Agent Release Control Panel
(Protective premises Unit)

Installation, Commissioning & Operating
User Manual
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. The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premise following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer'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 or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, or chimneys may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets.
- 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 photoelectronic 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.).

While a fire alarm system may lower insurance rates, it is not a substitute for fire insurance!

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.

**IMPORTANT! 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.**

**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.

Please note that:

- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond or comprehend the meaning of the signal. It is the property owner's responsibility to conduct fire drills and other training exercise to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

**A fire alarm system** will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

**Equipment used in the system** may not be technically compatible with the control. It is essential to use only equipment listed for service with your control panel.
The most common cause of fire alarm malfunction is inadequate maintenance. To keep the entire fire alarm system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled monthly or as required by National and/or local fire codes and should be performed by authorized professional fire alarm installers only. Adequate written records of all inspections should be kept.

NFPA Standards
This control panel complies with the following NFPA standards:
• NFPA 12 - CO2 Extinguishing Systems (High Pressure Only)
• NFPA 12A - Halon 1301 Extinguishing Systems
• NFPA 2001 - Clean Agent Fire Extinguishing Systems
Underwriters Laboratories Documents
• UL 38 - Manually Actuated Signaling Boxes
• UL 217 - Smoke Detectors, Single and Multiple Station
• UL 228 - Door Closers - Holders for Fire Alarm Systems
• UL 268 - Smoke Detectors for Fire Alarm Systems
• UL 268A - Smoke Detectors for Duct Applications
• UL 346 - Waterflow Indicators for Fire Protective Signaling Systems
• UL 464 - Audible Signaling Appliances
• UL 521 - Heat Detectors for Fire Protective Signaling Systems
• UL 864 - Standard for Control Units for Fire Alarm Systems
• UL 1481 - Power Supplies for Fire Protective Signaling Systems
• UL 1638 - Visual Signaling Appliances
• UL 1971 - Signaling Devices for the Hearing Impaired
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Chapter 1: Introduction

The RE – 25AR Agent Release Control Panel performs the functions of fire suppression in a wide variety of applications. It can be used as single – hazard or dual – hazard application with or without Pre-Releasing (cross-zoning).

This manual is intended as a complete guide to the Agent Release Control Panels. This manual provides complete information on installation, commissioning, Operating Instructions, programming guide, service, and maintenance procedures with full technical details.

1.1 System Design and Planning

It is assumed that the system, of which this control panel is a part, has been designed by a competent fire alarm system designer in accordance with the requirements of NFPA – 72 and any other local codes of practice that are applicable. The design drawings should clearly show the positions of the field devices and the control equipment.

1.2 General

The panel is self-contained with integral power supply and space provision for two sealed lead-acid standby batteries and complies with the requirements of NFPA – 72. The panel’s functions are microprocessor controlled and test and disable functions are included. The panel can accept, per zone, automatic detectors with a total maximum loading of 2mA quiescent current rating (refer to chapter 2.2), and an unlimited number of manual call points. The panel includes common alarm, supervisory, and trouble relays. It supports auxiliary relays and the auxiliary relays are based on a hazard area status. The RE – 25AR allowing for flexibility in most single and dual hazard application for both deluge and agent releasing applications.

Installation

The panel is easy to install and operate. Control functions Programming functions are enabled by using password. The panel fascia is retained by tamper-proof screws.

1.3 Fire Alarm Procedures

In accordance with NFPA – 72, written procedures should be laid down for dealing with alarms of fire, fault warnings, and the isolation of any part of the system. The responsible person should ensure that users of the system are instructed in its proper use and are familiar with the procedures.

On hearing the fire alarm:
CARRY OUT THE PRESCRIBED PROCEDURE Subsequent actions will depend on the circumstances, and may include silencing the audible alarms and resetting the system, as described later.

To Evacuate the premises during a Fire Drill:
To operate NAC’s without Fire / Gas Release function, Press the Evacuate key and enter the password to OPERATE NAC’s (Sounders).

Fault Indication:
If the control panel indicates a Fault condition, make a note of all illuminated indicators and proceed as described in chapter 6 (Section 6.5) or call service engineer.

1.4 User Responsibility

In addition to the routine testing described on routine test, the user has a responsibility for ensuring 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.

1.5 Routine Testing

In order to ensure that the system is fully operational, and to comply with the requirements of UL864 Standard & NFPA – 72, the following routine attention is recommended:

Daily - 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.
Weekly - 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.
Quarterly - 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, Indications etc. Carry out a visual inspection of the installation to check for alterations or obstructions and issue a certificate of testing.
Annually - 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 fittings and equipment.

Note: The control panel cabinet should be cleaned periodically by wiping with a soft, damp cloth. Do not use any solvents.
Chapter 2: Product Description

The RE – 25AR Agent Release Control Panel performs the functions of fire suppression in a wide variety of applications. It can be used as single – hazard or dual – hazard application with or without Pre-Releasing (cross-zoning). The panel includes common alarm, supervisory, and trouble relays. The auxiliary relays are based on a hazard area status. The RE – 25AR allowing for flexibility in most single and dual hazard application for both deluge and agent releasing applications.
### 2.1 Product Feature

- 4 Class B initiating device circuit (IDC).
  - All zones accept smoke detectors and any normally open contact device.
  - Any Zone can be configured as alarm (fire) or supervisory Zone.
- 2 Class B Releasing Agent Circuits (RAC).
- 2 Class B Notification Appliance Circuits (NAC).
- Rugged CRCA sheet with powder coated finish.
- Operates on 120 - 220v 60 / 50 Hz, AC Mains power supply.
- Standby (battery) backup 24v DC power supply with built in charger
- 16x2 Dot Matrix LCD Display.
- Error free Fire / Fault status in unambiguous colored LED indication.
- System ON indication.
- Main, Standby status audible and visual indication.
- Battery Low visual warning with audible tone.
- 3 Form–C programmable relays for fault / supervisory / Fire / Pre-Release/ Released.
- Programmable 24v D.C. Outputs.
- Programmable Mode (Auto/Manual) Selection
- Programmable RACs.
- Lamp Test facility.
- Walk Test facility.
- Zone Isolation facility with loop voltage cut off.
- Earth fault annunciation facility at 0 ohms.
- All field wiring circuits are Power limited except 120 / 220v AC and Battery.
- All field wiring circuits are supervised.
- AC Low voltage cutoff.
- Programmable NAC’s.
- Programmable IDC’s.
- Programmable Supervisory Mode.
- Programmable AC loss delay.
- Programmable Trouble reminder facility.
Figure – 1
2.2 Specification

Primary Power (RE-SMPS-4A-R1)

120 - 220VAC + 10% -15%, 60 / 50 Hz, 2.5Amps.

