



CONVENTIONAL FIRE ALARM CONTROL PANEL

INSTALLATION & USER MANUAL

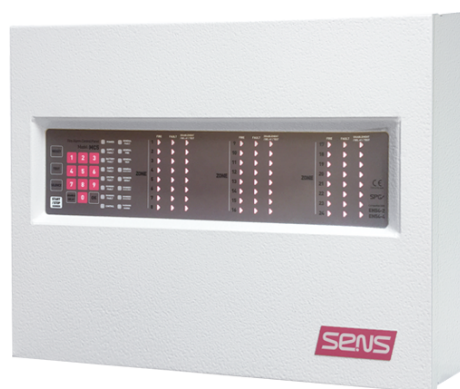
Installation and Operation Manual of MC5 Conventional Fire Alarm Control Panel

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Warning

- Before installing and using the device, carefully read this manual.
- The device's functionality should be tested after installation on-site.
- The placement of all fire alarm equipment must be done by experts and individuals familiar with the valid standards of the fire alarm system.
- For the proper functioning of the fire alarm control panel and its related parts, it is necessary to carry out the 6-month periodic services and maintenance process. If this process is not implemented by qualified individuals, no responsibility will be borne by the manufacturer.



Technical Specifications of the Device

Model	MC5
System	Conventional
Compatible with	EN 54-2,4
Battery	2 × 12V - 4.5 Ah or 7.2 Ah
Sounder	2 channel 500 mA per channel
Max. detector Per Zone	15
Fire Relay Max. Current	7A
Fault Relay Max. Current	7A
Aux. 24v Max. Current	0.5A

Introduction of the Fire Alarm Control Panel

The above figure specifies the different parts of the device panel separately. A brief description of each part is provided in the table below.

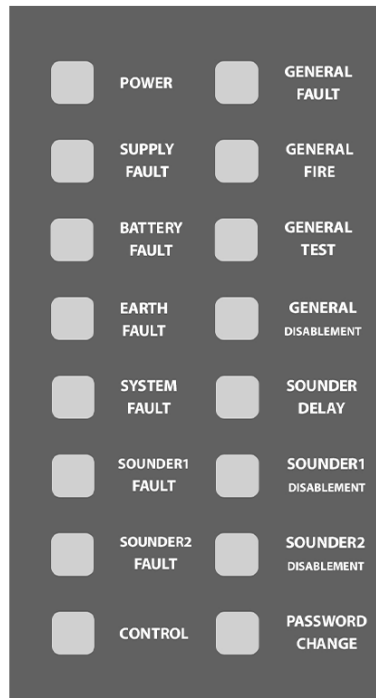
Table 1. Fire alarm control panel parts and their functions

Item	Name Of Part	Description
1	Control Keys	This part includes four push buttons for controlling the device. These buttons work when the device is at access levels 2 or 3.
2	Numerical Settings Key	These keys can be used to enter access-level passwords and apply settings to the device
3	System Status Indicator	This part includes indicators such as the device power supply, main power, battery, sounder, etc.
4	Zone Status Indicator	This part includes indicators for fire, fault, and zone deactivation.

Control Keys

Name of Control Key	Description
Reset	This key is used to restart Zones at the level 2 or 3
Test	<ul style="list-style-type: none"> - By pressing this key at level 1, all the indicators and the buzzer will turn on for 4 seconds and then they will turn off. - Pressing this test key at level 2 takes the panel to the engineering test mode
Silence	By pressing this key in access levels 2 and 3, the buzzer sound of the device will be muted.
Start/Stop Sounder	<ul style="list-style-type: none"> - This key is used to notify or clear the alarm in access levels 2 and 3. - This key overrides the delay set for the sounders at level 1.

System Status Indicator



Power: When the device is powered on, this green indicator lights up constantly.

Supply Fault: In case of a power outage, it will flash, and if there is a malfunction, it will remain it continuously.

Battery Fault: If there is no battery or the fuse is burnt, it will flash, and if the battery is depleted, it will remain light up continuously.

Earth Fault: It will flash in case of a connection between the earth and the zones or sounder channels as well as current leakage.

System Fault: In case of a problem with the system's processor, it will flash, and if the processor is damaged, it will remain light up continuously. The device will remain in this state until manually reset.

Sounder 1 & 2 Fault: If there is a short circuit in the sounder channel, it will flash, and if the connection is open, it will remain light up continuously.

Control: This indicator lights up steadily at access level 2 and flashes at access level 3.

