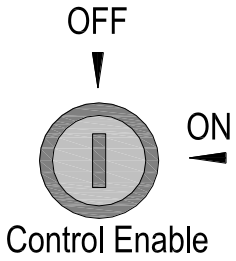
✧ Level 1, for anybody to silence the buzzer by pressing *Mute/ACK* key.

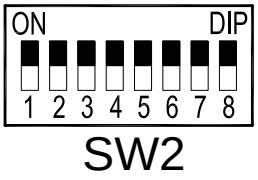
✧ Level 2, for person on duty to disable, test, reset the panel, silence the sounders (using *Silence/Resound* key) and evacuate the building.

✧ Level 3, for special service engineer to turn on or off the FACP and program output modes.

4.1.1 Setting Access Level 1

Turning Control Enable lock “OFF” shown as in Fig. 3-1, the FACP is set to access level 1. “1” of SW2 on control board should be at OFF (LEVEL 3) position as shown below. SW2 and SW3 are on the control board shown below.

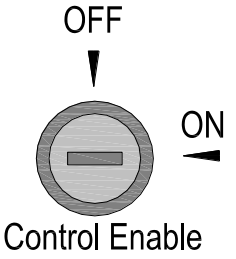


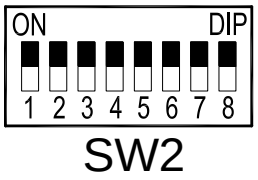


（white indicates where the switch is）

4.1.2 Setting Access Level 2

Turning Control Enable lock “ON” shown below, the FACP is set to access level 2. “1” of SW2 should be at OFF position as shown above.

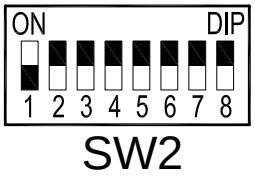




（white indicates where the switch is）

4.1.3 Setting Access Level 3

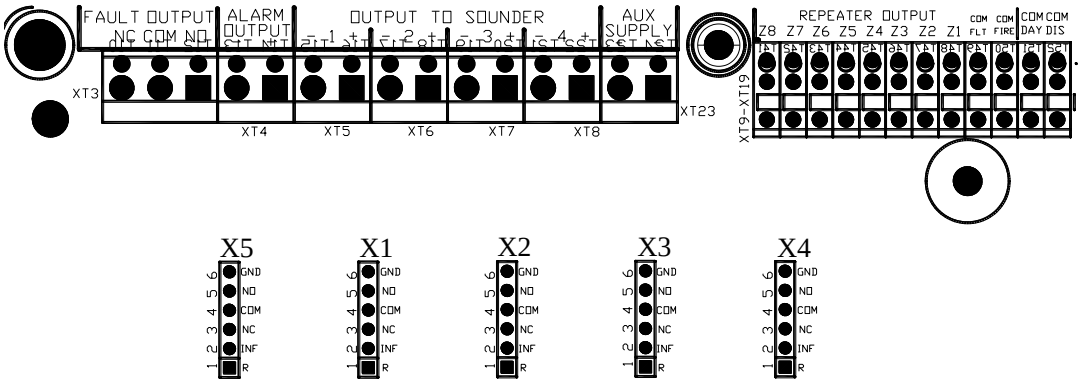
If “1” of SW2 (Level 3) is set to ON position as shown below, whichever position the Control Enable lock is, the FACP is set to access level 3.



（white indicates where the switch is）

4.2 Setting Sounder/Alarm Output

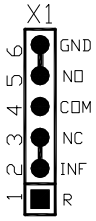
4 sounder outputs and 1 alarm output can be set through Pins (Pins X1, X2, X3, X4 and X5 is respectively corresponded to sounder output of zone 1 to 4 and alarm output) on the control board to one of the three types including voltage output, normally open contact output or normally closed contact output. The default setting is voltage output.



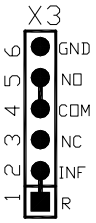
Please refer to Table below for detailed settings for sounder output and alarm output.

Output	Normally closed contact	Normally open contact	Voltage output
	Jumpers	Jumpers	Jumpers
Sounder 1	X1/ 1&2, 3&4	X1/ 1&2, 4&5	X1/ 2&3, 5&6
Sounder 2	X2/ 1&2, 3&4	X2/ 1&2, 4&5	X2/ 2&3, 5&6
Sounder 3	X3/ 1&2, 3&4	X3/ 1&2, 4&5	X3/ 2&3, 5&6
Sounder 4	X4/ 1&2, 3&4	X4/ 1&2, 4&5	X4/ 2&3, 5&6
Alarm output	X5/ 1&2, 3&4	X5/ 1&2, 4&5	X5/ 2&3, 5&6

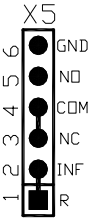
For example:



- Connecting “2” with “3” and “5” with “6” of Pin X1 using jumpers will set Sounder 1 as voltage output, refer to figure below.



- Connecting “1” with “2” and “4” with “5” of Pin X3 using jumpers will set Sounder 3 as normally open contact output, refer to figure below.



- Connecting “1” with “2” and “3” with “4” of X5 using jumpers will set Alarm Output as normally closed contact output, refer to figure below.

4.3 Disablement of a Zone or Output

4.3.1 Use of Disablement Function

In case there is any fault with a detection zone or a sounder/alarm output, it can be disabled so that it does not affect normal operation of other zones. After the fault is removed, the disabled detection zone or output can be enabled again. This operation applies to the all detection zones, all sounder outputs and fire alarm output.
The setting operation can be indicated by Disable/Enable key & indicator, Disable indicator and zone indicators. There are instructions for disablement operation on the front panel.

4.3.2 Operation Steps

1. Enter Access Level 2 as described in Section 4.1.2.
2. Pressing *Disable/Enable* key, *Disable/Enable* LED illuminates steadily and the amber LED of Zone 1 starts flashing to show Zone 1 is selected for disablement setup. Common Fault LED will indicate a system fault condition. Other indicators, except for the above mentioned LEDs, will be turned off.
3. Pressing DAY/NIGHT key will switch the selected zone or output among Zone 1 to 8, Sounder outputs and Alarm Output.
4. The amber LED for Zone 1 to 8 will flash when the zone is selected. Pressing *Disable/Enable* key can choose whether or not to disable the selected zone. The illuminating *Disable* LED indicates the zone is disabled.

5. For 4 sounder outputs, the *Sounder X Flt/Dis* LED will flash when it's selected. Pressing *Disable/Enable* key can choose whether or not to disable it. The illuminating *Disable* LED indicates the sounder outputs are disabled.
6. For Alarm Output, *Alarm Output Flt/Dis* LED will flash if it's selected. Pressing *Disable/Enable* can choose whether or not to disable it. The illuminating *Disable* LED indicates the alarm output is disabled.
7. Press *Enter* to save the current settings and exit after all settings have been finished. The FACP will give 1s sound indication. Press *Cancel* to exit the programming mode without saving.
8. Pressing *Cancel* again exits disablement setting status and *Disable/Enable* LED turns off.
9. Exit Access level 2.