Standby Power

24v D.C (2 Nos of 12v, 12Ah Sealed Lead acid battery).

Operating Condition

Operating Temperature – 0 - 49° C / 32 - 120° F.
Relative Humidity – 93 ± 2% RH (non-condensing) at 32 ±2° C/95 ±3°F.

Charging Circuit

Charging Voltage – 28V, ±0.5V
Charging Current – 800mA (Max.).

Initiating Device Circuits - CN11

All zones are Class B Style B/C operation (Programmable).
Normal Operating Voltage: 14 - 21 VDC.
Alarm Current: 15 – 30mA.
Short Circuit Current: 45mA Maximum.
Loop resistance: 100 ohms Maximum.
End-Of-Line Resistor: 3K9, 1/2watt
Standby Current: 7mA (2mA for Detectors)

Note: For compatible devices refer Chapter 9(CD 01).

Notification Appliance Circuits – CN 7 & 8

Class – B Style - Y wiring
Operating Nominal Voltage: 24VDC – Special Application
Current for all NACs: 1Amps (0.5A per circuit)
Current Limit: via Thermal Fuse
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

Note: For compatible devices refer Chapter 9(CD 01).
Releasing Appliance Circuits – CN 13 & 14

Class – B Style - Y wiring
Operating Nominal Voltage: 24VDC – Special Application
Current for all RACs: 1.2Amps (0.6A per circuit)
Current Limit: via Thermal Fuse
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

Common Three Form – C Relays – CN4, CN5, CN6

Relay Contact Rating: 2Amps @ 30 VDC, 0.5Amps @ 125VAC.
Power Factor: 1.0

Programmable Input circuits

No. of Inputs: 4
Normal Operating Voltage: 8 - 12 VDC.
Short Circuit Current: 5mA Maximum.
Loop resistance: 100 ohms Maximum.
End-Of-Line Resistor: 3K9, 1/2watt
Standby Current: 2.5mA
Maximum Manual Release Switch: 3 No's.
2.3 Control and Indication

### 2.3.1 Controls:

**ACK Key:**
- To mute local buzzer in alarm condition.
- To mute local buzzer in Supervisory or fault condition.
- User or Admin password protected.

**SILENCE Key:**
- To silence the external NACs in Fire Condition.
- User or Admin password protected.

**RESET Key:**
- To reset the particular zones in Fire alarm or Latched Supervisory condition.
- User or Admin password protected.
- Possible to access only after silence in alarm condition.

**DRILL:**
- To activate External NACs Manually.
- User or Admin password protected.
CURSOR KEYS:
✓ To move the cursor point in the LCD as required and increase and decrease the values.

ENTER Key:
✓ To accept the programmed or edited menu, mode or value in the LCD.

MENU Key:
✓ To enter into the Main Menu in the LCD.

ESC:
✓ To go back to the previous screen or erase the password entered.

2.3.2. Indications:
2.3.2.1 LED indication
System On – Green
Fire – Red
Fault – Yellow
Supervisory – Yellow
Mains Fail – Yellow
Battery Fail – Yellow
Earth Fault – Yellow
System Fault – Yellow
Disable – Yellow
DC O/P Fault – Yellow
Manual Mode – Yellow
Silenced – Yellow
NAC Fault – Yellow
Walk Test – Yellow
RAC Fault – Yellow
Pre Release – Green
Pressure Fault – Yellow
Remote Release – Red
Abort – Yellow
Released – Red
Zone Fire – Red
Zone Supervisory – Yellow
Zone Fault – Yellow

2.3.2.2 LCD Indication

The LCD is mainly used for the programming of the panel. It also indicates all events along with the LED indications except system on and system fault.

2.3.2.3 Local Buzzer

A piezo buzzer provides separate and distinct sounds for alarm, trouble and supervisory conditions:

- Alarm – Continuous
- Fault – pulse 0.5sec ON and 5sec OFF
- Supervisory – pulse 0.25sec ON and 0.25sec OFF
- Abort – pulse 0.100 sec ON and 0.100 sec OFF

2.4 Mechanical Construction

The enclosure of the Panel is constructed by 18 gauge (1.22mm) CRCA sheet with powder-coated finish. The Ø22.25mm (Ø19mm [11No’s] for Indian Std.) 10no’s of knockouts are given for cable entry at the top of the cabinet. The lockable hinged door is provided to access the inside the cabinet. The panel also has sufficient space to accommodate 2 Nos. of 12v, 12Ah batteries.
2.5 Internal Arrangement
2.6 Components

Master Board (RE – 25AR – MB – R1)

The Zone board contains the primary components and wiring interface connectors.

Display Board (RE – 25AR – DISP-R1)

The Display Board contains the system CPU, LED Display, LCD unit and Control keys.
Power Supply (RE – SMPS – 4A – R1)

This Power supply gives the 30V DC output for the Zone Board. This board is SMPS type, it gives the output for 2.7 Amps Max.

Cabinet

The Cabinet measures 440mm width X 340mm Height X 120mm Depth and space is provided for 2 x 12 Volt 12Ah Batteries, main circuit board and display board.
Chapter 3: Installation
3.1 Installation Precaution

Installation Precautions

**WARNING** - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until this manual is read and understood.

**CAUTION** - System Reacceptance Test after Software Changes. To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for indoor dry operation at 0-49° C/32-120° F and at a relative humidity of 93 ±2% RH (non-condensing) at 32 ±2° C/95 ±3° F. However, the useful life of the system’s standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15-25° C/60-77° F.

Verify that wire sizes are adequate for all IDC’s loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

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

Like all solid-state electronic devices, this system may operate erratically or can be damaged when subjected to lightning-induced transients. Although no system is completely immune from lightning transients and interferences, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.
Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, and printed circuit board location.