General Fault: In the presence of a any fault in panel, it will flash until the error is resolved or the device is reset.

General Fire: If there is a fire in the zone circuit, it will flash, and it will remain in this state until the panel is reset.

General Test: It will flash if engineering test mode is on and will remain in this state until exiting this mode.

General Disablement: It will flash if the deactivation mode is on and will light up if the zone or sounder is selected. Also, it will be turned off if none of them is disabled.

Sounder Delay: When the delay mode is on, this indicator will flash. If a delay time is set, it will remain continuously light up, and if no delay time is set, it will turn off.

Sounder 1 & 2 Disablement: It will flash if the sounder channel is selected for deactivation, and it will remain light up constantly if deactivation is applied.

Password Change: The indicator flashes in the password change mode and lights up steadily after the change is applied.

Numerical Setting Keys

Access Level	Type of Operator	Description
1	General	Testing the indicators of the panel, and the buzzer and deactivate delay of the sounder (if the delay mode is activated).
2	System Manager	Sounders activation/deactivation, muting the buzzer, panel reset, activation/deactivation of the zones, sounders, and zone test mode.
3	Engineers and Installers	Delay setting, sounder activation/deactivation, muting the buzzer, panel reset

Access Level 1

Access level 1 is activated by default when the panel is turned on. In this level, all the push buttons are deactivated, and the “Control” indicator is off.

Access Level 2

To enter access level 2:

- Press the OK button.
- Enter the level 2 password, The pre-defined factory password is 2222.
- Press the OK button again. Level 2 will be activated, and the "Control" indicator will light up constantly.
- The access level can be used according to the second row of the above table.
- Press the OK button three times to exit this level.

Access Level 3

To enter access level 3

- Press the OK button.
- Enter the level 3 password, The pre-defined factory password is 3333.
- Press the OK button again. The control indicator from the set of indicators will light up.
- The access level can be used according to the third row of the above table.
- Press the OK button three times to exit this level.

Activation and Deactivation of Zones and Alarm Channels

In the default state and after turning on the device, the zone and alarm channel keys are active. To disable them, proceed as follows:

1. Enter access level 2.
2. Press the DISABLE / DELAY button. The "General Disablement" indicator will start flashing.
3. Enter the corresponding zone number from 1 to 24 or the alarm channel number from 25 to 26.
4. Press the OK button. The LED corresponds to the desired alarm channel zone or will flash from the "DISABLEMENT / DELAY/ TEST" column. Repeat rows 3 and 4 to add more zones or alarm channels.

5. To apply the selected alarm channel or zone, and exit the “Disable” mode, press the “DISABLE / DELAY” key.

- To activate or remove zones or alarm channels, repeat the above steps.
- Disabled channels will not be activated by turning the device on and off. The activation must be done by the user.

Zone Testing

In this case, when the selected zone is adjusted in the test mode and the zone is stimulated and goes to the fire mode, the alarm will be activated and deactivated every 5 seconds, alternating between ON and OFF, as long as the zone is in fire mode.

1. Enter access level 2.
2. Press the “Test” key. The “General Test” indicator will start flashing.
3. Enter the desired zone number from 1 to 24.
4. Press the OK key. The desired LED from the DISABLEMENT / DELAY/ TEST indicator column will start to flash.

Now, with the selected zone in fire mode, the alarm will follow the above description, with a 5-second ON and 5-second OFF cycle.

To exit this mode, press the “Test key”.

Note: This test mode does not affect the operation of other unselected zones.

Alarm Activation Delay

This mode allows the system operator to enter a delay of 1 to 8 minutes for the activation of the sounder when the device is notified of a fire. This option is not available for zones 1, 5, 9, 13, 17, and 21. To access this mode, follow these steps:

1. Enter access level 3.
2. Press the DISPLAY / DELAY button. The SOUNDER DELAY indicator will start flashing.

3. Enter a number between 1 and 8 using the numeric keypad.
4. Press the OK button. The LED corresponding to the delay time of the DISABLEMENT / DELAY/ TESTcolumn indicators will flash.
5. Press the DISPLAY / DELAY key to apply the delay and exit the delay setting menu.

Note: Repeat the above steps to remove the delay.

Note: If you enter a delay between 1 and 8 minutes and exit the delay mode, the SOUNDER DELAY indicator will remain continuously lit.