Note: Disable status setting can be saved even if the FACP is powered off.

4.4 Setting Test Mode

4.4.1 Use of Test Mode

Test mode is for testing if a zone works normally. In this mode, if a zone can generate a fire alarm signal when it's manually put into fire condition, it shows this zone works properly. Alarm Output will not be activated, and sounders can be programmed to either output for 15s or not output.

4.4.2 Operation Steps

1. Enter Access Level 2 as described in Section 4.1.2.
2. Pressing *Test*, *Test* LED illuminates steadily. The amber LED of Zone 1 starts flashing, showing the system is in test mode and Zone 1 is selected. Common Fault LED will indicate a system fault condition. Other indicators, except for the above mentioned LEDs, will be turned off.
3. Pressing DAY/NIGHT will switch the zone number from 1 to 8.
4. Zone *AMBER* LED for Zone 1 to 8 will flash when the zone is selected. Pressing *Test* can choose to set test mode ON or OFF. The illuminating *In Test* LED indicates the zone is in test mode.
5. Press *Enter* to save the current settings and exit after all settings have been finished. The FACP will give 1s sound indication. Pressing *Cancel* will not save the setting.
6. Press *Cancel* to exit test mode. *Test* LED turns off.
7. Exit Access Level 2.

Note: Test mode can not be saved if the FACP is powered off.

4.5 Programming Output Modes

All output settings have to be done under Access Level 3. So before setting the outputs, please first set the system to Level 3 according to the instructions in Section 4.1.3.
The FACP can be programmed through keypad for the functions below:

- ✧ Setting the system to default status;
- ✧ Setting a zone "With Manual Call Point". If a zone is set "With Manual Call Point", a fire alarm from the zone will activate its associated sounders and the system Alarm Output, regardless of whether the zone is set with delayed output or not;
- ✧ Associating a zone with sounders. The output mode, sound pattern, and delay time of the sounders associated to the zone can be set respectively.
- ✧ Setting delay time for Alarm Output.

4.5.1 Setting the FACP to Default

4.5.1.1 Features of system default

- ✧ All zones are set as “With Manual Call Point”.
- ✧ Alarm from any zone will activate all sounders. The sounders will output a continuous alarm sound (EVAC mode) without any delay.
- ✧ Alarm Output is activated without any delay.
- ✧ There is no disabled zone or output.

4.5.1.2 Steps for setting the system to default status

The system provides a quick method to set the system to default:

1. Enter Access Level 3 as described in Section 4.1.3;
2. Press and hold *Output Program* for more than 2 seconds, and the system will enter default state with 1s sound indication.
3. Exit Access Level 3.

4.5.2 Setting “With Manual Call Point”

The purpose of this feature is to ensure that activating a manual call point in field will immediately generate a fire alarm in the system. If a zone is set “With Manual Call Point”, any fire alarm coming from that zone (either from a detector or a manual call point), the FACP will immediately alarm and activate all sounders associated to that zone and the system Alarm Output regardless of any delay setting. At the same time, delay to outputs is overridden. This function can be applied to 8 detection zones. Basic steps are shown below.

1. Enter Access Level 3 as described in Section 4.1.3.
2. Set “2” of SW2 (CFG MCP ZONE) on control board to ON position.
3. Pressing *Output Program*, Output Program LED illuminates steadily and the amber LED of Zone 1 flashes to show Zone 1 is selected for “With Manual Call Point” setup. *Common Fault* LED will indicate a system fault condition. Other indicators, except for the above mentioned LEDs, will be turned off.
4. Pressing DAY/NIGHT key will switch the zone number from 1 to 8.
5. The amber LED for Zone 1 to 8 will flash when the zone is selected. Pressing *Output Program* key can choose whether or not to program the zone as “With Manual Call Point” or not. The illuminating *DAY/DELAYING* LED indicates the zone is not programmed as “With Manual Call Point”.
6. Press *Enter* to save the current settings and exit after all settings have been finished. The FACP will give 1s sound indication. Pressing *Cancel* will not save the setting.
7. Press *Cancel* to exit the programming mode and *Output Program* LED turns off.
8. Set “2” of SW2 to OFF position.
9. Exit Access Level 3.

Note:

If one of the outputs (sounders or Alarm Output) is programmed with delay, then there should be at least one zone set as “With Manual Call Point” to ensure the delay could be overrode for immediate output.

4.5.3 Setting Associated Sounders of a Zone

Output state, output mode and delay time of sounders can be set separately for each detection zone.

Four output modes are shown below.

Mode	Description	“Disable/Enable” Key and LED	“Test” LED
1	No output	Off	Off
2	If alarm relay outputs, it outputs.	Off	On
3	Delay output	On	Off
4	Immediate output	On	On

Two sounder patterns are shown.

Pattern	Description	“5” of SW3 （Sounder Mode）
2	Alert mode, pulse output	Off
3	Evacuation mode, continuous output	On

Delay time can be calculated as shown blow.

Delay Time （min）	“1” to “4” of SW3（Delay Time）			
	1	2	3	4
0	Off	Off	Off	Off
0.5	on	Off	Off	Off
1	Off	on	Off	Off
1.5	on	on	Off	Off
2	Off	Off	on	Off
2.5	on	Off	on	Off
3	Off	on	on	Off
3.5	on	on	on	Off
4	Off	Off	Off	on
4.5	on	Off	Off	on
5	Off	on	Off	on
5.5	on	on	Off	on
6	Off	Off	on	on
6.5	on	Off	on	on
7	Off	on	on	on
7.5	on	on	on	on

Operation steps of zone association output setting are shown below.

1. Enter Access Level 3 as described in Section 4.1.3.
2. Set the “3” of SW2 (CFG Zonal output) on control board to ON position.
3. Pressing *Output Program* key, *Output Program* LED illuminates steadily and the amber LED of Zone 1 flashes to show Zone 1 is selected for setting up associated sounders. *Common Fault* LED will indicate a system fault condition. Other indicators, except for the above mentioned

LEDs, will be turned off.