Do not tighten screw terminals more than 1.0168 N-m. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

Though designed to last many years, system components can fail at any time. This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static-suppressive packaging to protect electronic assemblies removed from the unit.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation by authorized personnel.

### 3.2 Mounting Details

![Diagram of mounting details](image-url)
Remove all the Boards before placing the panel in its mounting position. 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. Fix the all boards in its position (Refer Figure 25, 26 & 27). All external cables are to be entered via the 20 numbers of preformed knockouts located at top 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.

### 3.3 Panel Wiring

Warning: Several different sources of power can be connected to this panel. Disconnect all sources of power before servicing. The panel and associated equipment may be damaged by removing and / or inserting cards, modules or inter connecting while this unit is energized.

Primary Power source (AC) and Earth Ground Connections

AC Power connections are made inside the control panel cabinet. The Primary source for the RE - 25AR is 120 - 220 VAC, 60 / 50 Hz, 2.5 Amps. Run a pair of wires with Earth conductor from the protected premises main breaker box to connector CON1 (RE – SMPS – 4A – R1) of the power supply board. As per National Electrical Code, use 14 AWG (2.00 mm², 1.6mm O.D) or heavier gauge wire with 600V insulation. No other equipment may be connected to this circuit. In addition, this circuit must be provided with over current protection and may not contain any power disconnect devices. A separate Earth Ground connection must be made to ensure the proper panel operation and lighting and transient protection. Connect the Earth Ground wire (Min. 14AWG / 2.00 mm²) to the connector CON1.

Standby Power Source (Batteries)

Observe polarity when connecting the battery. Connect the battery cable to connector CN2 on the Zone board (RE – 25AR – MB – R1) using the connector and cable provided. The battery charger is current – limited and capable of recharging sealed lead acid type batteries upto 12Ah.

During alarm condition, the charger section is disconnected from the battery hence there will not be any charging at that time.
RE – 25AR Power Supply Circuit Board (RE – SMPS – 4A – R1)

![Power Supply Circuit Board Diagram](image)

Figure - 10

RE – 25AR Power Supply Monitor Circuit Board (RE – Monitor)

![Power Supply Monitor Circuit Board Diagram](image)

Figure – 11

Figure – 12
Field wiring Diagram

Wiring Diagram:

- Zone 4
- Zone 3
- Zone 2
- Zone 1
- Input 4
- Input 3
- Input 2
- Input 1
- RAC - 2 (0.6A)
- NAC - 1
- Programm. Relay 3
- NC
- NO
- C0
- Programm. Relay 2
- NC
- NO
- C0
- Programm. Relay 1
- NC
- NO
- C0

120 - 220V AC Input

3 Potential Relays
For Fire, Fault, Supervisory, Pre Release, Released - Power Limited outputs.
Contact Rating:
2.0A @ 30VDC
0.5Amps @ 125VAC
Power Factor: 1.0

Note:
☉ All the field wiring circuits are supervised.
☉ All the field wiring circuits are Power limited except 120-220v A.C and Battery.
**Mounting OF RE - Monitor**

Figure – 13

Figure – 14
3.4 Initiating Device Circuit

No. of Initiating circuit : 4 Zone
Type             : Class B
Style            : B / C Programmable
Wire Size        : 1.5 sq. mm Max.
Operating Voltage: 14 - 21 VDC Nominal (Max.)
Terminal         : CN11
Loop Resistance  : 100 Ω Max.
Total No. of Devices : 16
Monitoring Device : 3K9 (EOL) (Refer Chapter 9)
Compatible Devices : Refer Chapter 9.

✓ All zones may be configured for general fire alarm applications or supervisory alarm zones.
✓ Four-wire smoke detectors may be connected to any zone. Resettable power is provided via CN10.

Note:
  a. Only Same model detectors should be used in IDC.
  b. Manual Pull Station should not be used in the style ‘C’ mode.
Programmable Inputs:
No. of Inputs : 4
Normal Operating Voltage : 8 - 12 VDC.
Short Circuit Current : 5mA Maximum.
Loop resistance : 100 ohms Maximum.
Wire Size : 1.5 sq. mm Max.
Terminal : CN12 & CN 16
End-Of-Line Resistor : 3K9, 1/2watt
Standby Current : 2.5mA
Max. Manual Release Switches : 3 No’s

3.5 Output Circuits
3.5.1 Notification Appliance Circuits

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<table>
<thead>
<tr>
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<td>Terminals</td>
<td>CN7, CN8</td>
</tr>
<tr>
<td>Monitoring Device</td>
<td>3K9 (EOL)</td>
</tr>
<tr>
<td>Wire Size</td>
<td>1.5 sq. mm Max.</td>
</tr>
<tr>
<td>Compatible Device</td>
<td>Refer Chapter 9.</td>
</tr>
</tbody>
</table>

Figure – 16

Retain E.O.L Resistor 3K9 Ohms for unused circuits
Figure – 17
3.5.2 Releasing Appliance Circuits

- No. of RAC: 2 Ckts.
- Type: Class B
- Style: Y
- Output Voltage: 24 V
- Max. Line Drop: 1.8 V
- Current: 0.6A (Each)
- Terminals: CN13, CN14
- Wire Size: 1.5 sq. mm Max.

3.6 Standard Relay Output Circuits

- No. of Programmable Relay Output: 3 (Fire, Fault, Supervisory, Pre-Release, Released)
- Contact Voltage: 30 VDC; 125 VAC
- Current Rating: 2 Amps; 0.5 Amps
- Type of Relay: Form – C
CHAPTER 4: Programming Instructions

<table>
<thead>
<tr>
<th>Program Feature or Option</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible settings</th>
<th>Setting Permitted in UL 864</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode Select</td>
<td>No</td>
<td>Auto / Manual</td>
<td>Auto</td>
</tr>
<tr>
<td>RAC Off Time</td>
<td>No</td>
<td>Disable / Enable</td>
<td>Disable</td>
</tr>
</tbody>
</table>
4.1 Menu Flow Diagram:

- **1. Set Zone Mode**
- **2. Suppressed Supervisory**
- **3. Suppressed Faults**
- **4. Fire & Release Events**
- **5. Fault Events**
- **6. Set RAC1 Mode**
- **7. Set RAC2 Mode**
- **8. Pre Release 20 (Secs)**
- **9. RAC Off Time 10 (Secs)**
- **10. Rmt Release 10 (Secs)**

**Note:**
1. Use Cursor key (        ) to move the menu list and to interchange the status of the menu.
2. Use Enter Key (        ) to select the menu list and confirm the change of the status.
3. Use Cursor key (        ) to change the value / options.

