



FIRE DETECTION SYSTEM

**NFC-500P Series**

NFC-502P

NFC-504P

NFC-508P

**LCD AUTOMATIC FIRE ALARM CONTROL PANEL  
INSTALLATION  
OPERATION  
COMMISSIONING**



**INSTALLATION GUIDE**

ISSUE: 01 May 2025



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# LCD AUTOMATIC FIRE ALARM CONTROL PANEL INSTALLATION OPERATION COMMISSIONING

## **INSTALLATION GUIDE**

ISSUE: 01 May 2025

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**CHAPTER1: Introduction:**

*NEVERFIR's* Manual is intended as a complete guide to 2,4 & 8 zone LCD Conventional Fire Alarm Control Panels., This Manual provide provides a complete information about installation, commissioning, Operating instructions, Programming guide, service and maintenance procedures with full technical details.

**1.1 Purpose of Fire alarm System**

The primary purpose of a fire alarm system is to provide an early warning of a fire so that people and animals can be evacuated and action taken to stop the fire as soon as possible., all according to a predetermined plan, Alarms may be raised automatically by smoke or heat detectors, or manually by a person operating a manual call point., To ensure an alarm is dealt with in an orderly manner, it is important to know where the alarm is coming from. To aid this function, fire alarm systems are usually split into zones, each covering a different area of a building, When an alarm has been raised, the fire alarm panel responds by indicating the zone in which the alarm has occurred and activating all relevant sounders, bells and other alarm outputs to provide a warning of the fire. Additional alarm outputs available on the CFP range of fire alarm panels (which may, or may not be used depending on the requirements of the site) are as the following:

**- A Remote Output:**

This output is activated when the panel is in alarm and is returned to normal when the alarm sounders are silenced. It may be used to signal an alarm condition to other parts of the fire alarm system.

**- An Auxiliary Output:**

This output is activated when the panel is in alarm and is returned to normal when the panel is reset. It may be used to signal an alarm condition to other parts of the fire alarm system., The building's fire management plan should always be executed when the fire alarm panel goes into alarm. See User Responsibilities (page 4) for further details.

**- Fault monitoring:**

For obvious reasons, the reliability of the fire alarm system is paramount. To this end, the fire alarm panel continuously monitors all connections between detectors, manual call points and sounders and also checks its own power supply and back-up batteries for faults., If a fault is detected anywhere on the system, the panel responds by illuminating one or more of the Fault light(s) located on the panel front and sounding its internal fault buzzer. The panel's fault output is also activated, sending notification of the fault (if connected) to a remote manned monitoring center or other electronic equipment, as required.

**- Disablements:**

In abnormal conditions, certain parts of the fire alarm system can be temporarily turned off (disabled) to suit prevailing conditions. For example, if there is a risk of a false alarm occurring in a zone, say from vehicle exhaust smoke in a loading bay, it is possible to disable that zone during the risk period, then enable it again afterwards. Another example is the disablement of outputs during a routine test or temporary fault.

**- Delays:**

Certain zones on a fire alarm system can be prone to conditions that lead to frequent and unavoidable false alarms, a common example being a loading bay filled with vehicle smoke. In such areas it may be acceptable to delay the activation of the alarm sounders and other outputs to give a responsible person time to investigate the cause of the alarm. If the cause is found to be a true fire hazard, the delay can be overridden. In the event of a false alarm, the panel can be reset. Should the delay period expire without any user intervention, the alarm sounders will automatically sound to evacuate the premises.

**- Coincidence:**

The consequence of a false alarm on some fire alarm systems, particularly those connected to sprinkler or gas extinguishant systems, can be onerous. To help reduce the risk of a false alarm, certain zones on the system can be coupled together so that the alarm sounders and outputs only activate when there is a fire condition on both zones.

**- Power Supply Equipment:**

**NEVERFIRE** FACP has an integral linear power supply capable of supplying 5amps in total (for 8 zone Panel) and 3amps (for 2 & 4 zone panels). It contains a current limited output for charging sealed lead acid batteries (12Ah maxi. for 8 zone panel) and (5Ah Maxi. for 2 & 4 zone panels). The PSE is monitored for main supply failure, the battery not taking a charge, low battery voltage and resistance. If the battery voltage drops below approximately 20VDC (a fault condition), the battery charging current will be turned off, thus stopping charging. This PSE is only capable of supplying power to the CIE, and is not designed for any other use.

## 1.2 Fire Alarm System Limitations

An automatic fire alarm system typically made up of smoke detectors, heat detectors, manual Call Points, audible warning devices, and a fire alarm control with remote notification capability can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire. **NEVERFIRE** recommends that smoke and/or heat detectors be located throughout a protected premise following the recommendations of the current edition of the British Standard Code for Fire detection and Alarm systems for commercial Buildings (BS5839: Pt 1: 2013), **NEVERFIRE**'s recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

**- Smoke detectors:**

May not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

**- Particles of combustion:**

From a developing fire may not reach the sensing chambers of smoke detectors because:

- 1- Barriers such as closed or partially closed doors, walls, or chimneys may inhibit particle or smoke flow.
- 2- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- 3- Smoke particles may be blown away from detectors by air outlets.
- 4- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photo electronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).



Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power.

If detectors are not so located, a developing fire may damage the alarm system, crippling its ability to report a fire.

## - Heat detectors:

Do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

## - Audible warning devices:

such as bells may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol or medication.

## 1.3 EN 54 Compliance

**NEVERFIRE NFC-500P Series** Conventional Fire Alarm Control Panels (FACPs) complies with the requirements of EN 54-2 1997 + A1: 2006 and EN 54-4 1997+A1: 2002+A2:2006.



Fig.1 NFC-500P Series EN 54 Compliance

## 1.4 Precautions and Warning



### **PRECAUTIONS:**

1. Do not operate the fire alarm panel with its enclosure open. There is no need to open the enclosure except to carry out commissioning, maintenance and remedial work. This work must only be carried out by competent service personnel who are fully conversant with the contents of the separate engineering manual for this product and have the necessary skills for maintaining this equipment.
2. The control panel should be mounted on a dry, flat surface, at eye height to the display and in a level position such that the enclosure is not distorted.
3. It is most important that the polarity of the red and black wires is observed as wrong connection of these will damage the control panel.
4. All sounders must be of the polarized type. If non-polarized sounders are used the control panel will permanently show a fault condition.
5. The control panel contains sealed lead acid batteries to provide standby power in the event of a mains failure. These batteries have a life expectancy of around 4 years. It is recommended that these batteries be tested in accordance with the battery manufacturer's recommendations annually to determine their suitability for continued standby applications.



### **Warning:**

**Parts Replacement:** When the unit parts need to be replaced, user should make sure the service technician use the replacement parts specified by the manufacturer or having the same Characteristics as the original part. Unauthorized replacement may put the unit in the risk of fire, electric shock or other hazards. Only authorized and suitably-trained personnel must carry out procedures in response to fire alarm events or perform scheduled test and maintenance activities.

## 1.5 FACP Maintaining

### 1.5.1 Maintenance Procedures.

In order to ensure that the system is fully operational, and to comply with the requirements of EN-54, the following routine attention is recommended:

#### 1.5.1.1 Daily Tests.

- ☼ Check the panel to ascertain that it indicates normal operation.
- ☼ if any fault is indicated check that it has been recorded and the appropriate actions have been taken e.g. informing to the maintaining company.

#### 1.5.1.2 Weekly Tests.

- ☼ Test at least one detector or call point to confirm the operation of the panel and the audible alarms. Test a different zone each week and, if possible, a different device. Keep a record of the device and zone tested each week. Record and report any malfunction.

#### 1.5.1.3 Quarterly Tests.

- ☼ The responsible person should ensure that every three months the system is checked by a competent person. Check the standby batteries and the charger voltage test at least one device in each zone to check the panel functions. Check the operation of the audible alarms and any link to a remote manned center, Central station, etc. Carry out a visual inspection of the installation to check for alterations or obstructions and issue a certificate of testing.

#### 1.5.1.4 Annually Tests.

- ☼ The responsible person should ensure that, in addition to the quarterly checks, each device on the system is tested and that a visual inspection is made of the cable fillings and equipment.

#### 1.5.1.5 Every Five Years.

- ☼ Carry out a complete wiring check in accordance with the testing and inspection requirements of the relevant National wiring regulations (in the UK this is the IEE Wiring Regulations). The Batteries should be replaced because SLA batteries have a working life of 5 years.

### NOTE

**NEVERFIRE** control panels Cabinet should be cleaned periodically by wiping with a soft, damp cloth. DO NOT USE ANY SOLVENTS.

### 1.5.2 User Responsibility:

According to the British Standard Code for Fire Detection and Alarm Systems for Commercial Buildings (BS5839: Pt 1: 2013) and in addition to the routine testing described above,

- ☼ the owner or person having control of the premises should appoint a responsible person to oversee the effective operation of the Fire Alarm System (Clause 47.1).
- ☼ the user has a responsibility for certain actions are taken following a fire or fault, and for implementing remedial action following a specified incidence of false alarms. As a minimum, the user shall record any incident and inform the service organization, who may be required to retest the system.

Below is a summary of the main functions the “Responsible Person” is expected to carry out. This summary is not intended to replace Section seven (User responsibilities) of BS5839: Pt 1: 2013 (available from BSI, or your local library). It is meant to give a brief outline of user responsibilities for the safe upkeep of the Fire Alarm System. The number in brackets shows the relevant BS5839: Pt 1: 2013 clauses.

#### **The responsible person must:**

- ☼ Have sufficient authority to do the duties associated with the responsible person (47.2).
- ☼ Check the system at least once every 24 hours to ensure there are no faults present (47.2.a).
- ☼ Ensure there are arrangements for testing and maintaining the system (47.2.b).

- ☼ Ensure the log book is up to date, and available for inspection (47.2.c).
- ☼ Instruct all relevant occupants on the basic operation of the system, including start evacuation, silence alarms, silence faults and system reset (47.2.d).
- ☼ Take appropriate action to limit the rate of false alarms (47.2.e).
- ☼ Ensure that all detectors and manual call points remain unobstructed at all times (47.2.f).
- ☼ Liaise with maintenance personnel to ensure that cleaning, maintenance or building work does not interfere with the functioning and reliability of the fire alarm system (47.2.g).
- ☼ Ensure any changes to the system are recorded with updated drawings, operating instructions etc. (47.2.i).
- ☼ Ensure that there are spare parts (especially Call point elements) held on site (47.2h).



**CHAPTER 2: Product Description, Mounting and Testing:**

*NEVFERFIRE* NFC-500P Series are microprocessor-based LCD conventional Fire Alarm Control Panels., The Panel accepts water flow devices, conventional input devices like two wire smoke detectors, Manual Call Points and other normally open contact devices. The Outputs include two notification appliance circuits (NACs), Resettable 24v D.C. output, two Form –C relays for alarm and fault. This panel is field programmable via the front panel keypad. It supervises all wiring, AC voltage and Battery level.

**2.1 Product Description****2.1.1 Panels Feature:**

- ✿ Two Initiating circuits (For NFC-502P).
- ✿ Four Initiating circuits (For NFC-504P).
- ✿ Eight Initiating circuits (For NFC-508P).
- ✿ 16x2 dot matrix LCD display.
- ✿ Lamp test facility.
- ✿ Access via password – removes problem of lost keys.
- ✿ 2 Class B notification appliance circuits (NAC).
- ✿ All zones accept all types of conventional detectors and normal open contact devices.
- ✿ Auto Signal Silence.
- ✿ System ON indication.
- ✿ Surface Mount Technology.
- ✿ NAC shall be programmed as silence able or non-silence able.
- ✿ Over All current consumption is low.
- ✿ Resettable\ Steady 24VDC Output.
- ✿ Form C relays for fire and fault.
- ✿ Earth fault annunciation facility at 0 ohms.
- ✿ Standby (Battery) backup 24VDC power supply with built in charger (charging current 0.5A max).
- ✿ Operates on 100-240VAC, 50\60Hz,
- ✿ AC mains 5A Din Rail power supply for (NFC-508P) and 3A (For NFC-504P and NFC-502P).
- ✿ Maximum battery size 12Ah (for 8 Zone Panel) and 5Ah (for 2 and 4 zone panels).
- ✿ Auto Resettable Fuse.
- ✿ Battery polarity reversible protection.
- ✿ Battery low visual warning with audible tone.

**2.1.2 panels Specification:****2.1.2.1 Electric Characteristics:**

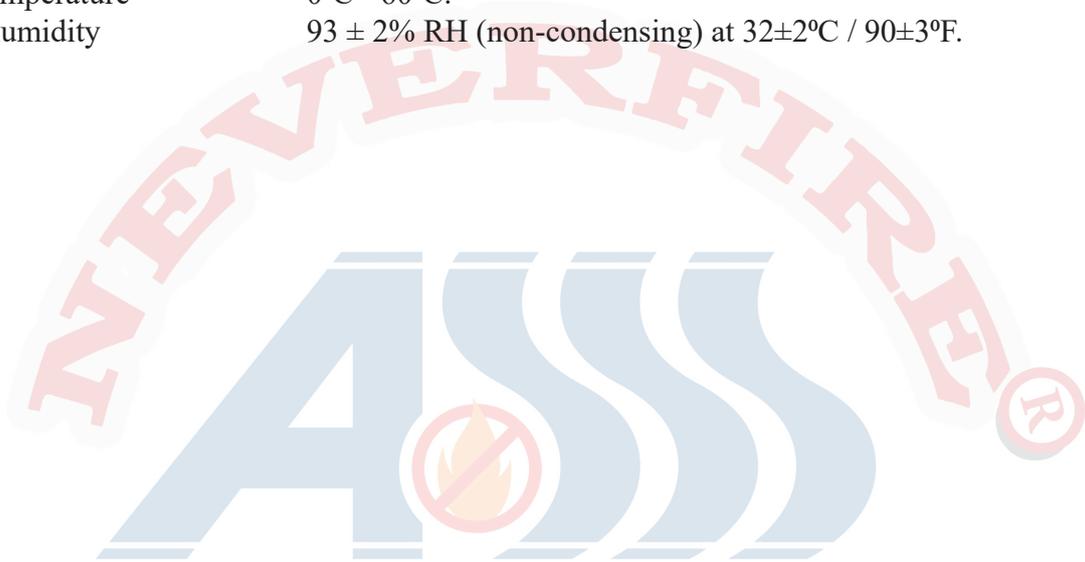
- |                               |  |
|-------------------------------|--|
| ✿ Supply Voltage              | 100-240VAC± 10%, 50Hz.   |
| ✿ System Voltage              | 24V DC (Nominal) 3A (for 2 and 4 zone panels), 5A (for 8 zone panel).                      |
| ✿ Zone Voltage                | 21V DC (Nominal).  |
| ✿ AC Supply Fuse              | 5 Amp 250V 20mm.   |
| ✿ Fault Relay                 | 1 x Volt Free Relay, SELV@1A Max.  |
| ✿ Fire Relay                  | 1 x Volt Free Relay, SELV @1A Max.   |
| ✿ Zone Capacity               | 25 devices per zone.   |
| ✿ Battery cut off             | Battery voltage less than 20V.   |
| ✿ Maximum battery Space       | 2 x 5Ah (for 2 and 4 zone panels),<br>2 x 12Ah (for 8 zone panel), 12Vdc sealed lead acid. |
| ✿ NAC Rating                  | 0.5A per Circuit 1A Total.   |
| ✿ Detection Zone Current      | 1.6mA.   |
| ✿ Detection Zone EOL Resistor | 3k9 5%, 1\4watt.   |
| ✿ NAC EOL Resistor            | 3K9 5%, 1\4watt.   |
| ✿ Cable Capacity              | 14 AWG.  |