Changing Password

First, enter the desired access level (the level you want to change the password for). Re-enter the old password and press the OK button. In this case. The PASS CHANGE indicator will start flashing. Now enter the new password as a four-digit number and press the OK button. In this case, the PASS CHANGE indicator will stay on constantly. Press the OK button three times to exit the password change mode.

Zone Status Indicator

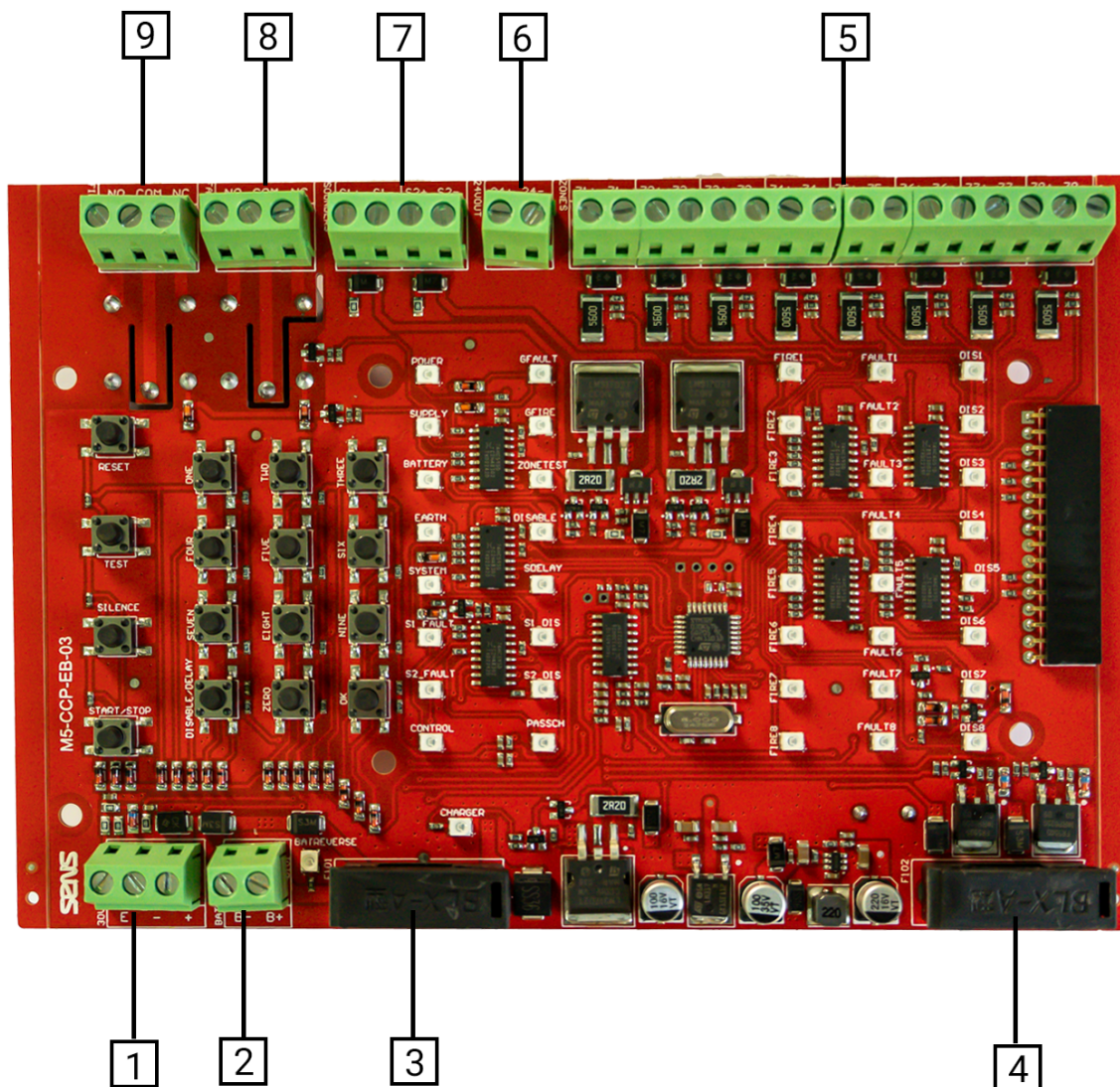
Indication	Description
Flashing Yellow Light	A flashing yellow light in the fault column means a short circuit fault in the zone circuit.
Constant Yellow Light	A constant yellow light in the fault column means an open circuit fault or broken connection in the zone circuit
Flashing Red Light	A flashing red light in the fire column means the alarm mode (fire) is on and the sirens are active.
Constant Red Light	A constant red light in the fire column means the alarm mode (fire) is on and the sirens are off.
DISABLEMENT / DELAY/ TEST column	It is used to display the status of the zones in test, deactivation, alarm and delay modes and is explained in the relevant sections.