Default Password:
- User: 1234
- Admin: 54321

---

Note:
1. Use Cursor key (↑ ↓) to move the menu list and to interchange the status of the menu.
2. Use Enter Key (↑↓) to select the menu list and confirm the change of the status.
3. Use Cursor key (↑ ↓) to change the value / options.
Note:
1. Use Cursor key (▼ ▲) to move the menu list and to interchange the status of the menu.
2. Use Enter Key (▲) ) to select the menu list and conform the change of the status.
3. Use Cursor key (▼ ▲) to change the value / options.
4.2 Programming:

The MENU key is used to enter into the programming mode for changing and configuring the Input & Output details and other settings. To enter into the menu, **admin password** is must. The various steps involved in this menu are shown as flow chart 4.1. After entering into the menu, screen will show the first menu as below,

1. Set Zone Mode

To move the next menu use the left / right cursor key, and press Enter / '▲▼' key to change the settings. The programmable menu list is as follows.

1. Set Zone Mode
2. Suppressed Supervisory
3. Suppressed Faults
4. Fire & Release Events
5. Fault Events
6. Set RAC1 Mode
7. Set RAC2 Mode
8. Pre Release
9. RAC Off Time
10. Rmt Release
11. Input 1 Type
12. Input 2 Type
13. Input 3 Type
14. Input 4 Type
15. Mode Select
16. Relay 1 Output
17. Relay 2 Output
18. Relay 3 Output
19. NAC O/P-Alarm
20. NAC O/P-PreRl
21. NAC O/P-Relsd
22. NAC1 Output
23. NAC2 Output
24. Zone Wiring
25. Supervisory Mde
26. Walk Test
27. Auto Silence
28. Silence Inhbt
29. AC Loss Dly
30. Trouble Remin
31. 24V Output
32. Set Date
33. Set Time
34. Change User Password
35. Change Admin Password
36. Restore Default Settings
37. About
4.2.1 Set Zone Mode

From the Set Zone Mode program screen, by pressing the “Enter” key the system enters into the zone set mode. In this mode the zone mode can be changed to fire, supervisory, walktest and disable mode. After entering the zone mode, the screen will be as below.

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
Y & Y & Y & Y
\end{array}
\]

Y = F / S / A / W / D mode.
F – Fire, S – Supervisory, W – Walk test, D - Disable

The zone is selected by using the right / left arrow keys, the mode can change using the ‘\(\uparrow\downarrow\)’ key. Then press the “Enter” key to accept the changes. This process can be continued in case of other zone to be changed.

Note:
1. At the time of Fire/Supervisory events in a fire / supervisory mode set zone, that particular zone mode can only be disabled.
2. To come out of the menu configuration press ‘ESCs’ key.

**Fire Mode:** In this mode the zone will be in normal condition to detect the fire with detectors and manual pull station (normally open devices). This mode is represented as ‘F’ at the time of setting.

**Supervisory Mode:** In this mode the zone will detect normally open devices. The optional feature of selecting resettable / latching mode. This mode is represented as ‘S’ at the time of setting.

**Disable Mode:** In this mode the zone is disabled with loop voltage cut off. This mode is represented as ‘D’ at the time of setting.

Note: Avoid disabling any zone unless it is really essential.

**Walk test:** In this mode the selected zone is used to check all the loop devices manually one by one. The signal from the Initiating device will cause the panel in the alarm mode. The panel automatically get silenced and reset after a specific period without activating the fire relay. In this mode reset is done for only that particular zone. When entering into this mode the Fire relay output disablement is activated automatically and it will go back to previous status while we are coming out from this mode. For other zones that are not in walk test mode, if they sense any fire, then the panel will go to normal alarm mode and walk test zone changed to alarm mode automatically.
This feature helps to perform the testing of devices by a single person. In this mode if the zone detects any fire then after 4 seconds the panel will get automatically silenced. After 2 seconds of silence, the zone will go to reset. This mode is represented as ‘W’ at the time of setting.

**Note1:**

a. If there is no more testing, please ensure that the zone is brought back to the normal Condition.
b. To bring back the zone loop to normal condition, same procedure is followed as for the test.
c. If the zone is kept in Walk test mode for 10 minutes without any test the panel comes out of the walk test mode automatically.
d. During test condition that the other zones that are not in test mode fire will consider as actual fire.

**Note2:**

1. The supervisory mode is selected only in Admin level. And mode changing from supervisory to fire mode is also under admin level.
2. After changing the mode should press the ENTER key. Otherwise the change will not accept.
3. Avoid disabling any particular zone unless it is giving any false alarm / Fault Condition / Reworking
4. For zone disabling and their normalization, use same procedure as for the disable.

### 4.2.2 Suppressed Supervisory

From the Suppressed Supervisory Event program screen, by pressing the “Enter” key the system enters into the Suppressed Fault Event. In this mode the suppressed Supervisory events can be viewed sequentially using the right / left arrow keys. After entering the suppressed Supervisory events, screen will be as below.

```
Sup-Suprv [x /y]
EVENT
```

X – nth Event; Y – Total Number of Event.

### 4.2.3 Suppressed Fault

From the Suppressed Fault Event program screen, By pressing the “Enter” key the system enters into the Suppressed Fault Event. In this mode the suppressed fault events other than fire events can be viewed sequentially using the right / left arrow keys. After entering the suppressed fault events, screen will be as below.
4.2.4 Fire & Release Events

From the Fire & Release Events log screen, by pressing the “Enter” key the system enters into the Fire & Release Events log. In this mode the events of Fire and Agent Release can be viewed sequentially using the ‘< ▶’ arrow keys. After entering the Fire & Release Events log, screen will be as below.