**2.1.2.2 Mechanical Specifications:**

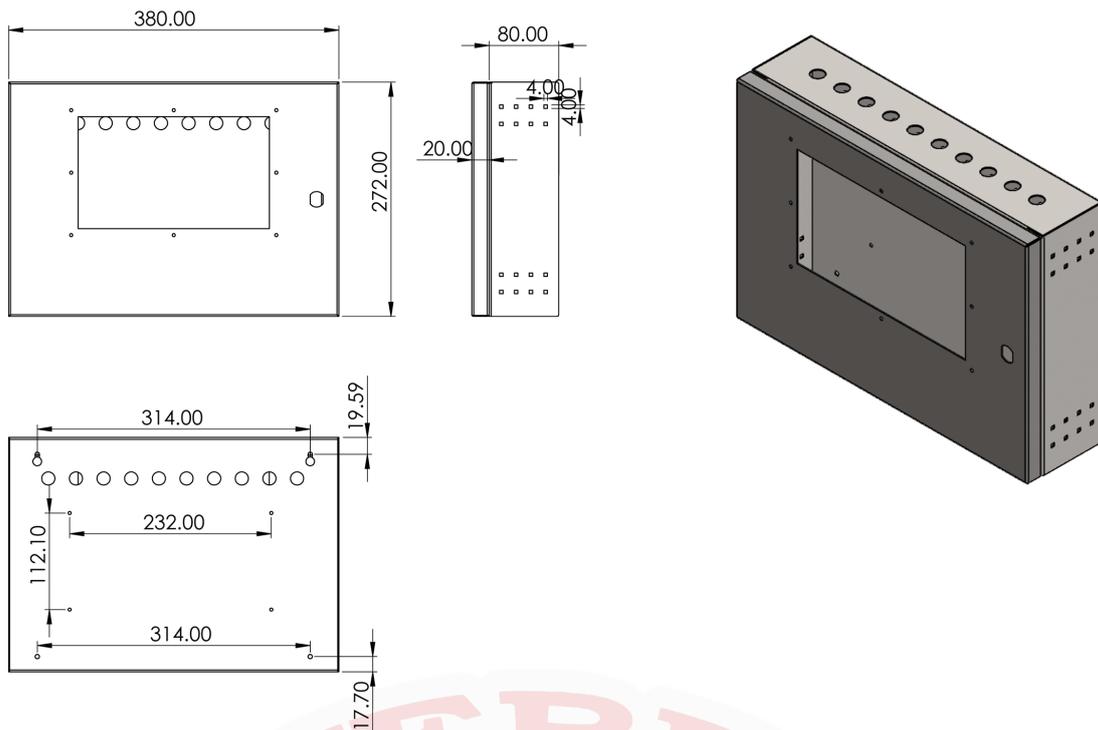
- ☼ Cable Entry
  - **For NFC-502P and NFC-504P.**  
7x $\varnothing$ 19mm Knockout on backside of the cabinet.  
7x $\varnothing$ 19mm Knockout on top of the cabinet.
  - **For NFC-508P.**  
10x $\varnothing$ 19mm Knockout on backside of the cabinet.  
10x $\varnothing$ 19mm Knockout on top of the cabinet.  
IP30.
- ☼ Ingress Protection Rating
- ☼ Construction
  - **For NFC-502P and NFC-504P.**  
1.00mm ASTM A36 with powder-coated finish.
  - **For NFC-508P.**  
1.22mm ASTM A36 with powder-coated finish.
- ☼ Color
- ☼ Weight
  - **For 2 and 4 zone panels** 5Kg (Excluding Batteries).
  - **For 8 zones** 7Kg (Excluding Batteries).

**2.1.2.3 Operating Condition:**

- ☼ Operating Temperature 0 - 49°C / 32 - 120°F.
- ☼ Storage Temperature 0°C - 60°C.
- ☼ Relative Humidity 93  $\pm$  2% RH (non-condensing) at 32 $\pm$ 2°C / 90 $\pm$ 3°F.

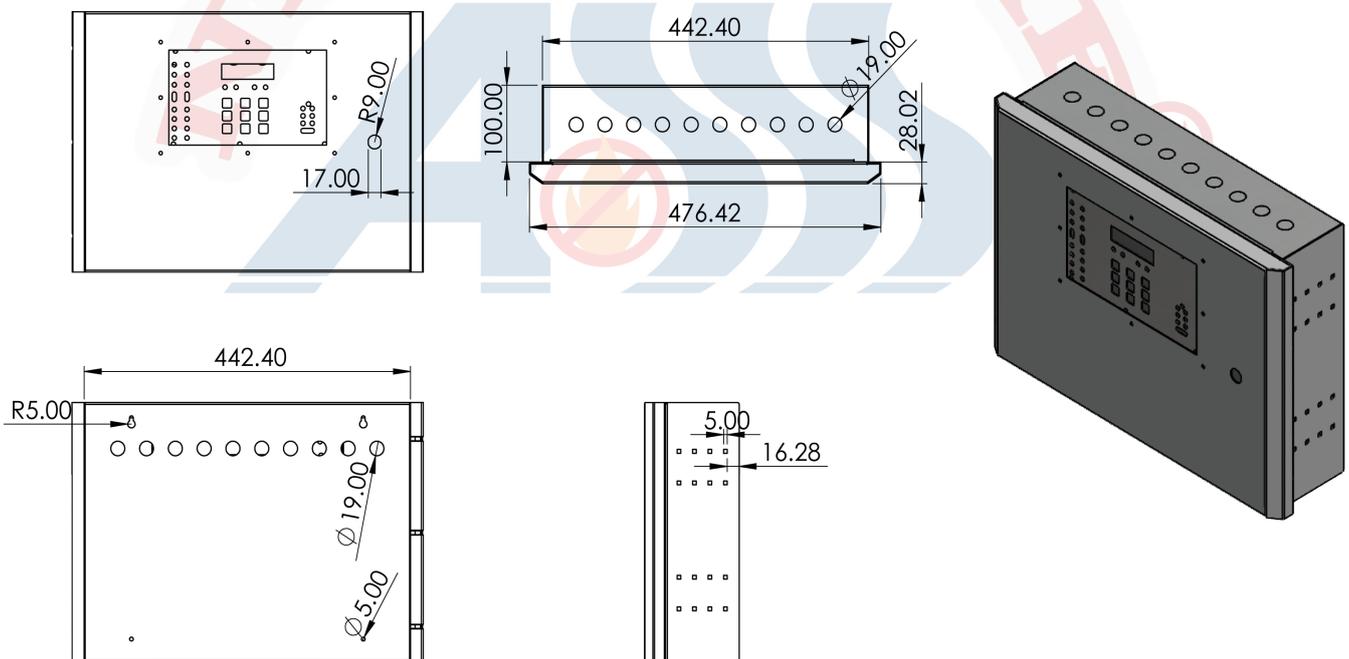


**2.1.3 Cabinet Dimensions:**



**Fig.2 Dimensions of 2 & 4 Zone panels**

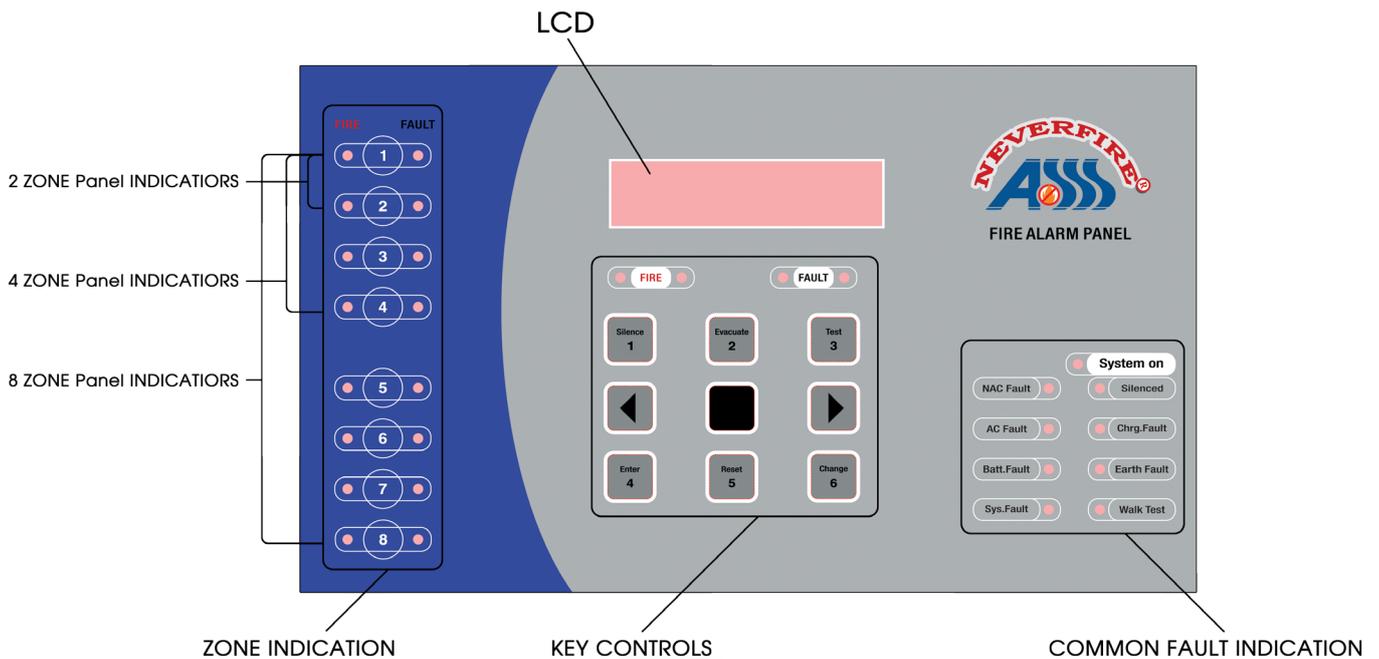
- ☼ The Cabinet measures 380mm width X 272mm height X 80mm depth and space is provided for 2 X 12Volt 5Ah Batteries, main circuit board and display board.



**Fig.3 Dimensions of panel 8 Zone**

- ☼ The Cabinet measures 476.42mm width X 340mm height X 128mm depth and space is provided for 2 X 12 Volt 7Ah Batteries, main circuit board and display board.

## 2.2 Indicators and controls



**Fig.4 Controls and Indicators**

### 2.2.1 Indicators:

#### 2.2.1.1 LED Indicators:

☼ System on	→ Green
☼ Fire	→ Red
☼ Fault	→ Yellow
☼ AC Fault	→ Yellow
☼ Battery Fault	→ Yellow
☼ Earth Fault	→ Yellow
☼ System Fault	→ Yellow
☼ Silenced	→ Yellow
☼ NAC Fault	→ Yellow
☼ Walk Test	→ Yellow
☼ Charger Fault	→ Yellow
☼ Zone Fire	→ Red
☼ Zone Fault	→ Yellow

#### 2.2.1.2 LCD Indicator:

- ☼ The LCD is mainly used in programming the panel.
- ☼ It used to indicate all events along with the LED indications except system on and system fault.

#### 2.2.1.3 Internal Buzzer:

A piezo buzzer provides separate and distinct sounds for alarm and trouble.

- ☼ Alarm → Continuous.
- ☼ Fault → pulse 0.5sec ON and 5sec OFF.

## **2.2.2 Controls:**

### **2.2.2.1 MENU KEY**

☼ To enter into the Main Menu in the LCD.

### **2.2.2.2 SILENCE KEY**

☼ To silence NACs and Buzzer in Fire and Fault Conditions.

☼ User password protected.

### **2.2.2.3 RESET KEY**

☼ To reset the particular zones in Fire alarm condition.

☼ User password protected.

☼ Possible to access only after silence in alarm condition.

### **2.2.2.4 CHANGE KEY**

☼ To change the default password.

### **2.2.2.5 ENTER KEY**

☼ To Exit Evacuation mode.

☼ To return the system normal operation after evacuation.

### **2.2.2.6 TEST KEY**

☼ To test LED and Keypad operations.

☼ User password protected.

### **2.2.2.7 EVACUATE**

☼ To activate NACs Manually.

☼ User password protected.

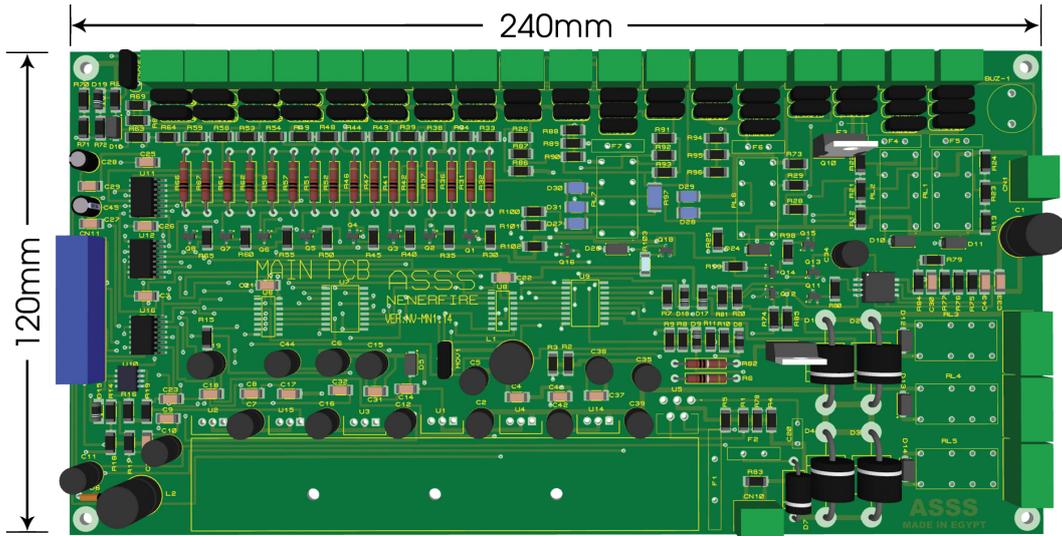
### **2.2.2.8 Red left and Right Arrows key**

☼ To control movement between Previous and next inner menus.