4. Pressing “DAY/NIGHT” key will shift the zone from 1 to 8.
5. When a zone is selected, press *Output Program* key to set up its associated zones. *Flt/Dis* LED of Sounder1 flashes, showing Sounder1 has been selected for setup.
6. Pressing “DAY/NIGHT” key will shift from Sounder 1 to 4.
7. Pressing *Disable/Enable* or *Test* Key can respectively switch on or off their indicator. *Disable/Enable* Key & LED and *Test* Key & LED are used for setting up and indicating the output status logic of the selected sounder.
8. Switching “5” of SW3 (Sounder Mode) on or off can change the sound pattern of the selected sounder.
9. “1” to “4” of SW3 are used for setting the delay time of the selected sounder (refer to Table 3-4).
10. Press *Enter* to save and exit the current settings. The FACP will sound for 1s to indicate the successful setup. Repeat Step *6* to *9* to set another sounder for this zone.
11. Press *Cancel* to exit setup for this zone without saving and return to zone selection step. Repeat Step 4 to 10 to select another zone for setup.
12. At zone selection step, pressing *Cancel* again will exit programming mode*. And Output program* LED will be turned off.
13. Set “3” of SW2 (CFG Zonal Output) to OFF position.
14. Exit Access Level 3.

4.5.4 Setting Delay Time of Alarm Output

Delay time of Alarm Output can be set through the following steps.

1. Enter Access Level 3 as described in Section 4.1.3.
2. Set ”4” of SW2 to ON position.
3. Pressing *Output Program* key, *Output Program* LED illuminates steadily and *Alarm Output Flt/Dis* LED flashes.
4. “1” to “4” of SW3 are used for setting the delay time of Alarm Output (refer to delay time of alarm output).
5. Pressing *Enter* to save the setting. The FACP will sound for 1s to indicate the successful setup. Pressing *Cancel* will not save the setting.
6. Pressing *Cancel* will exit programming mode and *Output Program* LED turns off.
7. Set “4” of SW2 (CFG alarm output-Delay) to OFF position.
8. Exit Access Level 3.

4.6 Setting Auxiliary Functions

The following auxiliary functions can be set.

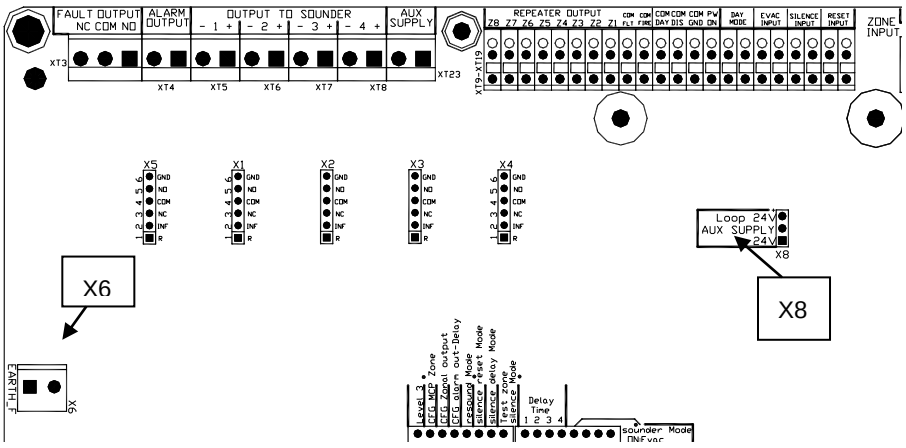
- ✧ Resound mode: When “5” of SW2 is set to ON position, Resound mode is turned on. When there is fire alarm from a zone, the sounders associated to this zone will be started. Pressing *Silence* on the FACP, these sounders can be silenced; if there is an alarm signal from another zone at this moment, the silenced sounders that are not associated to this new alarm zone will resound. If Resound mode is turned off, the silenced sounders not associated to this new alarm zone will

remain silenced.

- ✧ Silence-Reset mode: When “6” of SW2 is set to ON position, Silence-Reset mode is turned on. When there is fire alarm from a zone and its associated sounders are started, the FACP will not be reset until the sounders are silenced. If Silence-Reset mode is turned off, the FACP can be reset immediately.
- ✧ Silence-Delay mode: When “7” of SW2 is set to ON position, Silence-Delay mode is turned on. When there is fire alarm from a zone and its associated sounders are started, the FACP has to stay in fire condition for 3 minutes before the sounders could be silenced. If Silence Delay mode is turned off, the sounders can be silenced immediately.
- ✧ Test Zone Silence mode: When “8” of SW2 is set to ON position, Test Zone Silence mode is turned on. When a zone is in Test mode and there is an alarm signal coming from the zone, the sounders associated to the zone will be automatically activated for 15s. If Test Zone Silence mode is turned off, the sounder will not be activated.

4.7 Ground Fault Checking and Auxiliary Power Setting

- ✧ Shorting X6 (EARTH FAULT) with a jumper, refer to Fig.3-6. The FACP will be able to check earth fault. Otherwise, the earth fault can’t be checked.
- ✧ Setting auxiliary power output: If the devices powered by Aux. 24V require steady output, you can connect 24V and AUX SUPPLY of X8 (refer to Fig. 3-6) with a jumper. If they are to be reset together with the FACP, you can connect Loop 24V and AUX Supply with a jumper, so that AUX Supply stops output for about 3 seconds when the panel resets.



5.Operation Instructions

5.1 Working State Description

5.1.1 State of Detection Zones

- ✧ Fire: *FIRE* LED and zone red LED flash (0.5s:0.5s). Pressing *Mute/ACK* key, they will illuminate steadily.
- ✧ Fault: *Common Fault* LED and zone amber LED flash. Pressing *Mute/ACK* key, *Common Fault* LED illuminates steadily and zone amber LED remains flashing.
- ✧ Disabled: *Disable* LED and zone amber LED illuminate steadily.
- ✧ Normal: the Zone red and amber LEDs should both be off.

5.1.2 Alarm Output State

- ✧ Action: “Alarm Output” illuminates steadily.
- ✧ Fault: “Alarm Output Flt/Dis” LED and “Common Fault” LED flash. Pressing “Mute/ACK” key, “Common Fault” illuminates steadily.

- Disabled: “Alarm Output Flt/Dis” LED and “Disable” LED illuminate steadily.
- Normal: “Alarm Output Flt/Dis” should be off.

5.1.3 Sounder Output State

- Fault: In fault, *Common Fault* LED and *Sounder X Flt/Dis* LED flash. Pressing *Mute/ACK* key, *Common Fault* LED and *Sounder X Flt/Dis* LED illuminates steadily.
- Disabled: If any of the 4 sounder outputs is disabled, *Disable* LED and *Sounder X Flt/Dis* LED illuminate steadily.
- Normal: If a sounder output is in normal condition, Sounder X Flt/Dis LED should be off.

  X means 1~4 sounder.

5.1.4 Safe State

When there is fault with any CPU or circuit that makes the FACP unable to work properly or changes system data, the FACP will enter safe state.

- “Common Fault” LED and “System Fault” LED illuminate.
- The buzzer sounds continuously.
- The keypad cannot be operated.
- The FACP cannot monitor fire.
- Fault output is activated.
- Other outputs remain the states before the FACP enters safe state.
- Other indicators remain the states before the FACP enters safe state.
- Safe state can only be cleared by re-powering the FACP.