<table>
<thead>
<tr>
<th>[A/B] Event</th>
<th>DD/MM/YY  HH:MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A – nth Event; B – Total Number of Event.</td>
<td></td>
</tr>
</tbody>
</table>

4.2.5 Fault Events

From the Fault Events Log screen, by pressing the “Enter” key the system enters into the Fault Events Log. In this mode the events of Fault can be viewed sequentially using the ‘< ▶’ arrow keys. After entering the Fault Events Log, screen will be as below.

<table>
<thead>
<tr>
<th>[A/B] Event</th>
<th>DD/MM/YY  HH:MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A – nth Event; B – Total Number of Event.</td>
<td></td>
</tr>
</tbody>
</table>

4.2.6 Set RAC 1 Mode

From the RAC 1 Mode screen, the RAC1 Output shall be configured for Pre-Release (Cross Zone) or Particular Zone or Any one Zone as selected for active count. The RAC1 is disabled by disabling all the zones in this mode and count is automatically become zero. The count (CNT) shall be maximum of enabled zones in this mode. The RAC1 Mode screen will be as below.

<table>
<thead>
<tr>
<th>Zno: 1 2 3 4 CNT</th>
<th>Act: E E D D X</th>
</tr>
</thead>
</table>

Note: Through suppressed events feature you can view the fault occurred currently during alarm condition.
The zone is selected by using the ‘◄►’ arrow keys and the zone is Enable/Disabled by using the ‘▲▼’ key. Then press the “Enter” key to accept the changes. This process can be continued in case of other zone to be changed. The number ‘x’ varies 1 to 4; the number entered in the ‘CNT’ determines the no. of zone in fire condition to give RAC output. By default zone 1 & 2 is in enable and count (CNT) will be 2 as shown in above screen.

For example, as above shown RAC1 mode screen, the zones 1&2 are enabled and Count (CNT) should be 1 or 2. If the CNT is 1, then any one zone 1 or 2 is in fire condition the pre release time will start and RAC1 out turns on the solenoid valve connected with the panel. If the CNT is 2, then zone 1 & 2 is in fire condition the pre release time will start and RAC1 out turns on the solenoid valve connected with the panel.

Note: The number ‘x’ under ‘CNT’ can be maximum number of zones enable.

4.2.7 Set RAC 2 Mode

From the RAC 2 Mode screen, the RAC2 Output shall be configured for Pre-Release (Cross Zone) or Particular Zone or Any one Zone as selected for active count. The RAC2 is disabled by disabling all the zones in this mode and count is automatically become zero. The count (CNT) shall be maximum of enabled zones in this mode. The RAC2 Mode screen will be as below.

<table>
<thead>
<tr>
<th>Zno: 1 2 3 4 CNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Act: D D E E X</td>
</tr>
</tbody>
</table>

The zone is selected by using the ‘◄►’ arrow keys and the zone is Enable/Disabled by using the ‘▲▼’ key. Then press the “Enter” key to accept the changes. This process can be continued in case of other zone to be changed. The number ‘x’ varies 1 to 4; the number entered in the ‘CNT’ determines the no. of zone in fire condition to give RAC output. By default zone 3 & 4 is in enable and count (CNT) will be 2 as shown in above screen.

For example, The RAC2 mode screen, the zones 2, 3 & 4 are enabled and Count (CNT) should be 1 or 2 or 3. If the CNT is 1, then any one zone 1 or 2 or 3 is in fire condition the pre release time will start and RAC2 out turns on the solenoid valve connected with the panel. If the CNT is 2, then any 2 zones which are in enabled condition is in fire condition the pre release time will start and RAC2 out turns on the solenoid valve connected with the panel. If the CNT is 3, then zones 1, 2 & 3 are in fire condition the pre release time will start and RAC2 out turns on the solenoid valve connected with the panel.

Note: The number ‘x’ under ‘CNT’ can be maximum number of zones enable.
4.2.8 Pre Release

The time delay to give the 24V output to release the agent through the RAC can be programmed. The time delay range is 1 to 60 Seconds. This mode can be Enabled (With Timer) or Disabled by using Up & down keys. In this mode by pressing ‘Enter’ key it enters in to change mode. The first digit starts blinking, which can be changed by using the cursor key to increase or decrease the time then press the ‘Enter’ key to move the next digit. Now second digit starts blinking and does the same procedure to change the time. The LCD Display shows as follows.

8. Pre Release
20 (Secs)

Note:
1. This Time Delay is only for ‘Auto Mode’.
2. If the timer set for 00 sec, Pre release will be disabled
3. Pre Release disabled will result as supervisory fault.

4.2.9 RAC Off Time

Similar to the timer delay, the Solenoid 24V Output off time also programmable. The time delay range is 1 to 60 Seconds. This mode can be Enabled (With Timer) or Disabled by using Up & down keys. In this mode by pressing ‘Enter’ key it enters in to change mode. The first digit starts blinking, which can be changed by using the cursor key to increase or decrease the time then press the ‘Enter’ key to move the next digit. Now second digit starts blinking and does the same procedure to change the time. The LCD Display shows as follows.

9. RAC Off Time
10 (Secs)

Notice to USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

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<table>
<thead>
<tr>
<th>Program Feature or Option</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible settings</th>
<th>Setting Permitted in UL 864</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Off Time</td>
<td>No</td>
<td>Disable / Enable</td>
<td>Disable</td>
</tr>
</tbody>
</table>
4.2.10 Rmt (Manual) Release

The time delay to give the 24V output to release the agent through the RAC can be programmed. The time delay range is 1 to 30 Seconds. In this mode by pressing 'Enter' key it enters in to change mode. The first digit starts blinking, which can be changed by using the cursor key to increase or decrease the time then press the ‘Enter’ key to move the next digit. Now second digit starts blinking and does the same procedure to change the time. The LCD Display shows as follows.

10. Rmt Release
10 (Secs)

Note: This Time Delay is only for ‘Manual Mode’.

4.2.11 Input 1 Type

This Input 1 is programmable as Manual release & Abort of RAC1 or manual release of RAC1. This Input is kept normally open, whenever the input changes to normally close; the ARP gives the appropriate Indication with audible tone. In this mode the default screen is as shown below.