## 2.3 Components

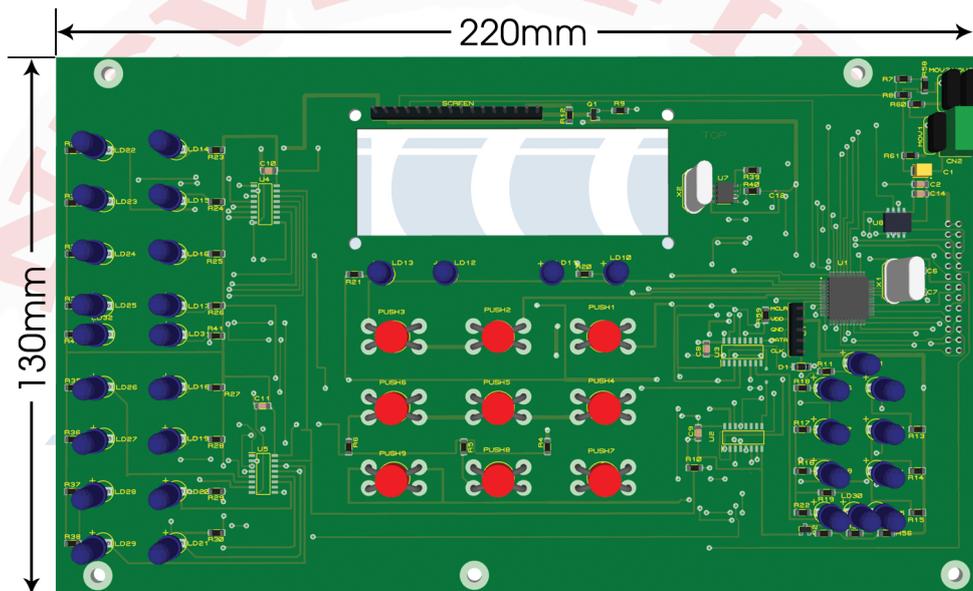
### 2.3.1 Main Board:



**Fig.5 Main Board**

The master Board contains the primary components and wiring interface connectors.

### 2.3.2 Display Board:



**Fig.6 Display Board**

The display Board contains the system CPU, LED Display, LCD unit and Control keys.

### 2.3.3 Power Supply:



Fig.7 Power Supply for 2 & 4 Zone panels



Fig.8 Power Supply for 8 Zone panel

- ☞ This Power supply gives the 30V DC output for the Zone Board.
- ☞ This board is SMPS type.
- ☞ It gives the output for 3Amps Max (for NFC-502P and NFC-504P ) & 5Amps (for NFC-508P).

### 2.4 Panel Mounting

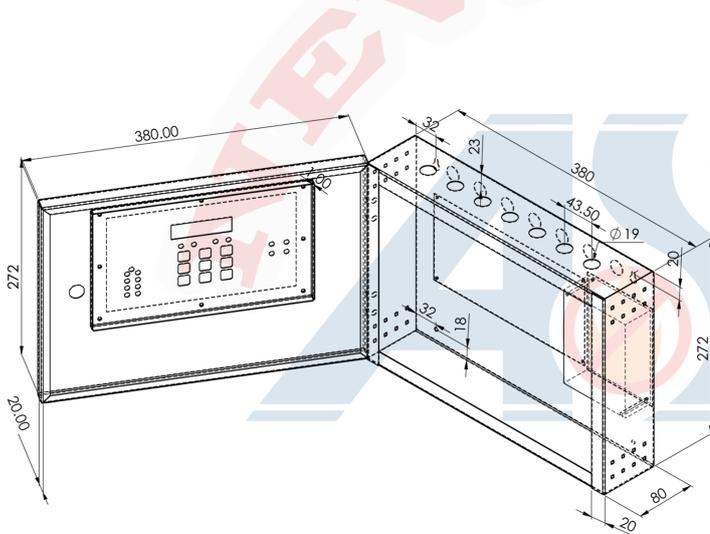


Fig.9 Mounting of 2 & 4 Zone panels

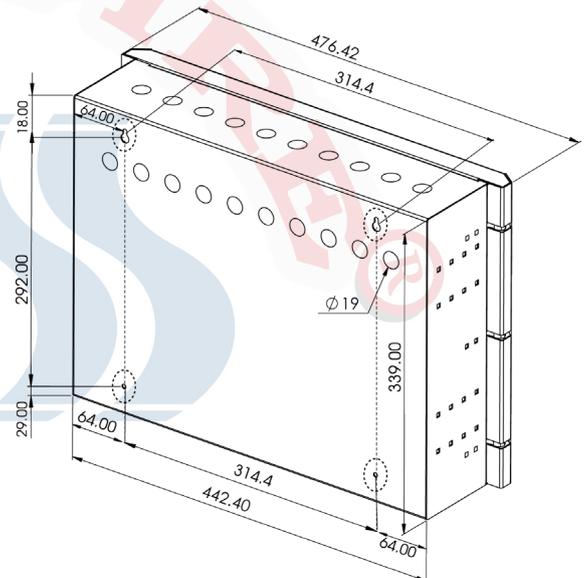


Fig.10 Mounting of 8 Zone panel

- ☞ Place the panel in its mounting position and fix the panel to the wall using the slots of the four screws.
- ☞ Ensure the enclosure and the inner parts of the panel are given sufficient protection during installation.
- ☞ For NFC-502P and NFC-504P, the external cables are to be entered via the 7 numbers of Ø19mm preformed knockouts located at top of the panel and via 7 numbers of Ø19mm preformed knockouts located at the back side of the panel.
- ☞ For NFC-508P, the external cables are to be entered via the 10 numbers of Ø19mm preformed knockouts located at top of the panel and via 10 numbers of Ø19mm preformed knockouts located at the back side of the panel.
- ☞ When the installation of all the cables has been completed, clean the interior of the enclosure ensuring all masonry debris and drilling swords are removed.

## 2.5 keypad Testing

### HOW TO TEST LED Indicators, LCD & Key Controls Operation

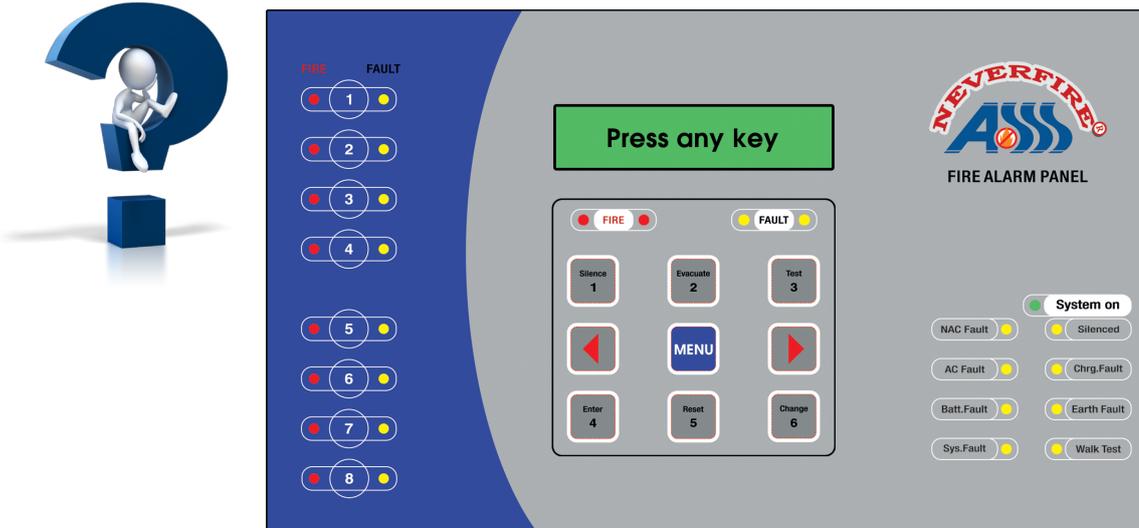


Fig.11 TESTING

For testing press **test key (Key No.3)** then enter password (2222).

#### LED Indicators:

- All LED indicators should be activated as in (Fig.11).
- For LED indicator colors, Refer to section 2.2.1.1 Page 9.
- In case all or some of LED indicators not activated, User can contact country agent

#### LCD Testing:

- LCD should be activated.
- LCD Default color is green.
- In case of LCD don't activate, User can contact country agent.

#### NOTE

In addition to our distributor and agents technical support for malfunctions, NEVERFIRE® factory technical service department can support any technical inquiries.

#### Key Controls Testing:

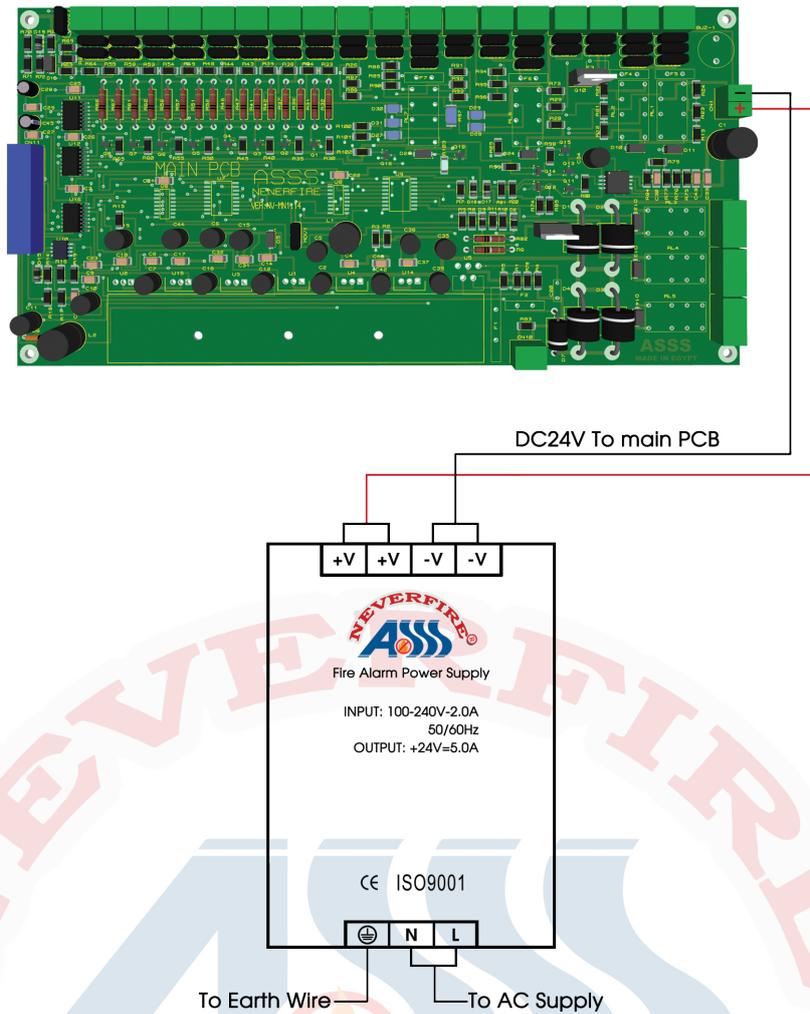
- To Test control Keys, Press any key in the keypad.
- its number will be on the LCD.
- To Test Right and Left arrow keys, Press the red arrow keys on the left & right sides.
- Right Arrow or Left Arrow will be written on the LCD.
- To Test Menu Key, Press on the Menu Key.
- [menu] word will appear on the LCD.

#### NOTE

To exit testing mode, the user press menu key.

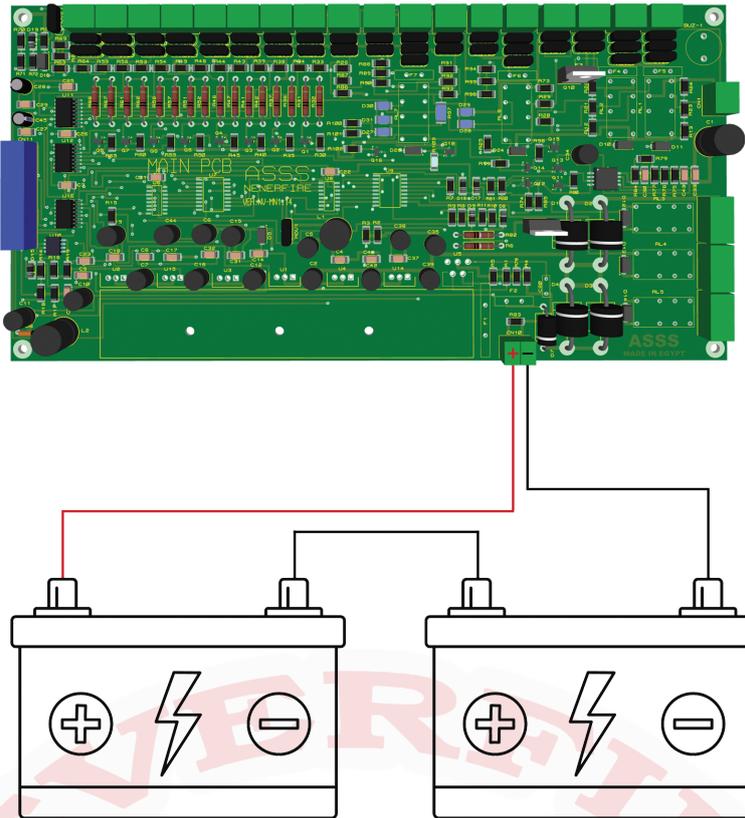
**CHAPTER 3: Panel Wiring Diagram:**

**3.1 Connecting Main**



**Fig.12 Connecting Main**

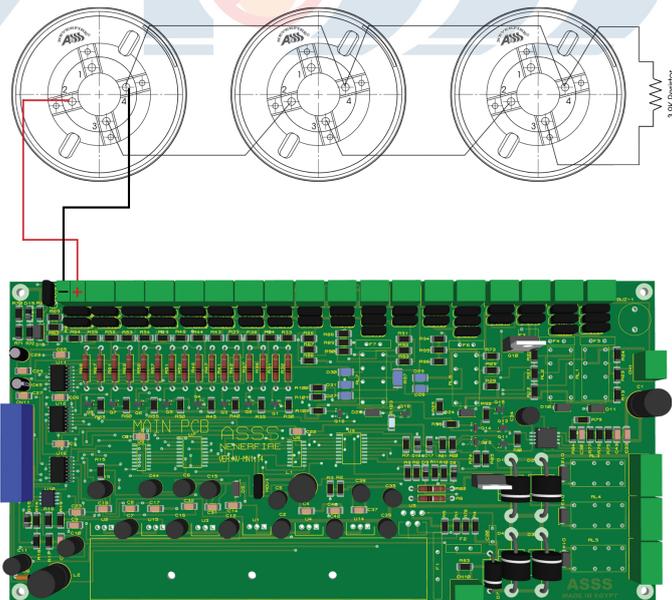
### 3.2 Connecting Standby batteries



**Fig.13 Connecting Standby batteries**

- ⚡ Observe polarity when connecting the battery.
- ⚡ Connect the battery cable to battery connector on the board using the connector and cable provided.
- ⚡ The battery charger is current – limited and capable of recharging sealed lead acid type batteries up to 12Ah. (for NFC-508P) and UP to 5Ah (for NFC-504P & NFC-502P).

### 3.3 Connecting Zones



**Fig.14 Connecting zones**

- ☼ No. of initiating circuit : 2 zones for NFC-502P.  
4 zones for NFC-504P.  
8 zones for NFC-508P.
- ☼ Type of initiating circuits : Class B.
- ☼ Wire size : 1.5 sq. mm Max.
- ☼ Operating Voltage : 14-21 VDC Nominal (Max).
- ☼ Detection Zone Current : 1.6mA.
- ☼ Total No. of Devices : 25 Device.
- ☼ Monitoring Device : 3.9Kohm (EOL).
- ☼ All Zones are configured for general fire alarm applications.
- ☼ Two –wire smoke detectors to connected to any zone.

## NOTE

1. Only smoke detectors can be connected in the zone with alarm verification.
2. Only Same model detectors should be used in IDC.
3. Manual Pull Station should not be used in the style 'C' mode.



This unit includes an Alarm Verification Feature that will result in a delay of the system alarm signal from the indicated circuits. The total delay shall not exceed 80 Sec. no other smoke detector shall be connected to these circuits unless approved by the local authority having jurisdiction.