5.1.5 Description of the Buzzer

The buzzer of the FACP sounds by priority coming from high to low as follows: Safe state, Fire, Fault, and Normal. The sound patterns of the buzzer are:

- Safe state, sounds steadily.
- Fire alarm, 0.5s on, 0.5s off.
- Fault, 2s on, 2s off.
- Normal, no sound.

5.1.6 Notes

- Access levels are downwards applicable. A higher level enables access at levels lower than it.
- If there is no key pressed for over 3 minutes or if the access level is changed, all previous operation will be canceled and the FACP would return to normal standby state.
- Remote EVAC INPUT, SILENCE INPUT and RESET INPUT are contact input type. If an input is shorted for 2s, the FACP will operate correspondingly regardless of access levels.
- A delayed sounder output is only valid if all of the following conditions are met:
  - The sounder is associated with a zone and is programmed with delay.
  - The FACP is in Day mode.
  - There is no manual call point in the associated zone.
  - This sounder output is not activated, not in fault or disabled condition.
  - If fire alarm comes from the associated zone, the sounder will output with a delay and *DAY/DELAYING* LED flashes.

  Note:

  - If a sounder is activated with delay, and another zone is also associated with this sounder but is programmed as immediate output, then a fire alarm from this zone will override the delay and activate the sounder immediately.

- If a sounder is activated with delay, and another zone is also associated with this sounder but is programmed with a delay time shorter than the remaining delay time, then a fire alarm from this zone will override the previous delay and activate the sounder with the shorter delay time.

✧ Sounders and Alarm Output will not be activated if they are disabled or in fault.

5.2 Acknowledgement and Silence of Fault

A fault condition can be acknowledged and silenced at access level 1.

Pressing Mute/ACK under a fault condition, the buzzer of the FACP will be mute and the fault is acknowledged. *Common Fault* LED will illuminate steadily.

5.3 Acknowledgement and Silence of Fire Alarm

A fire alarm can be acknowledged and silenced at access level 1.

Pressing *Mute/ACK* in fire condition, the buzzer of the FACP will be mute and the alarm is acknowledged. *FIRE* LED and zone red LED will light. If there is a new fire alarm from another zone, the zonal red LED will flash. Pressing *Mute/ACK*, it will illuminate steadily.

5.4 Silencing the Sounders

The sounders can be silenced at access level 2.

Pressing *Silence/Resound* can silence the sounders. In fire alarm state, pressing *Silence/Resound* will silence the sounders and pressing it again will make them resound.

If the SILENCE INPUT contact is shorted for over 2s, the FACP will silence the sounders regardless of the current access level.

5.5 Evacuation

The evacuation can be operated at access level 2.

Pressing *EVAC* key, all sounders will enter EVAC mode to sound continuously.

If the EVAC INPUT contact is shorted for over 2s, the FACP will activate EVAC function to start all sounders regardless of the current access level.

5.6 Self-test and Reset

Self-test and Reset can be carried out at access level 2.

The FACP will start self-test on power-up. Pressing Reset can clear all audio and visual indication and carry out self-test. The self-test can check all indicators and the buzzer. All indicators illuminate and the buzzer sounds. After self-test, the panel returns to normal condition.

If the RESET INPUT contact is shorted for over 2s, the FACP will start reset and self-test regardless of the current access level.

5.7 Setting Day/Night Mode

Day and night mode is related with output delay. If there is person on duty, you can set the panel to Day mode, thus any fire alarm output will be delayed for confirmation to avoid false alarm. If there is nobody on duty, you can set the panel to Night mode, so that the FACP will alarm immediately on receiving a fire signal. There are two ways to shift between Day/Night modes.

✧ “Day MODE” input signal is closed to force the FACP to Night mode.

- ✧ Pressing Day/Night key for 2 seconds at access level 2 will change the Day/Night Mode. The panel gives 1s sound for indication. If Day mode is selected, the DAY/DELAYING LED illuminates. If Night Mode is selected, the DAY/DELAYING LED turns off.

6.Calculation of Batteries Capacity

The formula for calculating batteries capacity is as follows:

Batteries Capacity（Ah）= $(I_{Qmax}+ I_{Qout})\times T_1+(I_{Qmin}+I_{Lmax}+I_{Fout})\times T_2$

In which,

I_{Qmax} is the maximum standby current of the FACP in full load, which is 0.12A (calculated based on 16 zones).

I_{Qout} is the auxiliary output current in standby condition, which is 0.02A

I_{Qmin} is the FACP circuit consumption in fire condition, which is 0.1A.

I_{Lmax} is the loop maximum current allowed for 16 detection zones, which is 0.4A.

I_{Fout} is the output current in alarm condition, which is 2A (1.5A for 4 sounder outputs and 1 fire alarm output, and 0.5A for the auxiliary output).

T1 is the time for the batteries to work in monitoring status which shall be 24 hours by EN 54-4 standard.

T2 is the time for the batteries to work in alarm status which shall be 30 minutes by EN 54-4 standard.

From the above, we can get the maximum battery capacity is 4.61AH, so that we recommended a 7AH battery to be used for the system. And as the above calculations are based on the 16-zone VG-6831/16 , they are also applicable to VG-6831 (2/4/8).

7.Servicing

The panel shall be serviced by specially trained engineers. Please disconnect power before servicing.

7.1 Replacing the Batteries

- ✧ Type: Sealed lead-acid battery.
- ✧ Recommend period for replacement: 5 years（25℃）
- ✧ Recommended manufacturer and model: Yuasa NP7-12
- ✧ Disposal of used batteries: Please properly dispose the used batteries according to your local rules and regulations.

WARNING: RISK OF EXPLOSION IF BATTERIES ARE REPLACED BY AN INCORRECT TYPE!