11. Input 1 Type
ManRel & Abt-RAC1

If this mode is configured as ‘manual release – RAC1’, then in this input circuit the abort switch can’t be connected. If the mode is configured as ‘Man Rel&Abt-RAC1’ (Manual release & Abort) then both Release and abort can connect in the same circuit for the output RAC 1.

4.2.12 Input 2 Type

This Input 2 is programmable as Manual release & Abort of RAC2 or Abort of RAC1. This Input is kept normally open, whenever the input changes to normally close; the ARP gives the appropriate Indication with audible tone. In this mode the screen is as shown below.

12. Input 2 Type
ManRel & Abt-RAC2

If this mode is configured as ‘Abort – RAC1’, then in this input circuit the manual Release switch can’t be connected. If the mode is configured as ‘Man
ReI&Abtr-RAC2’ (Manual release & Abort) then both Release and abort can connect in the same circuit for the output RAC 2.

**Note:** For Inputs 1 & 2 (Manual Release Switch), RE – 2K2S (Input Series Device) should be placed in series.

### 4.2.13 Input 3 Type

This Input 3 is programmable as pressure Switch of RAC1 or Disabled. This Input is kept normally open, whenever the input changes to normally close; the ARP gives the appropriate Indication with audible tone. The options for the ‘input 3 Type’ can be changed by pressing ‘▲▼’key from the panel key pad. In this mode the screen is as shown below.

#### 13. Input 3 Type
Pressure SW - RAC1

Is this mode is configured as ‘Pressure SW – RAC1’, then in this input circuit accept it as pressure status of the cylinder connected with the circuit RAC1 and give the appropriate indication. If the mode is configured as ‘Disabled’ then Agent release out put is sensed without pressure switch.

### 4.2.14 Input 4 Type

This Input 4 is programmable as pressure Switch of RAC2 or Disabled. This Input is kept normally open, whenever the input changes to normally close; the ARP gives the appropriate Indication with audible tone. The options for the ‘input 4 Type’ can be changed by pressing ‘▲▼’key from the panel key pad. In this mode the screen is as shown below.

#### 14. Input 4 Type
Pressure SW - RAC2

Is this mode is configured as ‘Pressure SW – RAC2’, then in this input circuit accept it as pressure status of the cylinder connected with the circuit RAC2 and give the appropriate indication. If the mode is configured as ‘Disabled’ then Agent release out put is sensed without pressure switch.
4.2.15 Mode Select

From the Mode Selection screen, Agent release output is configured as Auto or Manual. The options for the Mode Selection can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

15. Mode Select
Auto

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<table>
<thead>
<tr>
<th>Program Feature or Option</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible settings</th>
<th>Setting Permitted in UL 864</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode Select</td>
<td>No</td>
<td>Auto / Manual</td>
<td>Auto</td>
</tr>
</tbody>
</table>

4.2.16 Relay 1 Output

From the Relay 1 (Programmable Potential Free Relay) screen, The Programmable Relay 1 is configured for the following actions Fire, Supervisory, Pre-Release and Released. The options for the relay 1 can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

16. Relay 1 Output
Fire

4.2.17 Relay 2 Output

Similar to the Relay 1 (Programmable Potential Free Relay) Relay 2 screen, The Programmable Relay 2 is configured for the following actions Fire, Supervisory, Pre-Release, Released and Fault. The options for the relay 2 can be changed by pressing ‘▲▼’ key from the panel key pad.

When you enter into this mode the screen will be as below.

17. Relay 2 Output
Fault
4.2.18 Relay 3 Output

Similar to the Relay 1 (Programmable Potential Free Relay) Relay 3 screen, the Programmable Relay 3 is configured for the following actions Fire, Supervisory, Pre-Release and Released. The options for the relay 3 can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

18. Relay 3 Output
Supervisory

4.2.19 NAC O/P – Alarm

The NAC output differentiated with four different tone like 60 BPM, synchronized, temporal, Steady and it is configurable for the Alarm, Pre-Release and Released. From the NAC O/P - Alarm (Notification Appliance Circuit Output) screen, the Type of Signal for NAC is configured as following Synchronized, Temporal, and Steady. The options for the NAC O/P - Alarm can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

19. NAC O/P-Alarm
Temporal

4.2.20 NAC O/P – PreRl

From the NAC O/P – Pre Release screen, the Type of Signal for NAC is configured as following 60 BPM, Synchronized, Temporal and Steady. The options for the NAC O/P – Pre Release can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

20. NAC O/P-PreRl
60 BPM

4.2.21 NAC O/P – Relsd

From the NAC O/P - Released screen, the Type of Signal for NAC is configured as following 60 BPM, Synchronized, Temporal and Steady. The
options for the NAC O/P - Released can be changed by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.

21. NAC O/P-Relsd Synchronized

4.2.22 NAC 1 Output

From the NAC 1 Output screen, The NAC 1 is configured for the circuit RAC1 or common. The options for the NAC 1 Output can be changed by pressing ‘▲▼’ key from the panel key pad. If the NAC1 is configured for RAC1 then it will turns on for zones related to RAC1 and RAC circuit functions like Pre release and Released. When you enter into this mode the screen will be as below.

22. NAC1 Output RAC1

Note: NAC 1 can be configured as common for both circuits RAC 1 & 2

4.2.23 NAC 2 Output

From the NAC 2 Output screen, The NAC 2 is configured for the circuit RAC2 or common. The options for the NAC 2 Output can be changed by pressing ‘▲▼’ key from the panel key pad. If the NAC2 is configured for RAC2 then it will turns on for zones related to RAC2 and RAC circuit functions like Pre release and Released. When you enter into this mode the screen will be as below.

23. NAC2 Output RAC2

Note: NAC 2 can be configured as common for both circuits RAC1 & 2

4.2.24 Zone Wiring

From the Zone Wiring program screen, The zones circuit is designed for the class-B wiring. The style of wiring can be changed using this option. The Style of class-B can be changed as Style-B or Style-C by pressing ‘▲▼’ key from the panel key pad. When you enter into this mode the screen will be as below.
4.2.25 Supervisory Mode

From the Supervisory Mode program screen, the supervisory zones can be selected as resettable / latching mode. Press ‘▲▼’ to toggle between options. A supervisory zone, programmed for latching, requires manual reset to restore after the supervisory alarm is cleared. A supervisory zone, programmed for resettable, will be automatically restored after the supervisory alarm is cleared.