## 3.4 Connecting Sounders

- ☼ No. of NACs : 2Ckts.
- ☼ Type : Class B.
- ☼ Current : 0.5A (each), 1.00A total.
- ☼ Monitoring Device : 3.9Kohm (EOL).
- ☼ Wire Size : 1.5sq.mm Max.

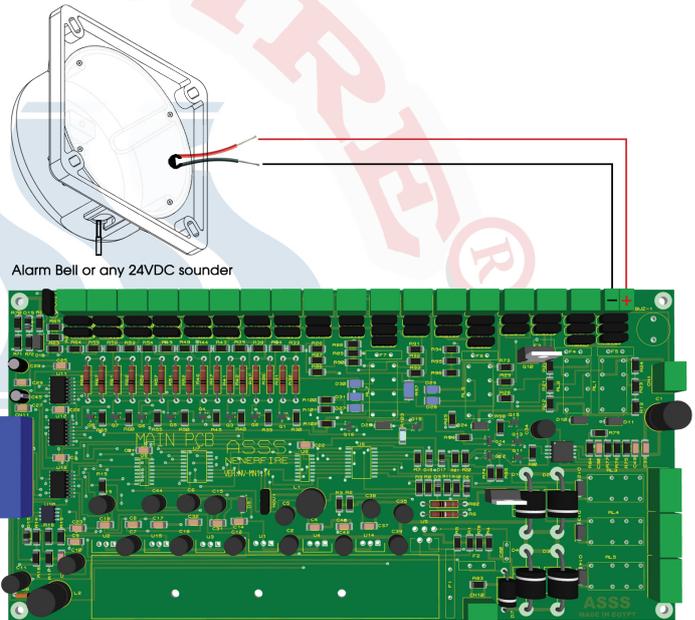


Fig.15 Connecting Sounders

## NOTE

User can connect Any fire 24VDC Sounder to the Notification Appliance Circuits.

### 3.5 Connecting Output 24V

- ☼ Output Voltage : 24VDC Nominal.
- ☼ Current : 0.3A Max.
- ☼ Wire Size : 1.5 sq. mm Max.
- ☼ Monitoring Device : 3.9Kohm (EOL).

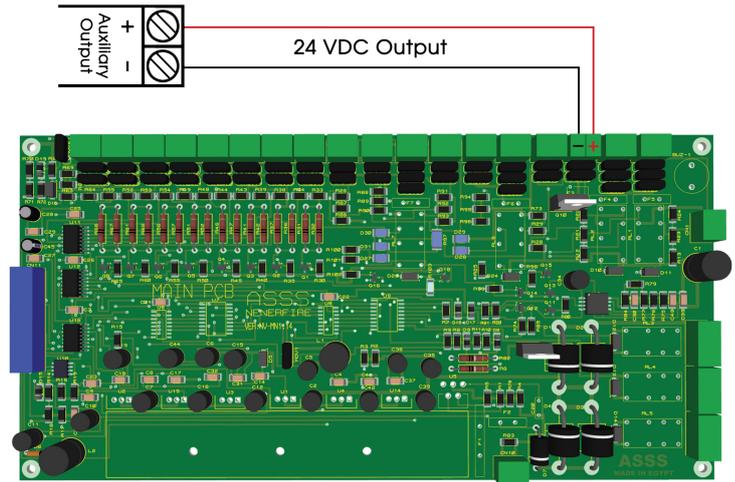


Fig.16 Connecting Output 24VDC

### 3.6 Connecting Relays

- ☼ No. Relay Output : 2 ( Fire and Fault).
- ☼ Contact Voltage : 30 VDC Nminal.
- ☼ Current Rating : 2A.
- ☼ Type of Relay : Form – C.

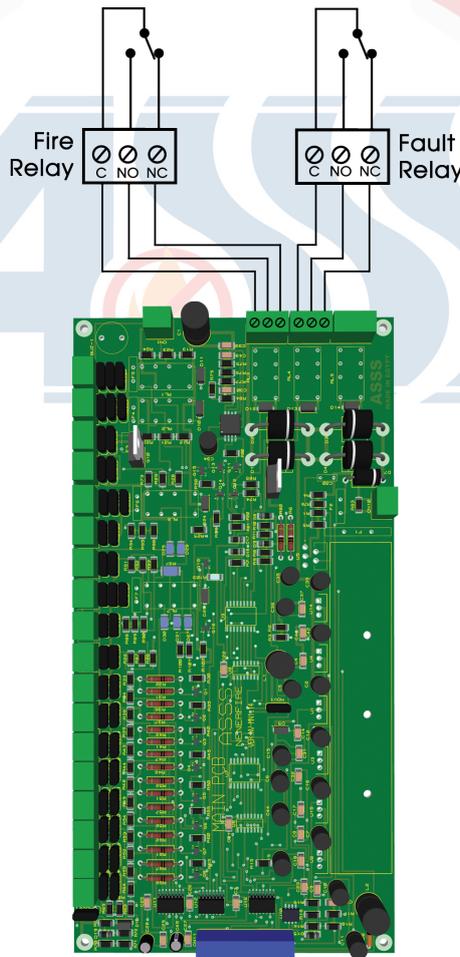
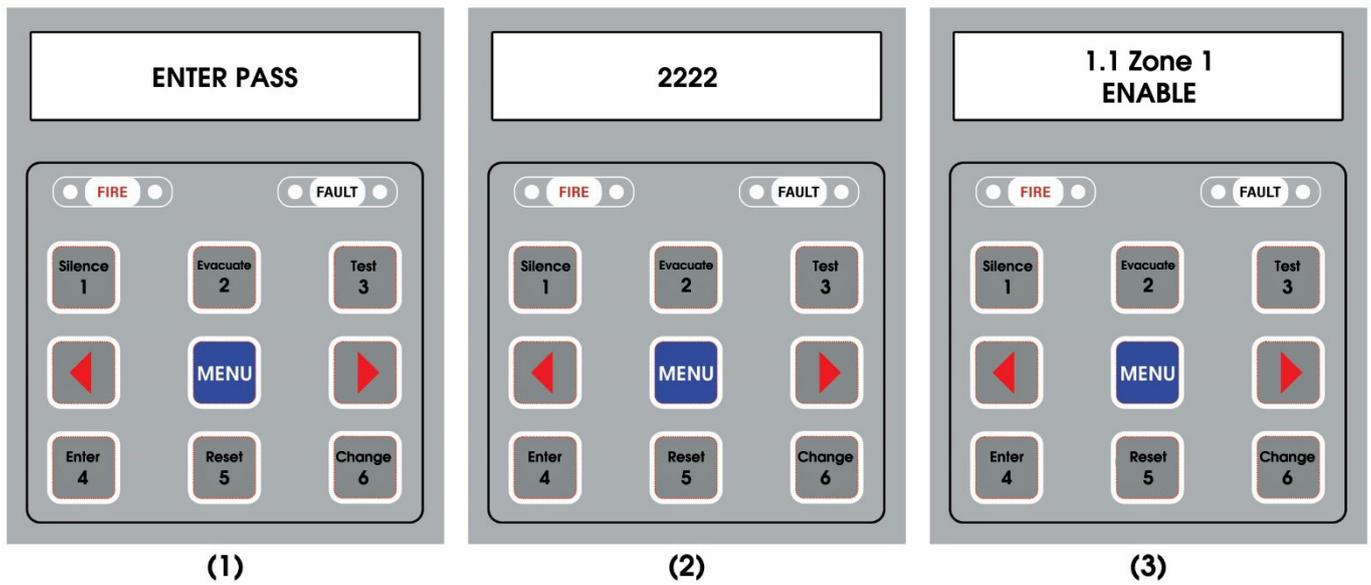


Fig.17 Connecting Relays

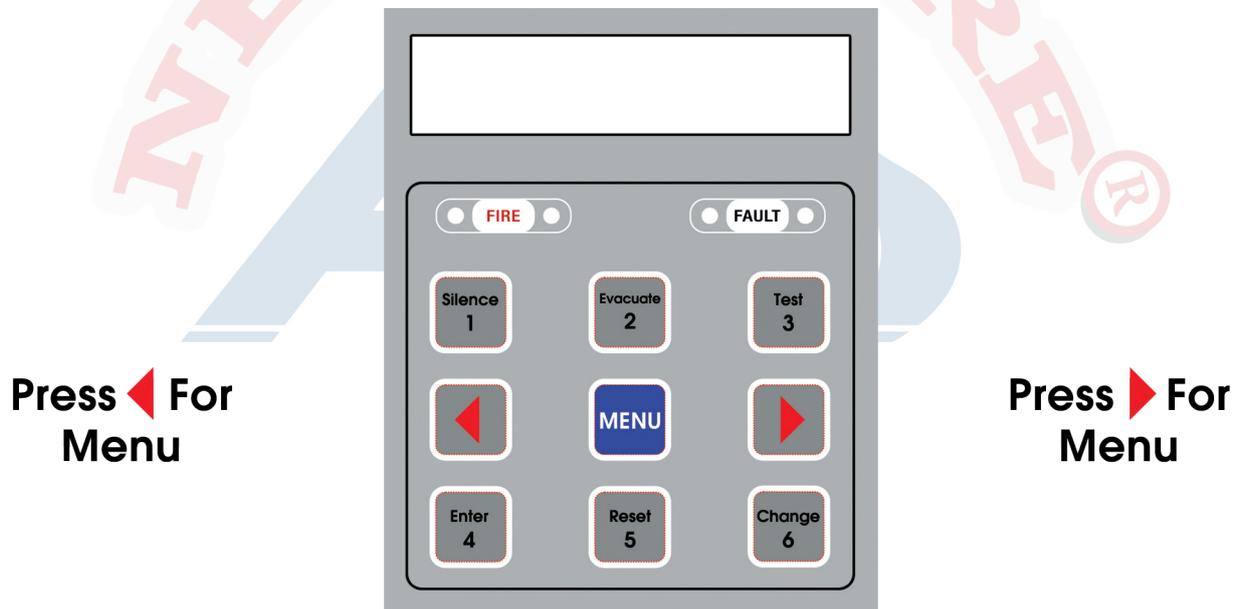
**CHAPTER 4: Panel Programming and Operation:**

**4.1 Panel Programming**



**Fig.18 Programming Mode Activation**

- ☞ Press MENU key to enter programming mode and to changing zones status & other settings of the Panel.
- ☞ Enter Password (default is 2222).
- ☞ System will be ready for programming.



**Fig.19 Movement Between Inner Menus**

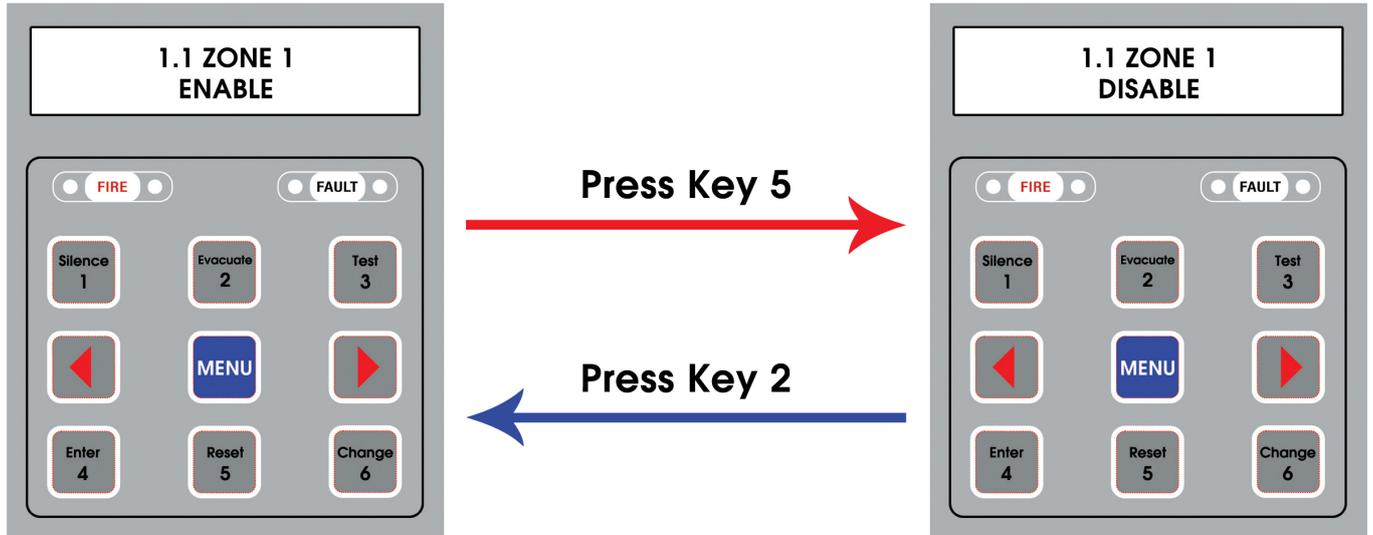
- ☞ The user can press on left and right arrow keys for movement between Previous and next inner menus (Fig.19).

**ATTENTION**

**ONLY at Fire condition, the system will be exit automatically from programming mode.**

## 4.1.1 Zones Activation

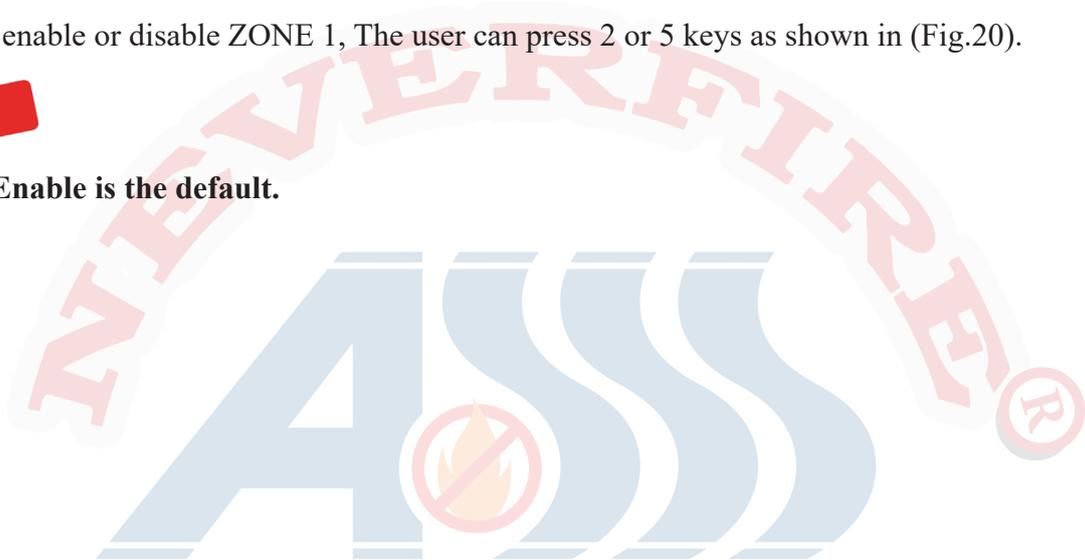
### 4.1.1.1 Zone 1 Activation:



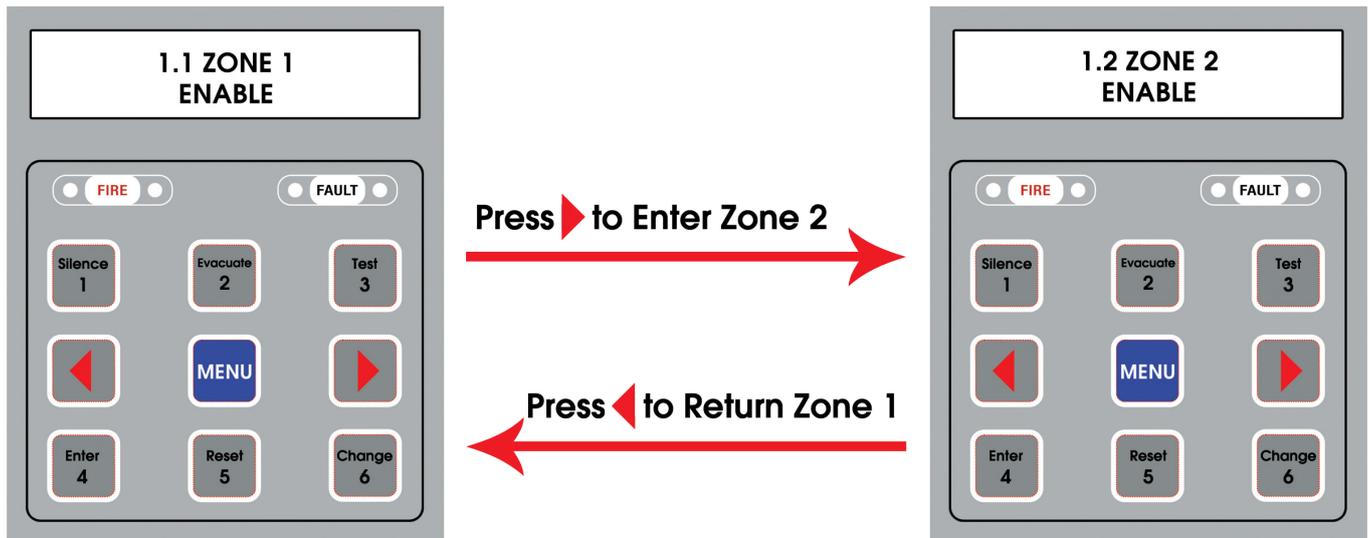
**Fig.20 Zone1 Programming**

☞ To control enable or disable ZONE 1, The user can press 2 or 5 keys as shown in (Fig.20).