7.2 Replacing the Fuses

Position	Mark	Rated value
Battery Connection Cable	5A	F 5A250V

Note：

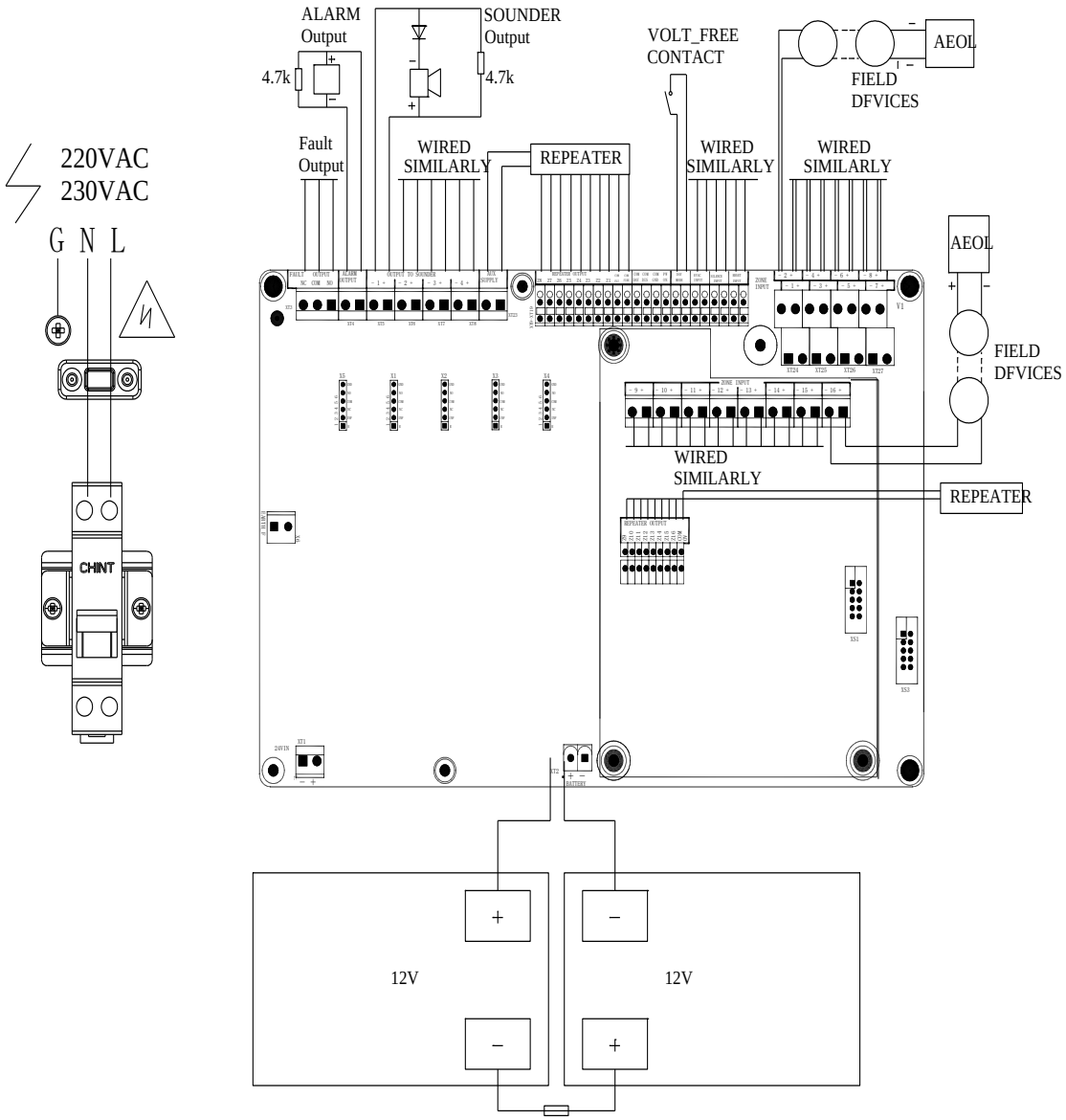
Follow the steps below to replace 5A fuse.

1) Unfasten the fuse holder in the battery connection to find 5A fuse.
2) Replace the 5A fuse.
3) Fasten the fuse holder.

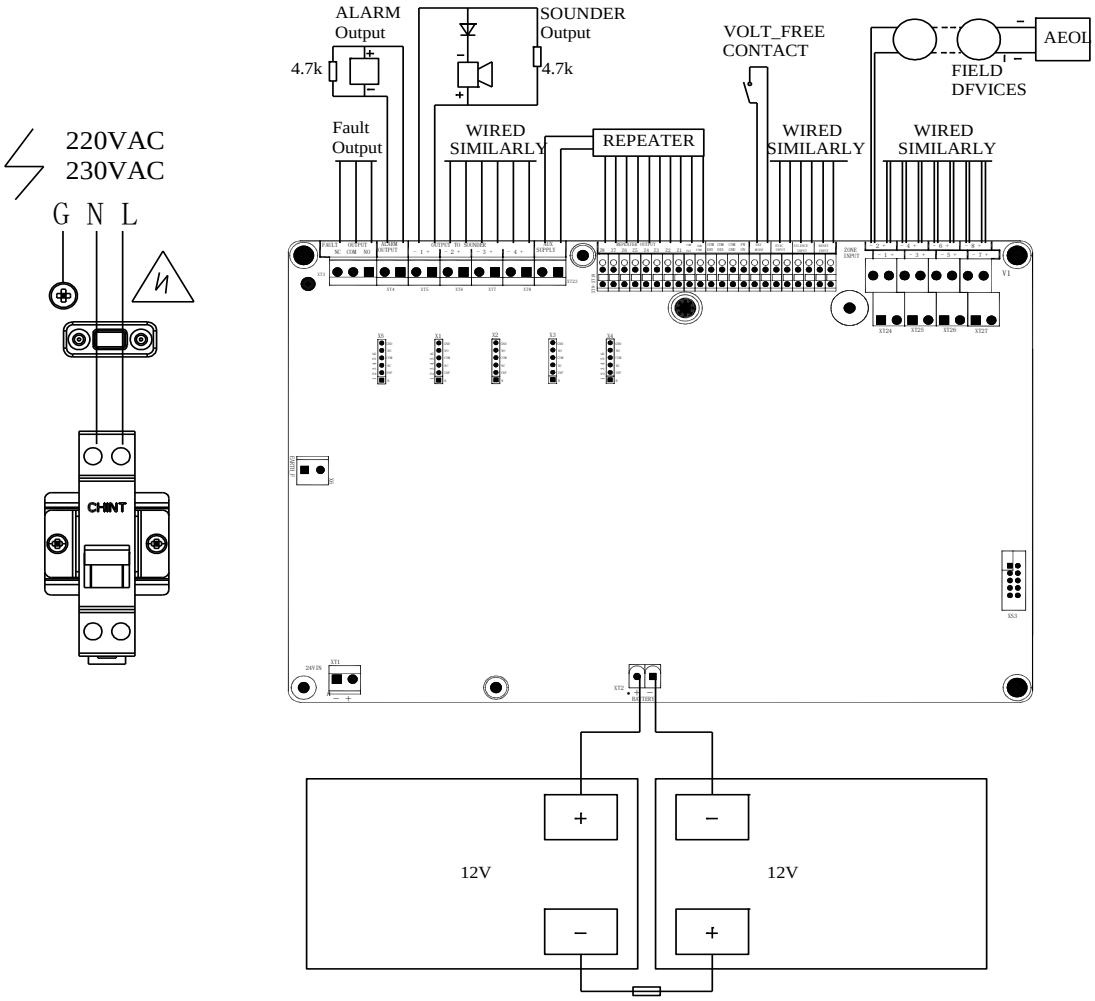
7.3 Troubleshooter

No.	Problem	Reason	Resolution
1	No LED lights on power-up	a. Power doesn't work properly. b. Connection between the control board and display board is loose.	a. Replace the control board. b. Check and reconnect the cable.
2	Reports Power Fault" on switch on.	a. No AC power. b. Battery is not fitted or 5A fuse is blown. c. Low battery.	a. Check and apply AC power b. Connect the batteries or replace 5A fuse. C. If the problem still exists after the FACP has been applied with AC power for over 24 hours, please replace the batteries.
3	Incorrect report on detection zone status or output status	a.Pin X1 to X5 on the control board are not set correctly. b. Control board damaged.	a. Check settings of X1 to X5 b. Replace the control board.
4	Settings cannot be saved	CPU D6 on the control board is damaged	Replace the control board.
5	The lock cannot be operated.	Connection line of lock is loose.	Check the connection.