4.2.26 Walk Test

In this mode the NAC's can be programmed as Audible / Silenced by using the key ‘▲▼’ in this screen. For an audible walktest, the panel detects any fire then after 4 seconds the panel will get automatically silenced. After 2 seconds, the panel will go to reset. This reset is done for only that particular zone. For a silenced walktest, the panel will not activate the NAC's but buzzer tone is activated.

4.2.27 Auto Silence

Auto-silence is the program feature that will automatically silence the Notification Appliance Circuits, if they are programmed as silenceable circuits, after a programmed time interval. The factory default setting is auto-silence disabled. Press ‘▲▼’ key to toggle between enabled / disabled option.

In auto silence is enabled condition, to change the time press enter key and use ‘▲▼’ key to increase/ decrease the timing.
The Auto silence timing can be set from 001 to 999 seconds. After setting the required time press Enter key to accept the time. The default time set is 120 Seconds. When you enter into this mode the screen will be as below.

4.2.28 Silence Inhibit

The Silence Inhibit feature prevents the silencing of Notification Appliance Circuits, using the Silence switch or Reset switch, for the amount of time corresponding to the selected option, after the NAC’s are activated. The factory default for this feature is 'disabled'. Press ‘▲▼’ key to toggle between enabled / disabled option.

In silence Inhibit is enabled condition, to change the time press enter key and use ‘▲▼’ key to increase/ decrease the timing.

The Silence inhibit timing can set 001 to 999 seconds. After setting the required time press Enter key to accept the time. The default time is 60 Seconds. When you enter into this mode the screen will be as below.

4.2.29 AC Loss Delay

When AC power is lost, the control panel trouble relay will activate. The factory default option for this feature is Enabled, the trouble relay activation on AC loss after the time delay setting. Press ‘▲▼’ key to toggle between enabled / disabled option. The AC Loss Delay timing can set 001 to 999min. After setting the required time press Enter key to accept the time. The default time is 120 Seconds. When you enter into this mode the screen will be as below.
In AC Loss Delay is enabled condition, to change the time press enter key and use ‘▲▼’ key to increase/ decrease the timing.

4.2.30 Trouble Remainder

The Trouble Reminder feature provides an audible reminder that a Fault still exists on the panel after the control panel has been silenced. The factory default for this feature is 'Enabled'. When this feature is 'enabled', the control panel buzzer will give a beep tone for every set time during a trouble condition, after the Signal Acknowledge switch is pressed. The buzzer tone will continue to sound at these rates until the trouble condition is cleared. Press ‘▲▼’ key to toggle between enabled / disabled option. The Trouble Reminder timing can set 1 to 999mins. After setting the required time press Enter key to accept the time. The default time is 720 Seconds. When you enter into this mode the screen will be as below.

30. Trouble Remin
<720 (Sec)>

4.2.31 24V Output

From the 24V Output screen, The 24v DC Output can be selected as resettable / Steady. Press ‘▲▼’ to toggle between options. A 24V DC output is programmed for resettable, the output will cutoff by resetting the panel in fire condition.

31. 24V output
Resettable

4.2.32 Set Date

From the Set Date screen, it enters into the date change mode by pressing enter key. The Date can be changed by using the cursor ‘▲▼’ keys by digit by digit. After changing the digit press enter key or ‘◁’ cursor key and after completing the changes press enter key to conform.

AA / BB / CC
DD / MM / YY

AA – Date; BB – Month; CC – Year.
### 4.2.33 Set Time

From the Set Time screen, it enters into the time change mode by pressing enter key. The time can be changed by using the cursor ‘▲▼’ keys by digit by digit. After changing the digit press enter key or ‘◄►’ cursor key and after completing the changes press enter key to conform.

\[
\begin{align*}
XX : YY \\
HH : MM (24 Hrs)
\end{align*}
\]

XX – Hours; YY – Minute.

### 4.2.34 Change User Password

From the Change User Password Mode screen, By pressing the ‘enter’ key from the change user Password screen, system enters into the user Password change mode. The display screen of this mode showed as below.

The Default Password is“1234”. The Password should be four digit.

\[
\begin{align*}
\text{Enter Old Password?} \\
\downarrow \\
\text{Enter New Password?} \\
\downarrow \\
\text{Confirm New Password?} \\
\downarrow \\
\text{Password Updated}
\end{align*}
\]
4.2.35 Change Admin Password

From the Change Admin Password Mode screen, by pressing the ‘enter’ key from the change Admin Password screen, system enters into the Admin Password change mode. The display screen of this mode showed as below. The Default Password is "54321". The Password should be five digits.

Enter Old Password?

↓

Enter New Password?

↓

Confirm New Password?

↓

Password Updated

Admin Password can be changed only by entering into the main menu by using the admin password.

4.2.36 Restore Default Settings

From this mode, by pressing ‘enter’ key from the restore default screen, system restores all the functions to factory settings. This menu is Double protected by Displaying the "! Warning! Press ENTER To restore" in the screen and the password.

**WARNING:**

BY RESTORING DEFAULT SETTINGS, ALL PROGRAMMED CONFIGURATIONS AND EVENTS WILL BE ERASED AND FACTORY DEFAULT (CONFIGURATIONS) SETTINGS WILL RESTORED & EVENTS BECOME EMPTY.
4.2.37 About

From this mode by pressing ‘enter’ key, it shows the details of the panel. The LCD will show as below. The model RE – 25AR and Version of the software.

Model RE-25AR
Version 1.0

Chapter 5: Operating Instruction

Figure – 23

5.1 Switch Functions

The Keys, which are non-masked, are used for the general operation of the Fire Alarm Panel. The Non-masked keys are Silence, Reset, Ack., Drill and Enter keys.

**SILENCE Key:** When the silence key is pressed, after entering the user or admin password the following will occur:

- The silenceable Notification Appliance Circuits will be turned OFF
- The Silence LED will be turned ON

Upon the occurrence of a subsequent fire event, Signal Silence is overridden and the control panel will respond to the new event.