**NOTE**  
Zone 1 Enable is the default.

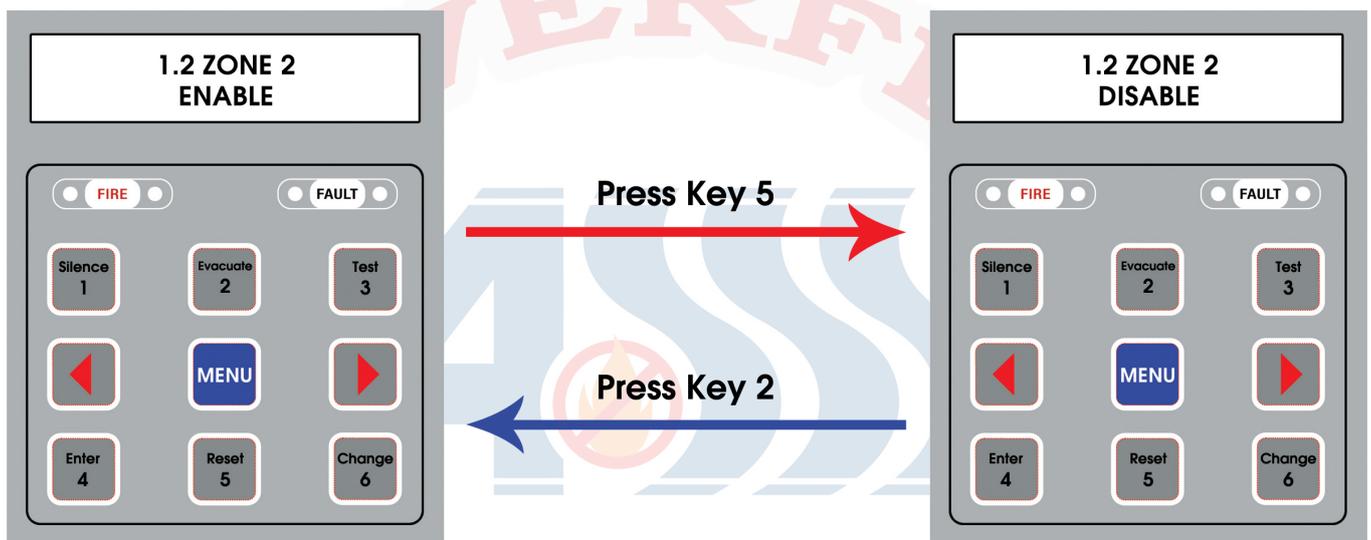


**4.1.1.2 Zone 2 Activation:**



**Fig.21 Zone 2 Activation**

☞ The user can press on left and right arrow keys for movement between zone 1 and zone 2 (Fig.21).

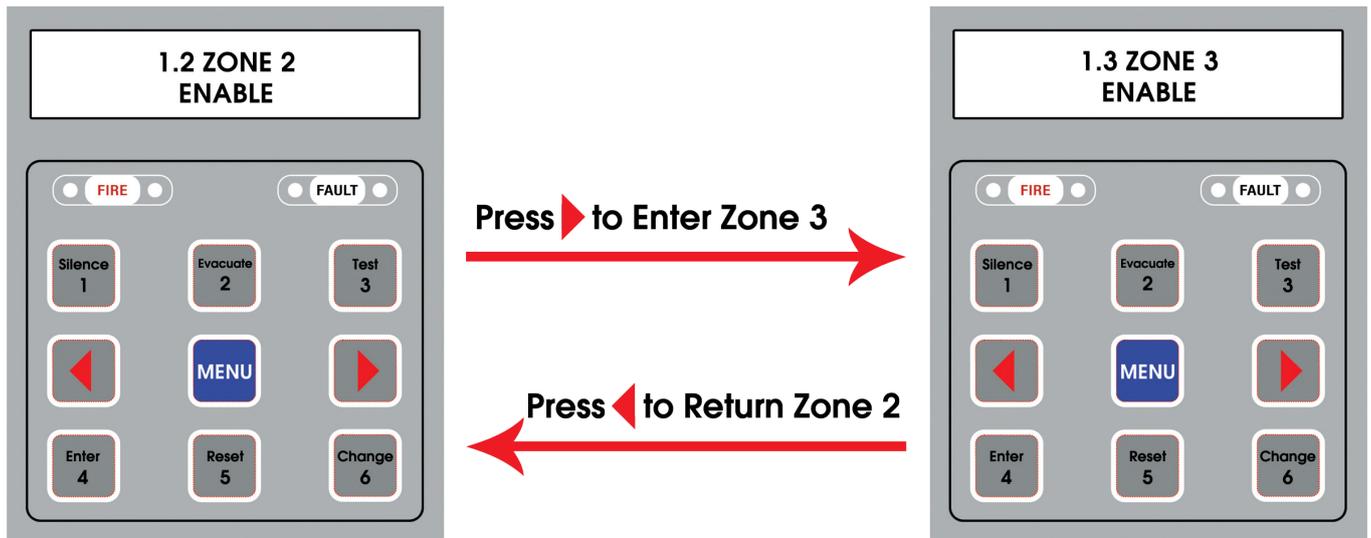


**Fig.22 Zone 2 Programming**

☞ To control enable or disable ZONE 2, The user can press 2 or 5 keys as in (Fig.22).

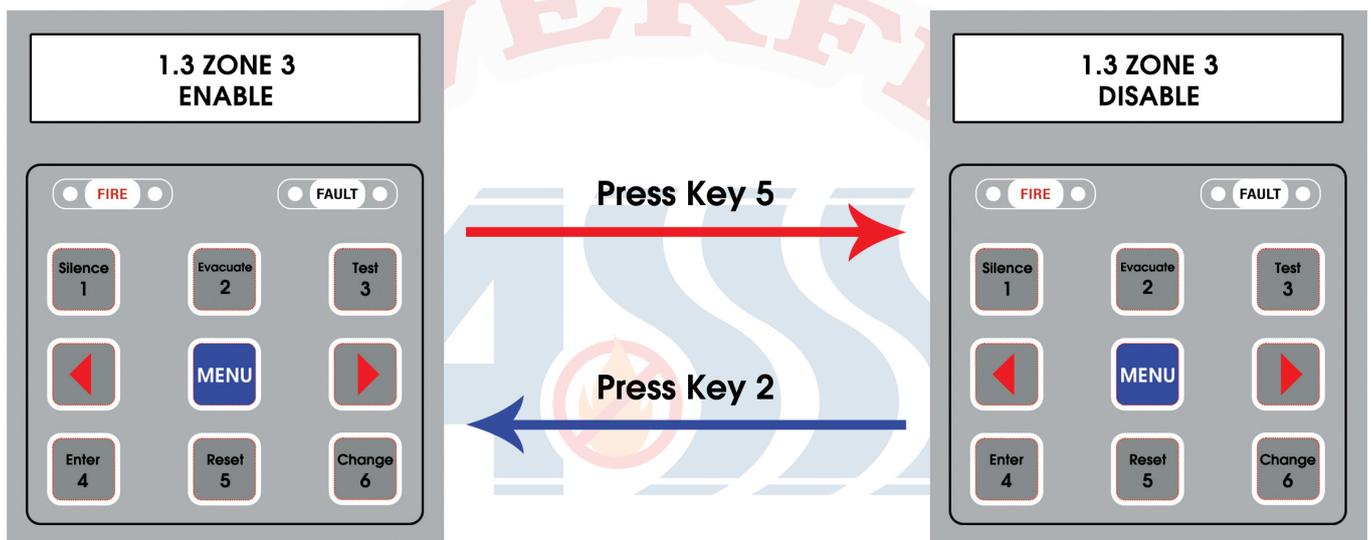
**NOTE**  
Zone 2 Enable is the default.

**4.1.1.3 Zone 3 Activation:**



**Fig.23 Zone 3 Activation**

☞ The user can press on left and right arrow keys for movement between zone 2 and zone 3 (Fig.23).

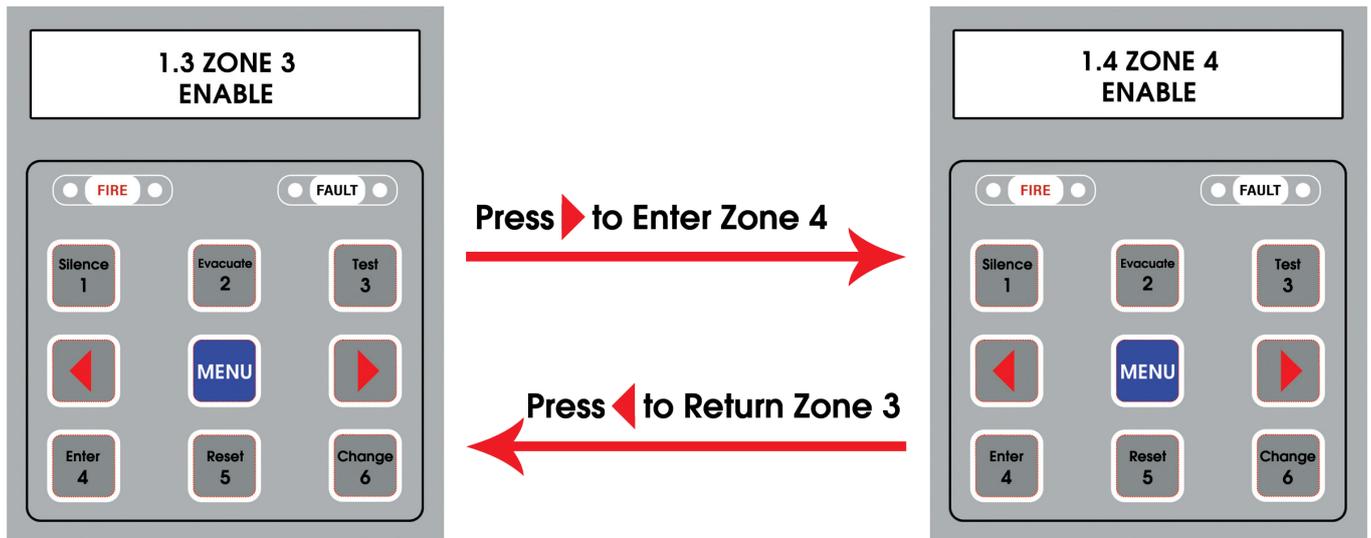


**Fig.24 Zone 3 Programming**

☞ To control enable or disable ZONE 3, The user can press 2 or 5 keys as in (Fig.24).

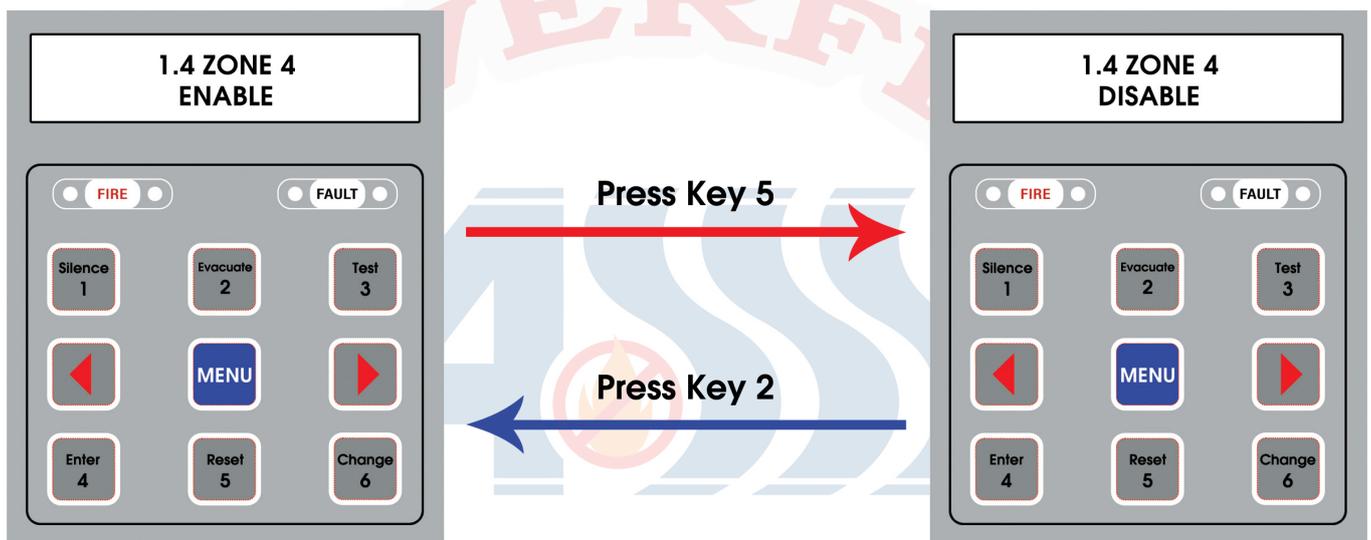
**NOTE**  
Zone 3 Enable is the default.

**4.1.1.4 Zone 4 Activation:**



**Fig.25 Zone 4 Activation**

☞ The user can press on left and right arrow keys for movement between zone 3 and zone 4 (Fig.25).