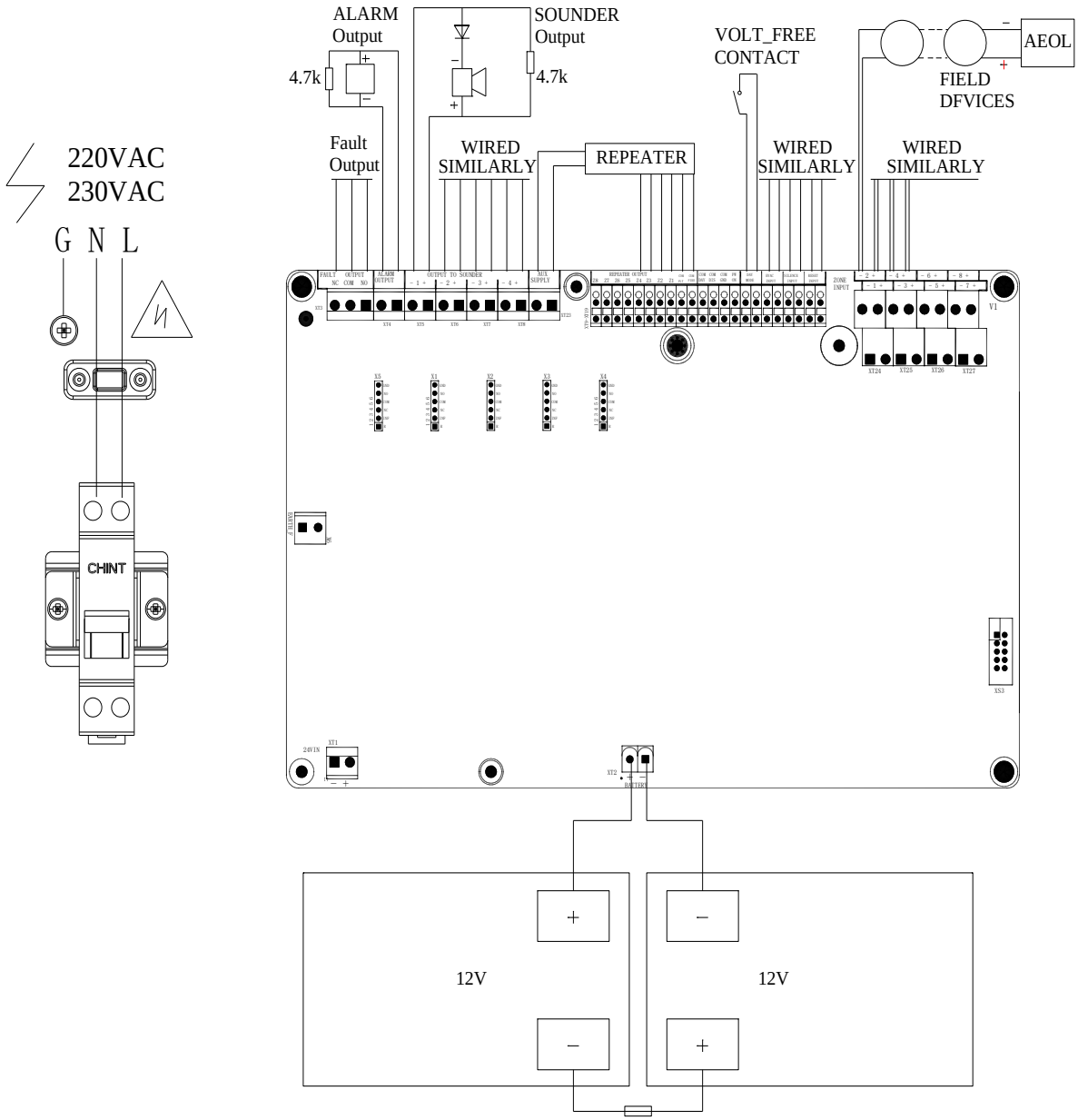
Appendix 1 Wiring Diagram for VG-6831/16 Fire Alarm Control Panel



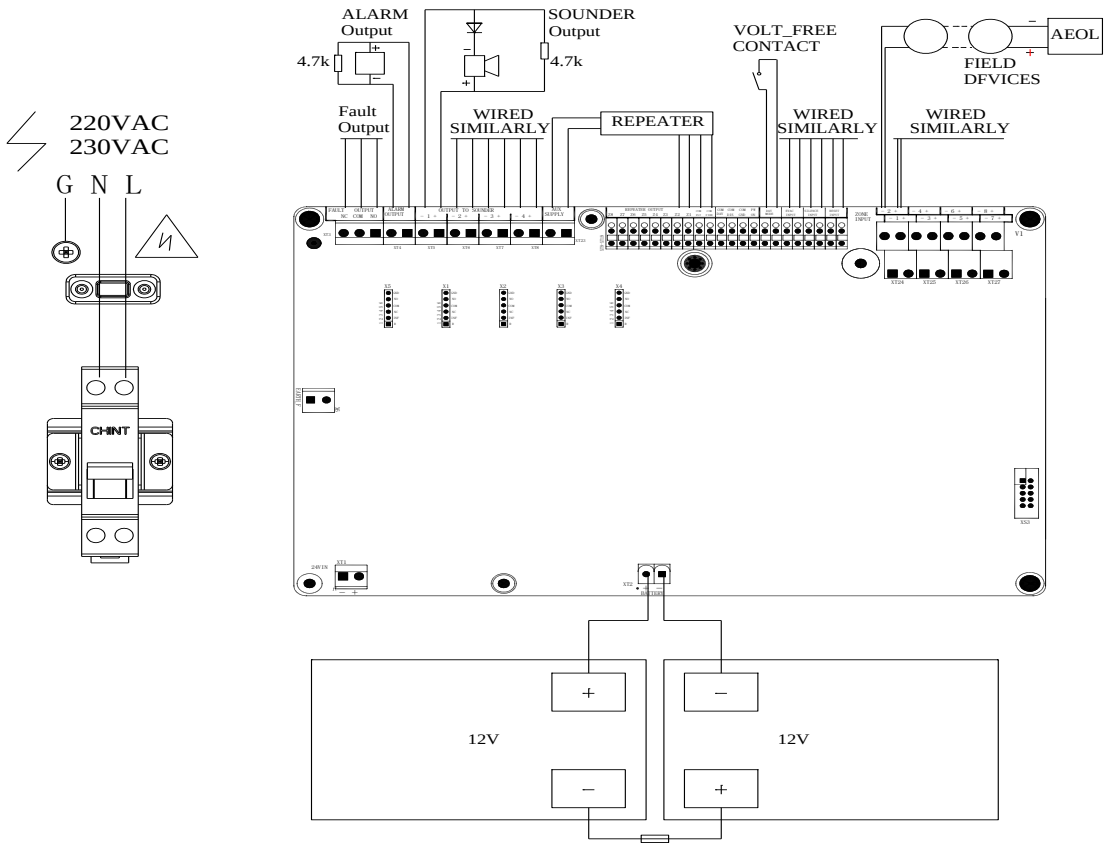
Appendix 2 Wring Diagram for VG-6831/8 Fire Alarm Control Panel