Internal Boards of MC5 Fire Alarm Control Center

The MC5 fire alarm control center includes two internal boards called the mainboard and expansion board.

Mainboard

An overview of the mainboard and its different parts are shown in the below figure.



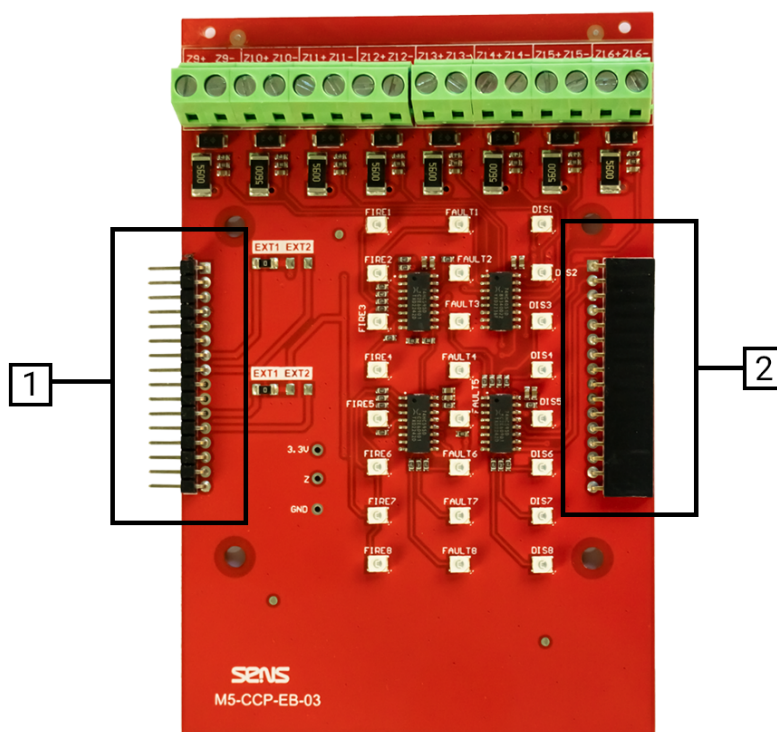
Mainboard

1. Main power input terminal (power switching output)
2. Battery terminal
3. Battery fuse (3A)
4. 24V AUX output fuse (0.5A)
5. Zone terminals
6. 24V AUX terminal
7. Sounder terminals
8. Fault relay terminal
9. Fire relay terminal

Expansion board

An overview of the extension board is shown in the below figure.

1 and 2) Expansion board connectors



The maximum number of components of the fire alarm system that can be installed on the MC5 fire alarm center is as described in the below table:

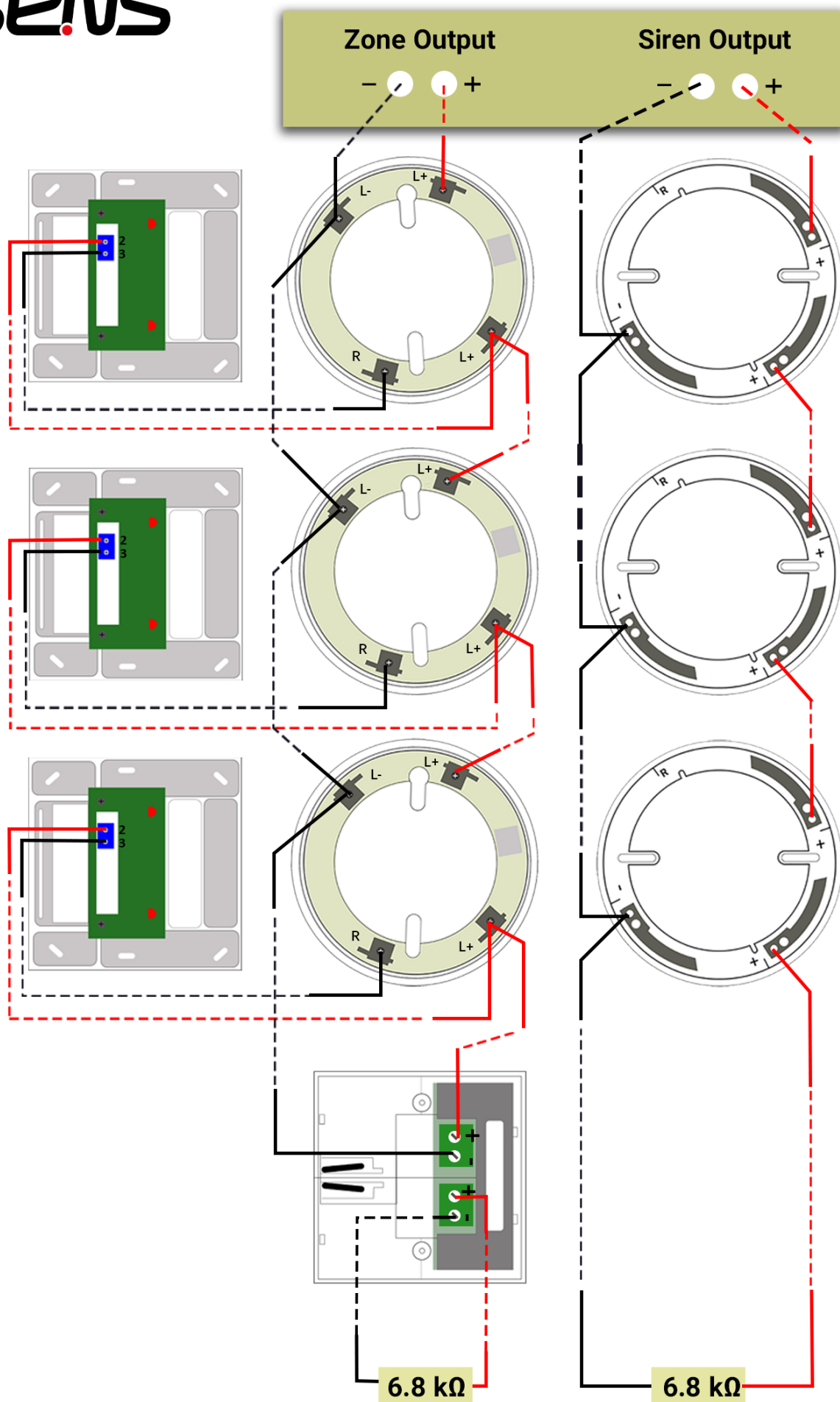
Name	Maximum Allowed Number
Detectors and call points	15 per each zone
24V gas or thermal gas detector	20 per each device
Sounder and sounder-flasher	20 per each sounder output

Installation of Fire Alarm Control Center

The fire alarm control panel must be installed according to national standards.

Fire Alarm System Circuit Diagram

A connection diagram between the components of the fire alarm devices and the fire alarm control panel is shown in the figure below:

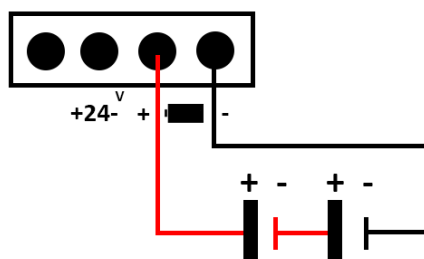


Battery Wiring

To achieve the correct wiring, follow these steps carefully:

1. Connect the short red wire from the positive terminal (red) of one battery to the black terminal of the other battery.
2. Use the long red wire to connect the positive terminal of the second battery to the positive input on the power supply board.
3. Use the black wire to connect the negative terminal of the first battery to the negative input on the power supply board.

battery wiring is shown in the figure below.



Installation Tips

- For devices with 2 to 12 zone, use two 12V batteries with a minimum capacity of 4.5 amp/hours and for 12 to 24, use a minimum capacity of 7 amp-hours connected in series.
- If the batteries are defective, the Battery Fault indicator will light up constantly. In the event of a battery circuit interruption or fuse failure, the Battery Error Indicator will blink.
- During installation and initial testing, make sure to test the device with fully charged batteries.

Device Testing

The central device should be tested before connecting it to system. First, make sure that the line-end resistors are in place on the terminals. In this state, do not connect any wires except the 220V input wires. Place two 12-volt 4.5 amp-hour or 7-amp-hour batteries at the bedside of the box and connect them in series using the connecting wire. Connect the batteries to the main device board according to “battery wiring” section in this user manual. After turning on the device, if there are no faults, it will operate normally, and the green light of the Power will remain steadily light up, indicating access to level 1. Pressing the test button will turn on the indicator lights and internal buzzer for 3 seconds and then turn them off.