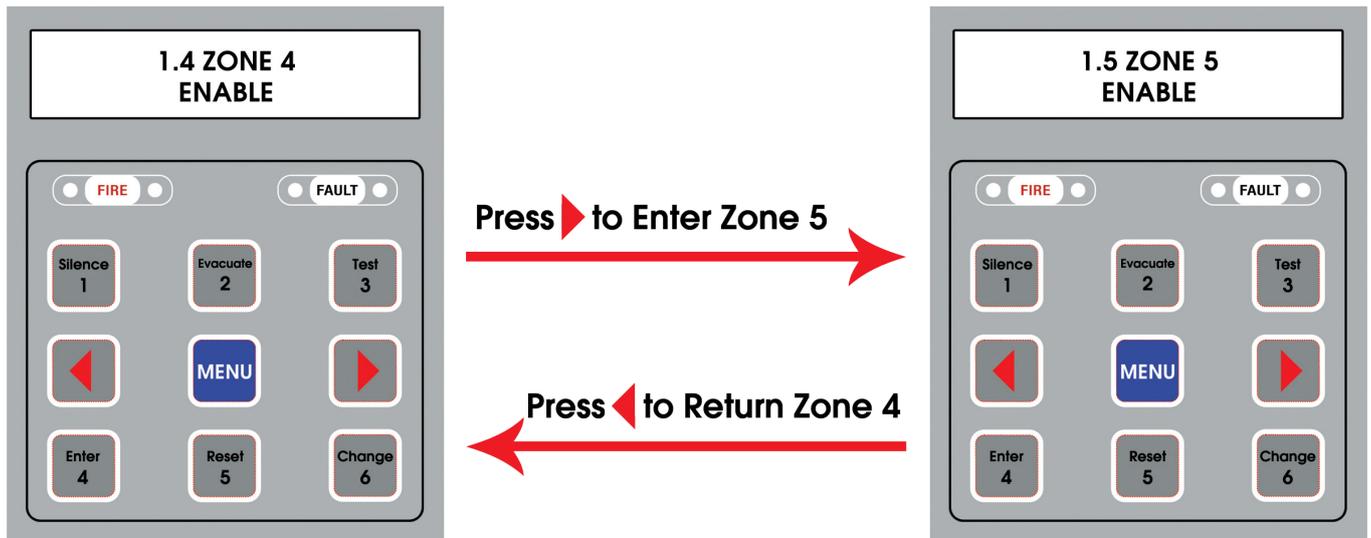
**Fig.26 Zone 4 Programming**

☞ To control enable or disable ZONE 4, The user can press 2 or 5 keys as in (Fig.26).

**NOTE**

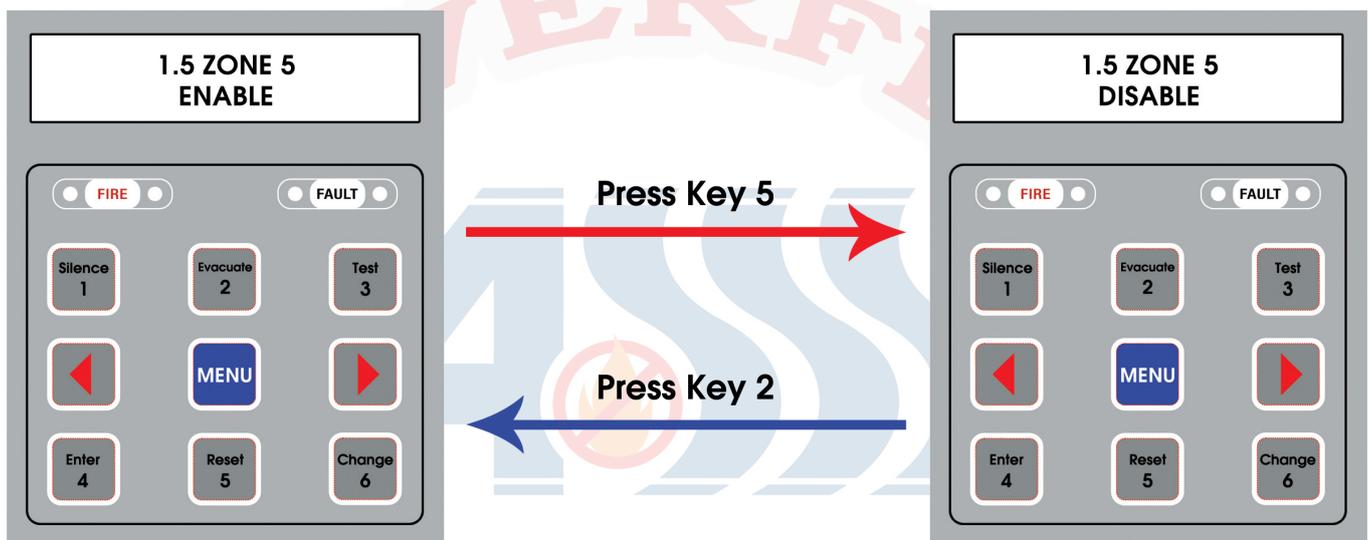
**Zone 4 Enable is the default.**

**4.1.1.5 Zone 5 Activation:**



**Fig.27 Zone 5 Activation**

☞ The user can press on left and right arrow keys for movement between zone 4 and zone 5 (Fig.27).

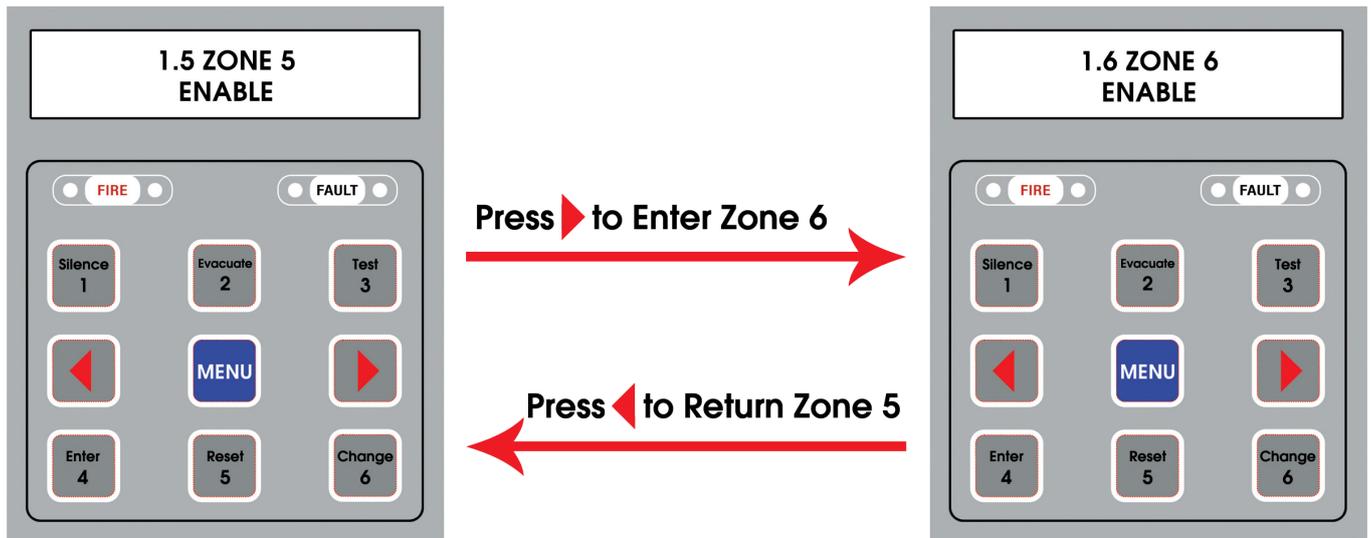


**Fig.28 Zone 5 Programming**

☞ To control enable or disable ZONE 5, The user can press 2 or 5 keys as in (Fig.28).

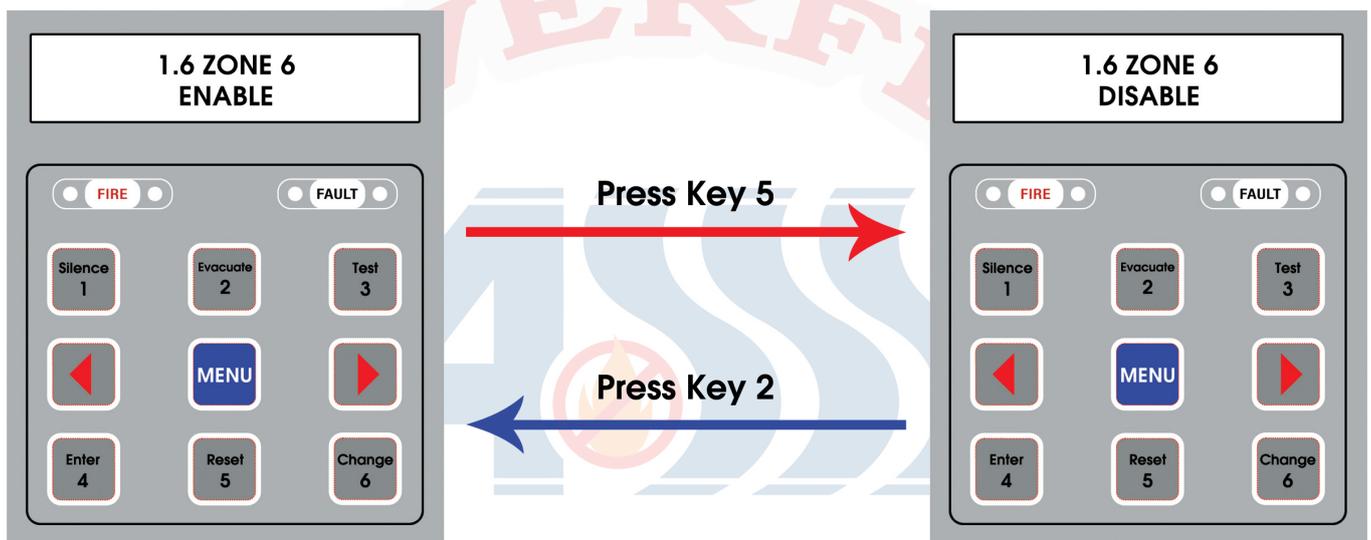
**NOTE**  
Zone 5 Enable is the default.

**4.1.1.6 Zone 6 Activation:**



**Fig.29 Zone 6 Activation**

☞ The user can press on left and right arrow keys for movement between zone 5 and zone 6 (Fig.29).

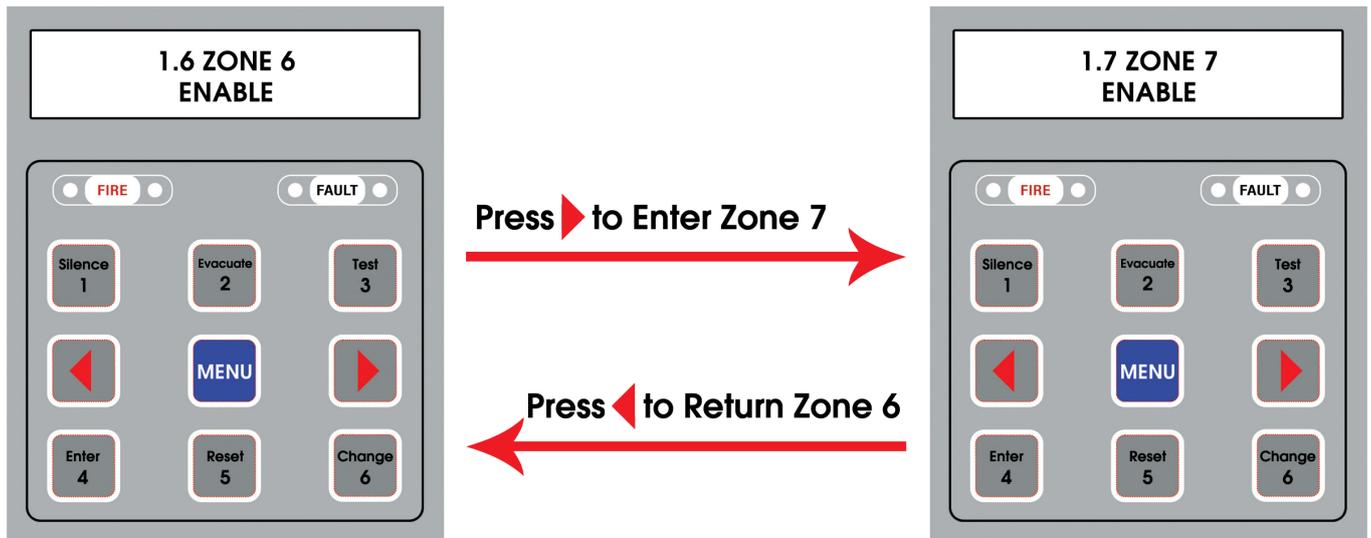


**Fig.30 Zone 6 Programming**

☞ To control enable or disable ZONE 5, The user can press 2 or 5 keys as in (Fig.30).

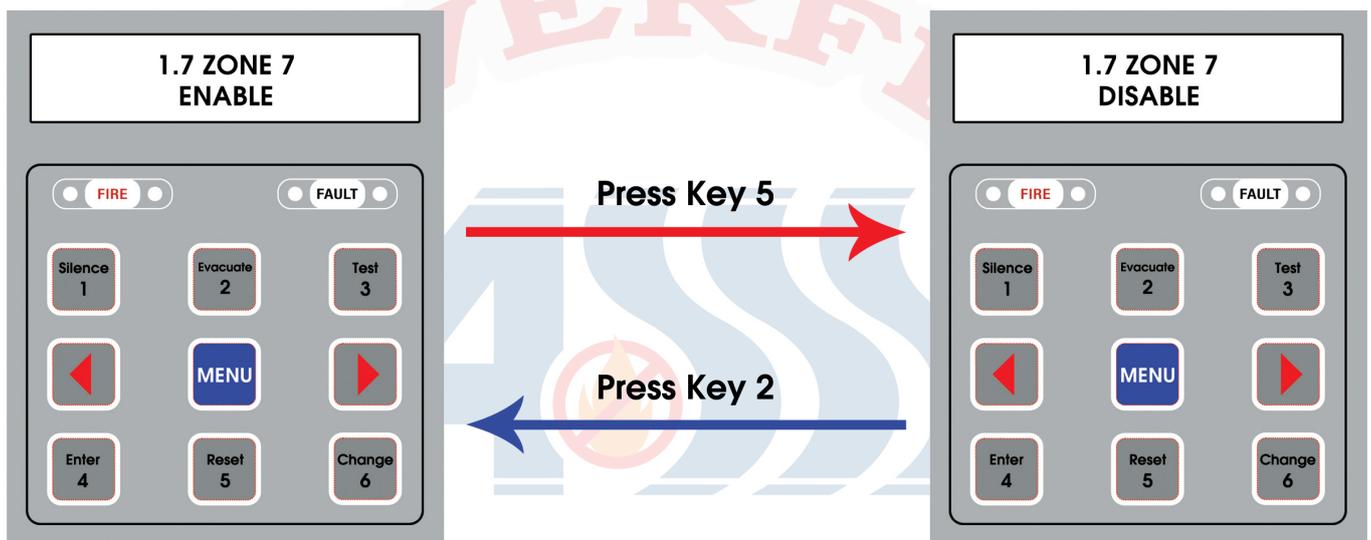
**NOTE**  
Zone 6 Enable is the default.

**4.1.1.7 Zone 7 Activation:**



**Fig.31 Zone 7 Activation**

☞ The user can press on left and right arrow keys for movement between zone 6 and zone 7 (Fig.31).