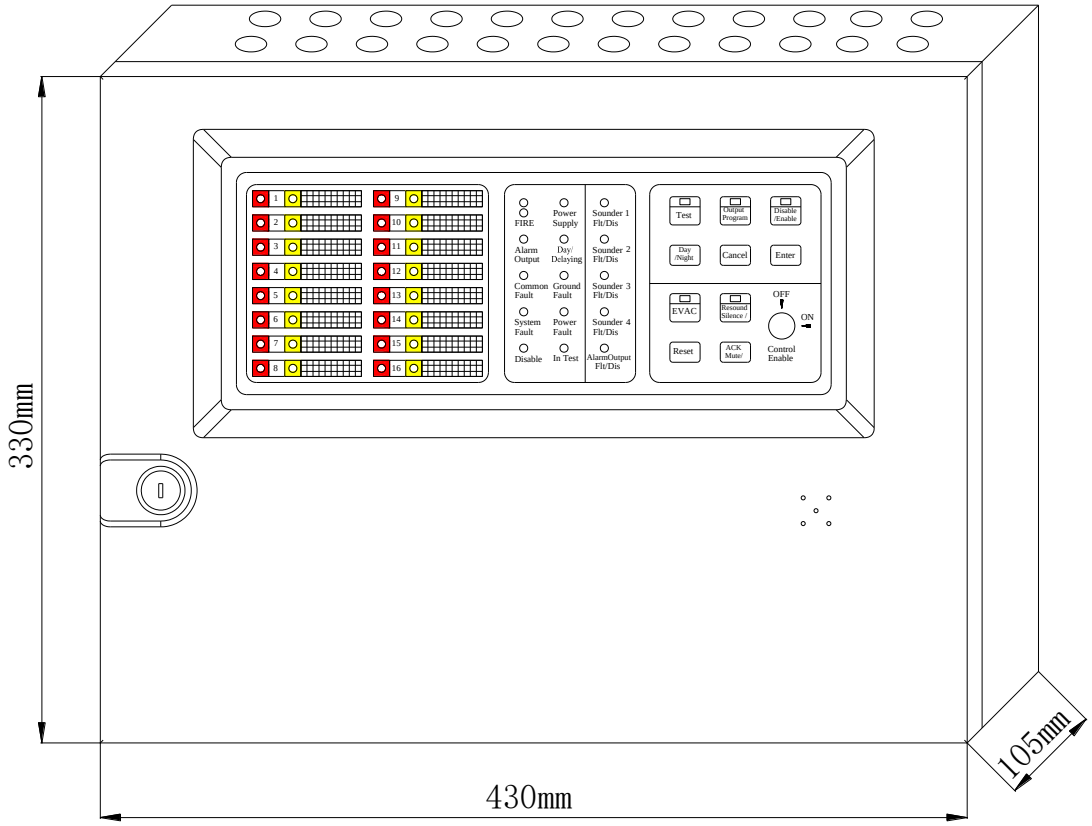
Appendix 3 Wring Diagram for VG-6831/4 Fire Alarm Control Panel



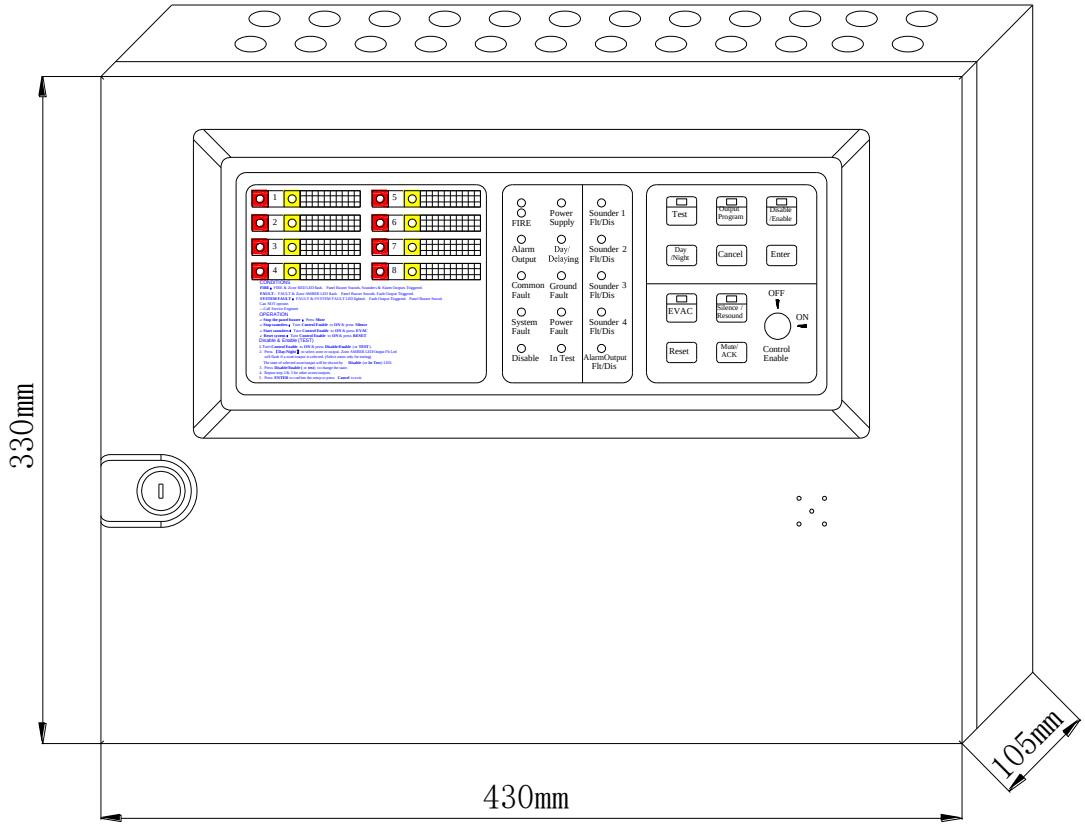
Appendix 4 Wiring Diagram for VG-6831/2 Fire Alarm Control Panel