Power Supply Testing

When the device is in normal operation mode, disconnect the 220-volt power supply. After a few seconds, the “Supply Fault” LED light will blink, and the buzzer will sound. Press the “| Silence” button to mute the buzzer, but the “Power” button light will continue to blink.

Reconnect the 220V power to the device to return it to its normal state. Disconnect the battery. The Battery fault light will flash, and the internal buzzer will sound. Reconnect the battery. The device will return to its normal state. As a result, only the green power light will remain on.

Zone Circuits Testing

First, make sure that end-of-line resistors with blue, gray, red, and gold/silver color codes (6.8 K Ω) are connected between each pair of zone terminals. The zone circuit has 4 modes which are specified in the below table:

Indicator	Description
Normal Mode	In this case, the yellow and red fault and fire lights and the internal buzzer sound are off.
Open Circuit Fault	The zone circuit is disconnected at some point. In this case, the zone's yellow fault light and buzzer are constantly on.
Short Circuit Fault	A short circuit fault has occurred at some point in the circuit. In this case, the yellow zone fault light will flash, and the internal buzzer will sound.
Fire Alarm State	When one of the devices connected to the zone is activated, the device goes into alarm mode. When this condition occurs, the red light will flash, and the sirens connected to the device will sound. By entering the password of the access level, you can enter the settings and turn off the sound of the buzzer and siren or reset the device.

Sounder Line Testing

First, make sure that end-of-line resistors (6.8 K Ω) are connected between each pair of sounder terminals.

The sounder circuit modes are classified into three normal, open circuit and short circuit states and the explanation of each of them is specified in the below table.

Name of Indicator	Description
Normal Mode	All fault LEDs and the internal buzzer are off.
Open Circuit Fault	The sounder circuit is disconnected at some point. The yellow fault light and buzzer are constantly on.
Short Circuit Fault	A short circuit fault has occurred in some point of the circuit. The yellow fault light is flashing, and the internal buzzer is on.

Consideration

1. If one of the zones is in the alert state, and the sounders are manually turned off, the Fire light will be on, and the internal buzzer of the device will be turned off.
2. By pressing the START / STOP SOUNDER button, the fire relay will be activated, and the sounders will sound.

Troubleshooting

Warning: The fire alarm control panel's troubleshooting must be done by the authorized technicians of SENS Company.

Maintenance and Inspection of the Fire Alarm System

fire alarm systems should be inspected periodically.

Daily Inspection

Fire alarm systems should be visually inspected daily to check the indicators and displays for any occurrences.

Weekly Inspection

- According to the user manual, the test and engineering options should be performed, and the relevant tests for the panel, sensors, and indicators should be performed to ensure their proper functionality.
- Call points should be checked during working hours. This shall be done every week at a specific time and the residents shall be informed to report any weaknesses in signal audibility. One item shall be tested every week periodically.
- The duration of each activated fire alarm signal should not normally exceed one minute.

Monthly Inspection

In monthly inspections, in addition to performing the weekly tests, the backup power supply should be operated under load for at least one hour by simulating the interruption of the main power supply, and the operation of the indicators in this condition should be checked.

Quarterly Inspection

- In the quarterly inspection, in addition to the previous tests, Pay attention to panel events.
- False alarms shall be investigated, and necessary actions shall be taken for them.
- The operation of the panel should be checked based on the activation of at least one detector or fire alarm on the circuit.
- All auxiliary functions of the panel shall be checked.
- The errors shall be simulated to check the performance of the panel against them and their resolution.
- The fire shall be simulated to check the performance of the panel.

Annual Inspection

- In the annual inspection, all detectors should be checked for visible damage and performance.
- All call points should be activated, and their performance shall be checked.
- All smoke, heat, and multi-sensor detectors should be tested with fire simulation to verify the functionality of the detectors and fire notification in the panel.
- Visual fire alarms indicators should be checked for visibility and cleanliness of lenses.
- Audible fire alarms should be checked for sound quality and detectability by residents.
- Cables and wiring should be checked for their appearance.
- The capacity of the backup power sources should be reviewed to ensure whether they are suitable for continued service or not. Additionally, the battery's production and expiration date should be checked, and if necessary, replaced.

Servicing the Equipment:

Inspection and servicing of fire alarm devices, play a crucial role in the proper functioning of fire alarm systems. Therefore, it is recommended that this task be performed by trained technicians and approved by the SENS Company.