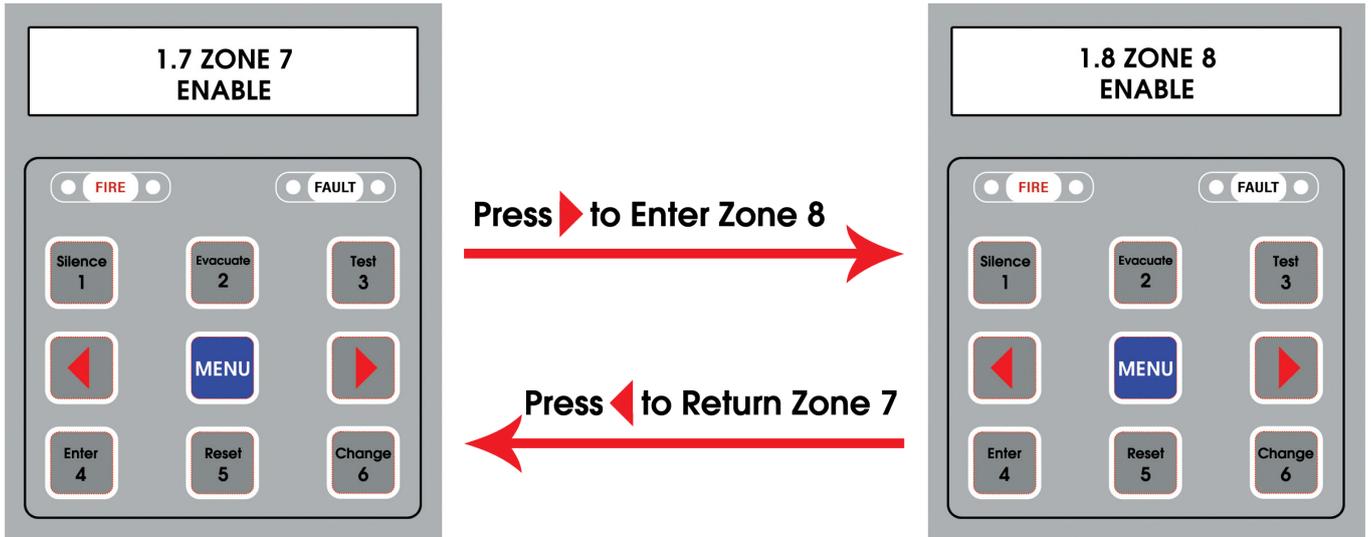


**Fig.32 Zone 7 Programming**

☞ To control enable or disable ZONE 7, The user can press 2 or 5 keys as in (Fig.32).

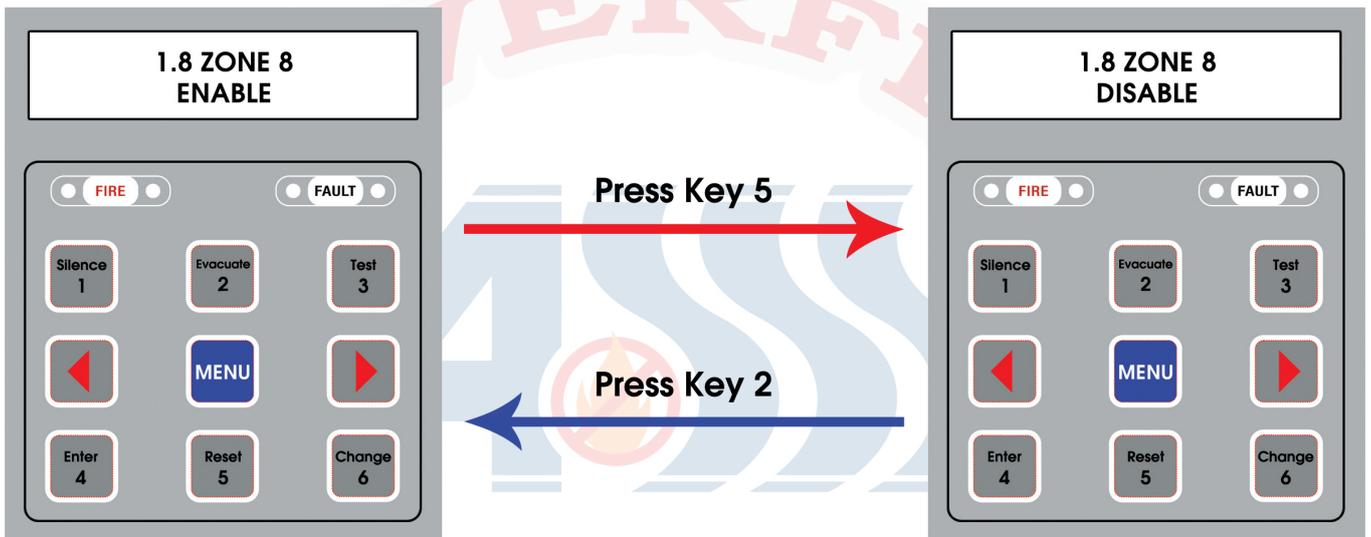
**NOTE**  
Zone 7 Enable is the default.

**4.1.1.8 Zone 8 Activation:**



**Fig.33 Zone 8 Activation**

☞ The user can press on left and right arrow keys for movement between zone 7 and zone 8 (Fig.33).



**Fig.34 Zone 8 Programming**

☞ To control enable or disable ZONE 8, The user can press 2 or 5 keys as in (Fig.34).

**NOTE**  
Zone 8 Enable is the default.

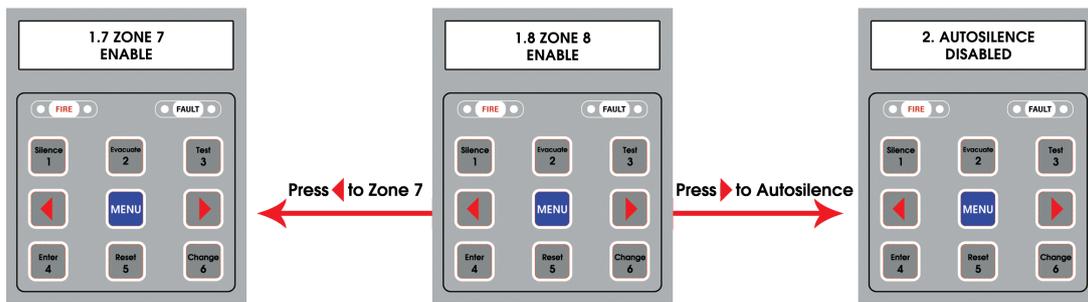


Fig.35 Zones Programming End

## 4.2 Autosilence

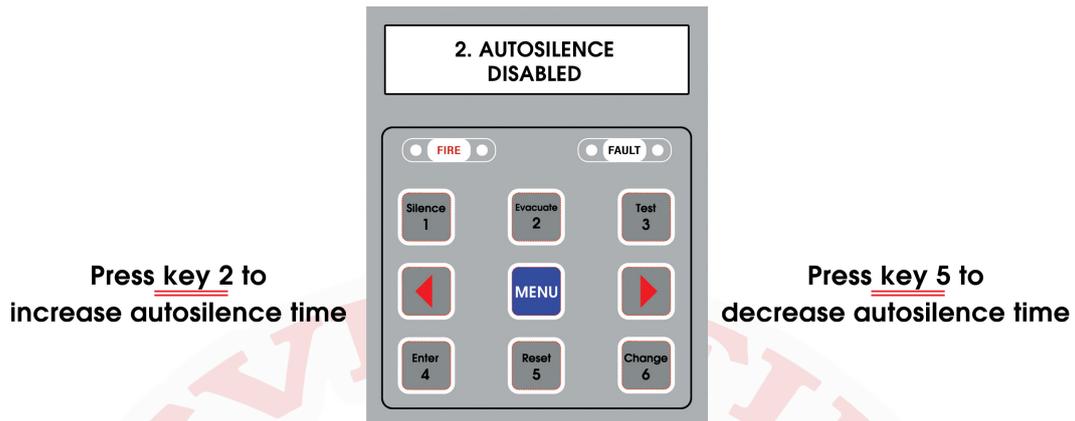


Fig.36 Autosilence Time Control

- ☞ Autosilence key is automatically silence the notification appliance circuits and buzzer.
- ☞ To increase or decrease autosilence time , the user will press 2 or 5 keys as in (Fig.36).
- ☞ The autosilence timing can be set from 0 To 300 seconds.
- ☞ When autosilence disable, the user must be press silence key to stop notifications from notification appliances & buzzers.

**NOTE**

Autosilence Disabled is the default.

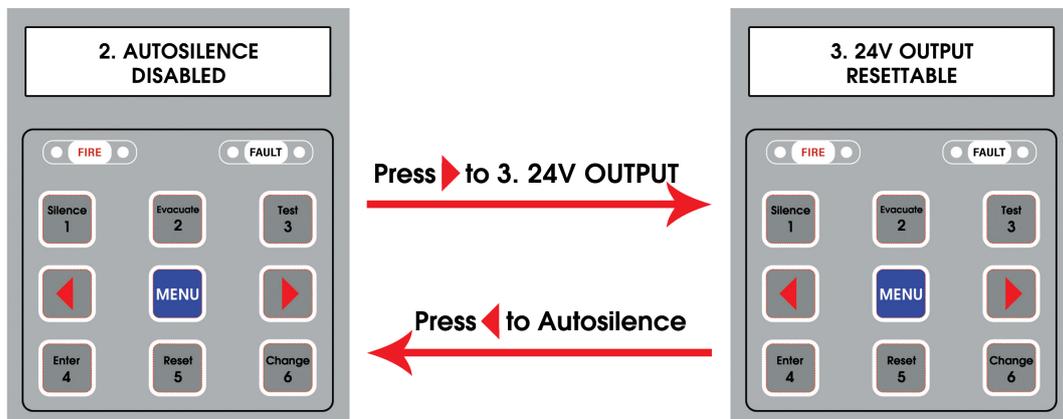


Fig.37 24V Output Activation

- ☞ The user can press on left and right arrow keys for movement between autosilence and 24V\OVP as in (Fig.37).

### 4.1.3 24V Output

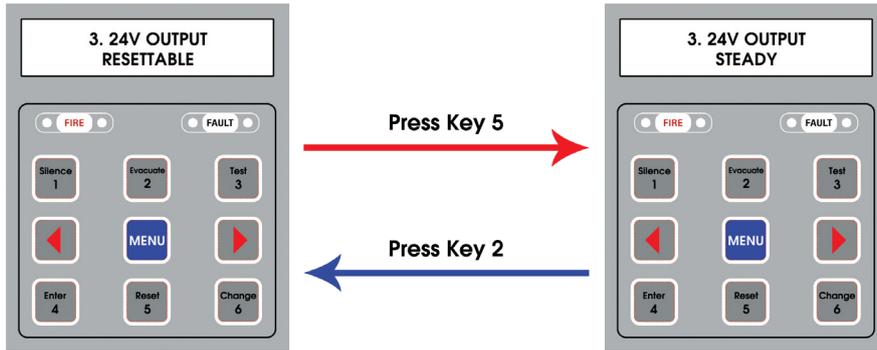


Fig.38 24V Output Programming

☞ To select Resettable and Steady options, the user will press 2 or 5 keys. as in (Fig.38).

**NOTE**  
24V Output Resettable is the default.

### 4.1.4 Factory Default

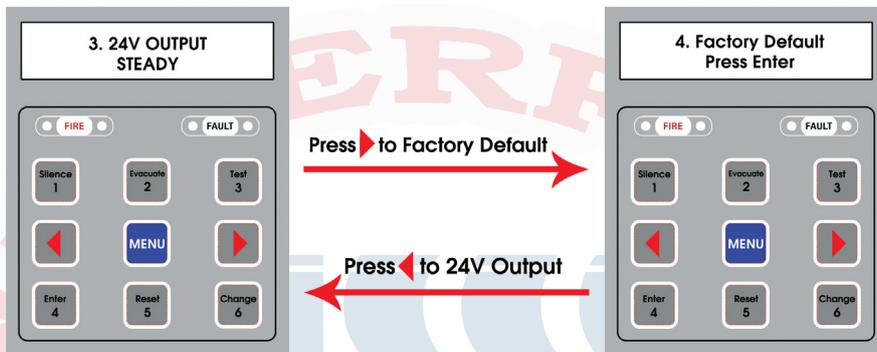


Fig.39 Factory Default

- ☞ Press Enter key to return factory default programming data.
- ☞ The user can use the left and right arrow keys for movement between 24V Output menu and factory default menu.

### 4.1.5 Model No. and Serial No.

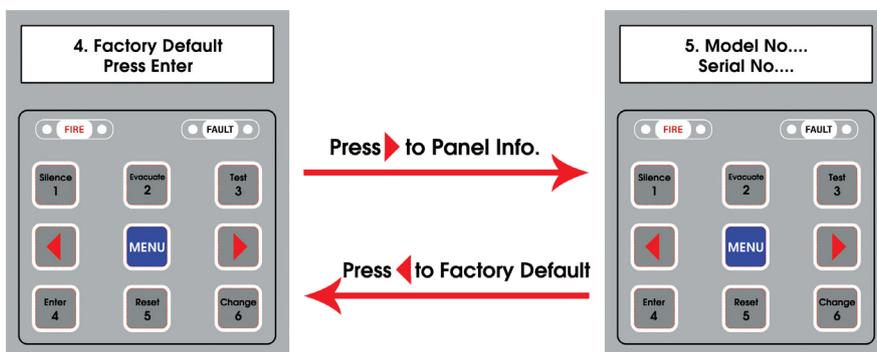


Fig.40 Info.

- ☞ The user can use the left and right arrow keys for movement between factory default menu and panel information menu.
- ☞ Press MENU key to exit programming mode.

## 4.2 Operation

### 4.2.1 Indication:

- ☼ Normal mode : Is the standard mode of operation. In this mode, the panel continuously monitors system status.
- ☼ System on : The LED will glow Green when the FACP is activated.
- ☼ General Fire : The LED will glow Red when one or more zone goes on fire condition.
- ☼ General Fault : The LED will glow Yellow when Any fault takes place on the panel.
- ☼ Zones Fault : The LED will glow Yellow when any zone open/ short.
- ☼ AC Fault : The LED will glow Yellow when the main supply fails.
- ☼ Battery Fault : The LED will glow Yellow when the backup battery voltage goes down below 21V (battery low) or the backup battery is disconnected.
- ☼ Earth Fault : The LED will glow Yellow when the Initiating Devices Circuits (IDCs) and Notification Alarm Circuits (NACs) are gets contact with the Earth or Body of the cabinet.
- ☼ System Fault : The LED will glow Yellow when CPU fails.
- ☼ Silenced : The LED will glow Yellow when the silence key is pressed in Fault or Fire conditions.
- ☼ NAC Fault : The LED will glow Yellow when NAC loop open / short.
- ☼ Charger Fault : The LED will glow Yellow when the battery charger fails.
- ☼ Zones Fire : The LED will glow Red when any zone goes fire condition.
- ☼ Zones Fault : The LED will glow Yellow when any zone open / short.