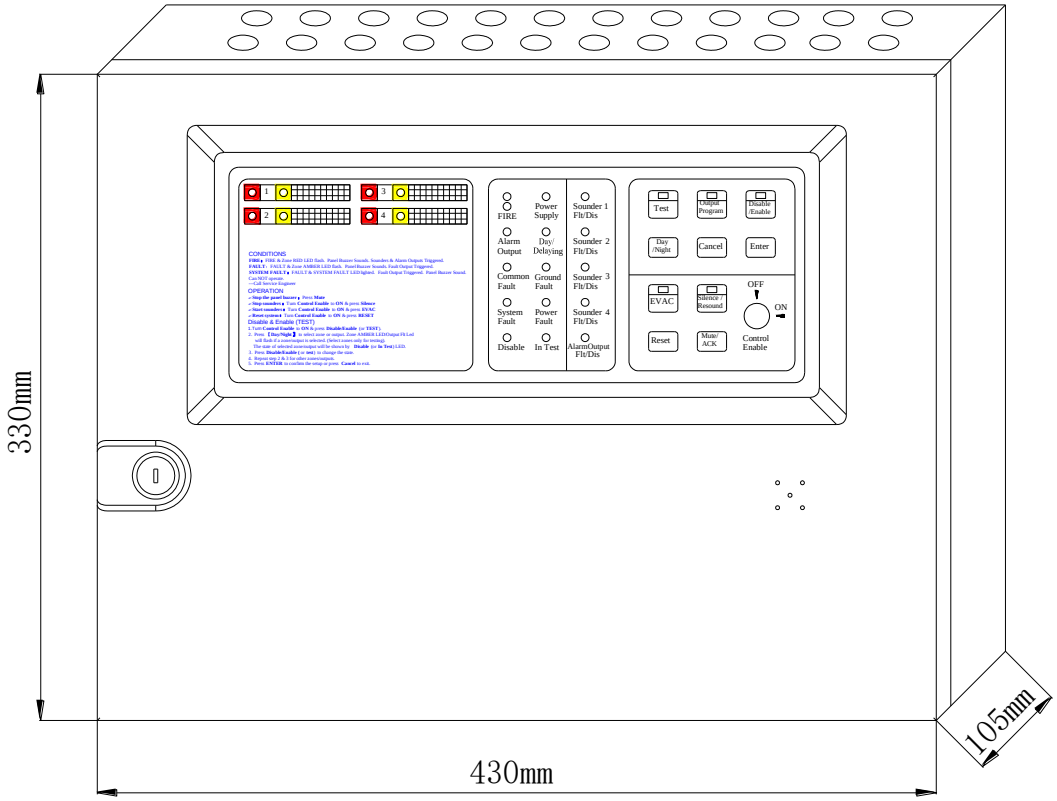
Appendix 5 Appearance of VG-6831/16 Fire Alarm Control Panel



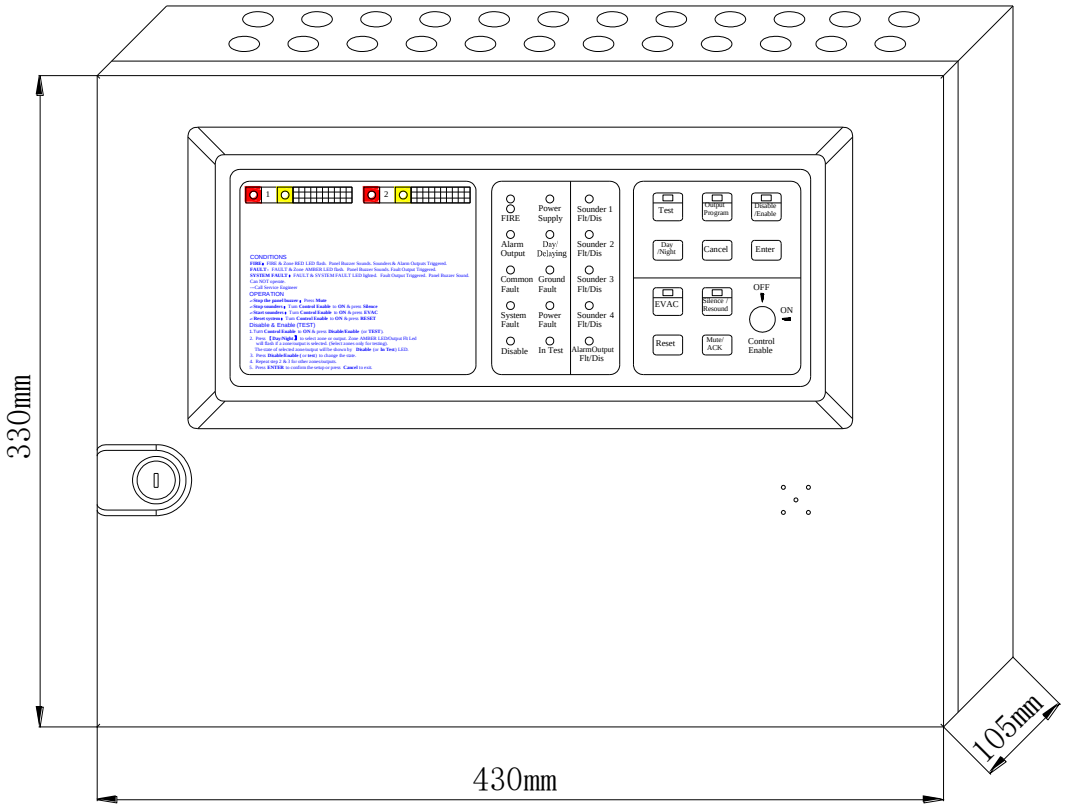
Appendix 6 Appearance of VG-6831/8 Fire Alarm Control Panel



Appendix 7 Appearance of VG-6831/4 Fire Alarm Control Panel



Appendix 8 Appearance of VG-6831/2 Fire Alarm Control Panel



Any quality problem may choose any of the following ways to contact us, we will wholeheartedly for your service.

Customer service hotline:

Service hotline: 008613581542023

Company name: V-GREAT GLOBAL CORPORATION

Company address: Second Floor, Capital City, Independence Avenue, P.O. Box 1008, Victoria, Mahe, Seychelles