### 4.2.2 Normal Monitoring Mode:

- ☼ In Normal mode : where there is no fire or trouble conditions exist, the FACP will performs the following: -
  - All LEDs will be off except the system on LED.
  - The Notification Appliance Circuits will be off.
  - All Relays are in their normal state.
  - The onboard buzzer will be off.
  - LCD screen will be as the following: -

**NEVERFIRE  
SYSTEM NORMAL**

### 4.2.3 Fire Alarm Condition:

#### ☼ IN CASE OF FIRE:

The FACP will detect fire via the detectors / MCP & will cause the following: -

- All NACs will be Turned on.
- The General twin fire LEDs will glow.
- The buzzer will be tuned on with continuous tone.
- The fire relay will be activated.
- The corresponding zone FIRE LED will glow.

#### ☼ IN CASE OF MULTIPLE ZONES FIRE: -

- The origin zone fire LED will be glow.
- Subsequent zone fire LED will glow.
- Press right and left RED ARROWS to check the other zones fire.
- The LCD screen will be blink showing fire condition & zone number as the following.

**TOTAL FIRES: X  
FIRE AT Zone: A**

X is index to the total number of zones fire.

A is index to the zone number.

*How to deal fire condition & restoral????*



- Press **SILENCE KEY** then enter Password (default: 2222) → To stop NACs & Buzzers.
- After Solving fire reason → Press **RESET KEY** then enter password → to return normal panel condition.

**4.2.4 Fault Condition:**

☞ **IN CASE OF FAULT**, The FACP will performs the following: -

- General Fault LED will glow Yellow.
- The buzzer will be turned on with pulsed tone.
- The Fault Relay will be activated.
- Zone fault LED / NAC fault LED / AC fault LED / Battery fault / system fault LED will be turned on.
- The LCD screen will be blink showing fault type.
- According to the fault type, Its LED will be glow as the following: -

**TOTAL FAULTS: Y**  
**ZZZZZZZ**

Y is index to the total number of Faults.

ZZZZZZZ is index to the fault type.

☞ **IN CASE OF MULTIPLE FAULTS:** -

- Total number of faults will be showed on LCD screen.
- Press right and left RED ARROWS to check the other faults.

*How to deal Fault condition & restoral????*



- Press **SILENCE KEY** then enter Password (default: 2222).
- To stop buzzer (If you use auto silence Option, the buzzer will stop Automatically after the auto silence adjusted time).
- After solving fault case, the panel will be returned automatically to its normal operating condition.

**4.2.5 Evacuation:**

To Evacuate, Press evacuate key (Key No.2) then enter password (2222).

- All NACs & Buzzers should be activated as in (Fig.6).



**Fig.41 EVACUATION**

**NOTE**

To exit evacuation mode, the user press Enter key (Key No.4).

**CHAPTER 5: Trouble Shouting:**

No.	PROBLEM	RESONS	USER RESPONCE
1	- LCD And LED lights are off. - AC Fault	☞ Power not connected.	☞ Check power connections.
		☞ Power Supply doesn't work.	☞ Replace power Supply (Replace it by original one).
		☞ Main board not connected with Screen board.	☞ Check flate cable between main board and screen board.
		☞ Main PCB doesn't work.	☞ User can contact country agent.
2	Battery Fault	☞ Battery cable disconnected.	☞ Check Battery cables.
		☞ Battery Low.	☞ Check Battery charging or Replace it.
		☞ Main PCB doesn't work.	☞ User can contact country agent.
3	System Fault	☞ CPU or other electric components don't work properly.	☞ User can contact country agent.
4	Earth Fault	☞ When zone circuits or notification appliances are gets contact with earth or cabinet body.	☞ Ensure insulation of zones cable & notification appliances circuits from earth and cabinet's body.
5	Charger Fault	☞ Charger circuit fail to charge battery.	☞ User can contact country agent.
6	NAC Fault	☞ End of line resistor not connected.	☞ Connect EOL Resistor (3.9 k ohm)
		☞ NAC port short circuit.	☞ Remove any devices or damaged cables. ☞ If the Bell unpolarized, connect Diode 1A between the bell and NAC port.
		☞ NAC relays doesn't work.	☞ User can contact country agent.

**IMPORTANT NOTE**

**In addition to our distributor and agents technical support for malfunctions, NEVERFIRE® factory technical service department can support any technical inquiries.**

**CHAPTER 6: Appendixes:****6.1 Standby Battery Calculation Guide**

To calculate the total standby and alarm load in ampere hours (AH). This total load determines the battery size (in AH, required to support the control panel under the fail of the AC power supply).

To calculate the standby battery size required, the following formula can be used: -

$$\text{Standby time in Amp Hours} = 1.25 \times [(TALM \times IALM) + (TSBY \times (IQP + IQZ))]$$

The multiplier 1.25 is present to account for lost capacity over the life of the batteries.

**Where:**

**TALM**= Maximum time in hours required for the alarm [ $\frac{1}{2}$  hour is most common time].

**IALM**= Total Alarm Current in amps for all alarm devices connected to the alarm circuits.

**TSBY**= Standby time in hours for the system after mains failure [normally 24, 48 or 72 hr].

**IQP**= Quiescent current in amps of control panel in fault condition [because of mains failure].

**IQZ**= Quiescent current in amps of all detection zones. E.g. Ion detector 0.00005 Amp (50  $\mu$ A), Optical.

**Detector**= 0.0001 Amp (100  $\mu$ A).

**NOTE**

Refer electric characteristics (page.6) of the panel for Quiescent current, standby and alarm current.

**Typical Example:**

A system comprises of 25 ionization detectors, 10 bells and the required standby is 24 hours.

It will need to operate in alarm for  $\frac{1}{2}$  hour.

Calculate the battery size required.

**TALM**= 0.5 Hr

**IALM**= 10 x 0.05 =0.5A [This assumes the bell current is 50 mA.

Most alarm Devices show their operating current].

**TSBY**= 24 Hr.

**IQP**= 0.085A.

**IQZ**= 25 x 0.00005 =0.00125A [the quiescent current for an ionization detector is 50  $\mu$ A].

Therefore, using the equation:

Battery Size (Standby time in Amp Hours) = 1.25 x [(TALM x IALM) + (TSBY x (IQP + IQZ))].

Battery Size (Standby time in Amp Hours) = 1.25 x [(0.5 x 0.5) + (24 x (0.085 + 0.00125))].

Battery Size (Standby time in Amp Hours) = 1.25 x [0.25 + (24 x 0.08625)].

Battery Size (Standby time in Amp Hours) = 1.25 x [0.25 +2.07].

Battery Size (Standby time in Amp Hours) = 1.25 x 2.32

Battery Size (Standby time in Amp Hours) = 2.9 Amp Hours.

This system would require a minimum of 2.9 Ah batteries.

**NOTE**

12Ah batteries can be located in the box of NFC-508P and 5Ah ones can be located in the box of NFC-502P and NFC-504P.

## 6.2 Wire Requirements

Connecting external system accessories to the NEVERFIRE® main circuits must be carefully considered to ensure proper operation.

It is important to use the correct type of wire, wire gauge and wire run length per each NFC-500P series circuit. Reference the chart below to specify wire requirements and limitations for each PANEL.

CIRCUIT CONNECTIONS		WIRE REQUIRMENTS		
CIRCUIT TYPE	CIRCUIT FUNCTION	WIRE TYPE AND LIMITATIONS	RECOMMENDED MAX. DISTANCE Feet (meters)	WIRE GUAGE
Initiating Device Circuit	Connected to Initiating Devices	Untwisted, unshielded wire (Do not exceed 100 ohms)	10,000 (3,000 m) 8,000 (2,400 m) 4,875 (1,480 m) 3,225 (975 m)	12 AWG (3.25 mm <sup>2</sup> ) Belden 9583 WPW999 14 AWG (2.00 mm <sup>2</sup> ) Belden 9581 WPW995 16 AWG (1.30 mm <sup>2</sup> ) Belden 9575 WPW991 18 AWG (0.75 mm <sup>2</sup> ) Belden 9574 WPW975
24 VDC resettable, Non resettable	Connects to annunciators and other accessories	No more than 1.2 volt drop allowed from supply source to end of any branch	distance limitation set by 1.2 volt maximum line drop.	12 AWG (3.25 mm <sup>2</sup> ) 18 AWG (0.75 mm <sup>2</sup> )

### 6.3 Fire Alarm Log book

It is recommended that this LOG BOOK section of the Manual be maintained by the responsible person(s) on site, who should ensure every event is properly recorded (including fire alarm conditions, failures, tests, temporary disconnections, disablements, enablement, dates of installing engineers' visits together with a note of any outstanding work or panel conditions). This LOG BOOK must be available for inspection at all times. BS5839 part 1 recommends that fire alarm events should be subdivided & recorded on separate sheets in the log book.

In order to satisfy the requirements of BS5839-1 the following data must be recorded:

✿ USERNAME: .....

✿ SITE ADD.: .....

✿ SYSTEM DESIGNED BY: .....

✿ SYSTEM INSTALLED BY: .....

✿ SYSTEM COMMISSIONED BY: .....

✿ SYSTEM ACCEPTED BY: .....

✿ SYSTEM MAINTAINED BY: .....

✿ CONTRACT NO.: .....

✿ CONTRACT VALIDITY: .....

✿ NORMAL hrs. FOR SERVICE (Saturday -Thursday): .....

✿ FOR SERVICE (OTHER TIMES): .....

✿ RESPONSIBLE PERSON FOR SITE: .....

EXPENDABLE COMPONENT REPLACEMENT PERIODS (LIST):

(1)

(2)

(3)

(4)

(5)





## 6.4 Commissioning the system

- ✿ The commissioning of this fire alarm system should be performed by a qualified commissioning engineer, who has an understanding of sections 2,3,& 4 of BS5839 pt 1:2002 (i.e. Design considerations, Limitations of false alarms, Installation recommendations).
- ✿ The Earthing should be checked in accordance with BS5839 Pt1: 2002 clause 38.2 for compliance.
- ✿ The insulation of cables should be checked in accordance with BS5839 Pt1: 2002 clause 38.2 for compliance.
- ✿ The fire alarm log book contact details should be checked for completeness.
- ✿ The system set-up and programming should be checked for accuracy.
- ✿ The system wiring diagrams should be checked for accuracy & stored in a safe place, accessible to any fire officer.
- ✿ The battery voltage should be checked (should be between 24 & 27V).
- ✿ All call points & detectors can signal an alarm condition and indicate the correct zone (and text message) on the fire alarm panel.
- ✿ The Sound pressure level throughout the building should be checked for compliance with the recommendations of BS5839 Pt1: 2002 clause 16.2.
- ✿ Any deviations from BS5839 Pt1 clause 7.2 should be listed in the Certificate of Installation & Commissioning.

## 6.5 Installation and Commissioning certificates

BS5839-1 recommends that certificates be issued for all aspects of the fire alarm system including design, installation, commissioning, acceptance, verification (optional) and maintenance.

Therefore, before this user manual is handed over, the following installation certificate and commissioning certificate (overleaf) should be completed as appropriate by the relevant installation/commissioning engineer(s). also, the relevant parts of the Fire Alarm Log Book should be completed as appropriate.

### NOTE

- 1-The Certificate of Installation & Commissioning should be completed, and the whole user manual passed to the relevant person on site.  
(They should be given a brief training on the basic operation of the FACP).
- 2- For countries outside Egypt, different certification requirements may apply.

## CERTIFICATE OF INSTALLATION

NEVERFIRE® FIRE ALARM SYSTEM Installed at: -

☼ Address: .....

I/we being the complement person(s) responsible (as indicated by my/our signatures below ) for the installation of the fire alarm system, particulars of which are set out below, CERTIFY that the said installation for which I/we have been responsible complies to the best of my/our knowledge and belief with the specification described below and with the recommendations of BS58391- except the variations, if any, stated in this certificate.

☼ NAME (In block letters) : ..... ☼ Position : .....

☼ Signature : ..... ☼ Date : .....

☼ For and on behalf of : .....

☼ Address : .....

..... ☼ Postcode : .....

☼ The extend of liability of the signatory is limited to the system described below.

Extent of the installation work covered by this certificate.

.....

.....

.....

☼ Specification against which the system was installed.

.....

.....

.....

.....

☼ Variation from the specification and / or section 4 of BS58391- (Clause 7).

.....

.....

.....

.....

☼ The wiring has been tested in accordance with the recommendations of clause 38 of BS 58391-.

The test results have been recorded and provided to: .....

Unless supplied by other, the “as fitted” drawings have been supplied to the person responsible for commissioning the system (BS58391- Clause36.2m): .....

## CERTIFICATE OF COMMISSIONING

**NEVERFIRE® FIRE ALARM SYSTEM Installed at: -**

☼ **Address:** .....

I /we being the complement person(s) responsible (as indicated by my/our signatures below) for the installation of the fire alarm system, particulars of which are set out below, CERTIFY that the said installation for which I /we have been responsible complies to the best of my/our knowledge and belief with the specification described below and with the recommendations of BS5839-1 except the variations, if any, stated in this certificate.

☼ <b>NAME (In block letters)</b> : .....	☼ <b>Position</b> : .....
☼ <b>Signature</b> : .....	☼ <b>Date</b> : .....
☼ <b>For and on behalf of</b> : .....	
☼ <b>Address</b> : .....	
	☼ <b>Postcode</b> : .....

☼ **The extend of liability of the signatory is limited to the system described below.**  
**Extent of the installation work covered by this certificate.**

.....  
 .....

☼ **Specification against which the system was installed.**

.....  
 .....

☼ **Variation from the specification and /or section 4 of BS5839-1 (Clause 7).**

.....  
 .....

- ☼ All equipment operates correctly.
  - ☼ Installation work is, as far as can be reasonably ascertained, of an acceptable standard.
  - ☼ The entire system has been inspected and tested in accordance with the recommendations of BS 5839-1 C. 39.2.
  - ☼ The system performs as required by the specifications prepared by: .....
  - ☼ Taking into account the guidance contained in section 3 of BS 5839-1, I /we have not identified any obvious potential for an unacceptable rate alarm.
  - ☼ The documentation described in Clause 40 of BS 5839-1 has been provided to the user.
- << The following work should be completed Before / after (delete as applicable) the system becomes operational:
- .....  
 .....

<< The following potential cause(s) of false alarms should be considered at the time of the next service visit:

.....  
 .....

Before the system becomes operational, it should be soak tested in accordance with the recommendations of 35.2.6 of BS 5839-1 for period of ..... (enter a period of either one week , such period as required by the specification, or such period as recommended by the signatory of this certificate, whichever is the greatest, or delete if not applicable).

## **CHAPTER 7: Manufacturer Contact Details:**

### **Head Office:**

☎ No.6,163 St, Behind the Military Hospital, El Maadi, Cairo, Egypt.

### **Factory:**

☎ 16C, south Industrial Zone,10th of Ramadan City, Sharkyia, Egypt.

### **Tel. / Fax:**

☎ +2 02 25249113 / +2 02 25281778

### **For National Sales:**

☎ E-mail: [sales@asss-eg.com](mailto:sales@asss-eg.com)  
☎ Phone / WhatsApp.: +2 011 2927 7269

### **For International Sales:**

☎ E-mail: [export@asss-eg.com](mailto:export@asss-eg.com)  
☎ Phone / WhatsApp.: +2 011 5024 88 04

### **For After-sales service:**

☎ E-mail: [aftersales@asss-eg.com](mailto:aftersales@asss-eg.com)  
☎ Phone / WhatsApp.: +2 011 2927 7019

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### **Office Hours:**

☎ 9Am:5Pm Saturday to Thursday