**RESET Key:** When the Reset key is pressed, after entering user or admin password, the control panel will:
- Clear the status LED’s.
- Bring back the LCD display to the healthy condition.
- Turn off the Notification Appliance Circuits.
- Reset fire zones by temporarily removing power.
- Restore all system relays to normal.
- Temporarily remove power from the resettable power output CN10 (If the 24V output is programmed as Resresettable condition).

The Reset key is accessible only after silencing in alarm condition.
Any alarm, supervisory or trouble condition that exists after a system reset, will resound the system, reactivating normal system activity.

**ACK. Key:** This key is used to acknowledge the buzzer tone during the fault and fire condition. This key can be operated with user or admin password.

**Drill Key:** This key is used to energize the all-external NAC’s without actual fire, It will operate at user or admin level. Using the silence key NAC output can be silenced.

**ENTER KEY:** This key is used to accept the entries and edit the programmed menu.

**MENU Key:** This key is used to get into the program menu and get back to the previous menu screen.

**CURSOR KEYS:** The cursor keys (Right / Left arrows) are used to move the cursor point wherever required and Up & down are used to change the mode.

**ESC KEYS:** This key is used to go back to the previous screen or erase the password entries.

### 5.2 Indications:

```
Fault [ x/y ]
Type of Fault
```

x – nth no. of fault; y – Total no. of fault.

*Figure - 22*

**SYSTEM ON:** This LED will glow when the panel is energized by primary and standby power. This is the only LED glowing in the normal monitoring condition. The LCD Display as shown below.

```
DD MMM HH:MM
SYSTEM HEALTHY
```
MAINS FAIL: Whenever the Main Supply fails, the Mains fail LED will be illuminated and it also indicated in LCD with toggle Buzzer tone. The LCD Display as shown in the figure 22, ‘Mains fail’ will be displayed in the fault screen.

BATTERY FAULT: Whenever the backup battery fails, the battery fault LED will be illuminated and it also indicated in LCD with toggle Buzzer tone. Similarly the same LED will be illuminated when the battery voltage goes down below the 21.6v (Battery Low). The LCD Display as shown in the figure 22 ‘Battery Fail / Battery Low’ will be displayed in the Battery fail / Battery low fault screen respectively.

CHARGER FAULT: Whenever the battery charger section is fails, the charger fault LED will be illuminated and it also indicated in LCD with toggle tone.

EARTH FAULT: Whenever the Initiating Device circuits (IDCs) and Notification Alarm Circuits (NACs) are gets contact with the Earth or Body of the cabinet, the corresponding fault LED, earth fault LED and common fault LED will be illuminated and it also indicated in LCD as corresponding circuit is earth fault with toggle Buzzer tone. The Earth fault can be created through 0 Ohms resistor.

SYSTEM FAULT: Glowing of this LED indicates the failure of the CPU.

SILENCED: This LED will glow when the silence key is pressed in fire condition only.

NAC FAULT: Whenever there is any fault in Notification Appliances Circuits like NAC loop Open / Short / Earth fault, it will be identified by COMMON NAC FAULT LED. The LCD Display as shown in the figure 22, ‘NAC # Fault’ will be displayed in fault screen.

WALK TEST: The Walk test and zone disable LED will glow whenever the zones are under walk test mode.

FIRE: This twin fire LED will glow when any one or more of the zones are in fire condition.

SUPERVISORY: This supervisory LED will glow when any one or more of the zones are in supervisory condition.

FAULT: This fault LED will glow when any one or more of the zones are in fault condition.

ZONE FIRE: This fire LED will glow when the zones are fire condition. The first fired zone continuously in blink and other zone fire LED will glow steadily in fire condition. The fired zone is displayed in the LCD, first fire zone and total no. of zone is displayed separately.
**ZONE SUPERVISORY:** The zone supervisory LED is illumination indicates that the particular Zone is selected as Supervisory zone (Contact Zone). During supervisory fault condition the same LED starts blinking.

**ZONE FAULT:** This fault LED will glow when there is an open or short or earth fault in that particular zone.

**ZONE DISABLE/W.T:** This zone wise LED glows steadily in disabled condition and blinking in the Walk test mode.

### 5.3 Operation

#### 5.3.1. Normal Monitoring Mode:
Normal Mode is the standard mode of operation. In this mode, the panel continuously monitors system status. When no fire or supervisory or trouble conditions exist, all LEDs will be off except the System On LED. The Notification Appliance Circuits will be off, all relays are in their normal state and the onboard buzzer will be off. When the system is in normal condition the LCD screen will be as below.

```
DD MMM HH:MM
SYSTEM HEALTHY
```

#### 5.3.2. Fire Alarm Condition:
When the control panel detects Fire via the Detector / MCP, the panel will cause the following:

- The corresponding ZONE FIRE red LED will blink.
- The common twin Fire LEDs will glow.
- Turn on the NAC’s.
- Turn on the panel buzzer with continuous tone.
- Turn on the fire relay.

The LCD screen will be as below.

```
Fire [XX/YY]
Zone X
```

In case of multiple zone fire, the origin zone fire LED will be blinking and subsequent zone fire LED will glow steadily. If the multiple fire as mentioned in RAC mode (Sec.:5.3.10), then corresponding Pre Release timer on. The LCD screen will be as below.

```
Fire [XX/YY]
1st: aa Zone X Rt: bb
```
X – index no. of fire event; Y – Total no. of fire events;
aa – Origin Fire zone number; bb – Recent Fire zone number;
Zone X – Denotes the zone number which is recent fire zone.

To change the other indexed fire event zones which are suppressed use right / left arrow keys.

Restoral: Silence the NAC’s by appropriate user or admin password. after silencing the panel will perform the following:
- Turn off the Internal Buzzer.
- Turn off the External NAC’s.
- Turn on the silenced LED.

When the Fire condition is cleared and Reset key has been pressed after entering the user or admin password. The Reset is accessed only after silencing the panel in alarm condition. The panel will perform the following after clearing fire and resetting:
- Turn off the common twin Fire LEDs.
- Turn off the zone fire LED.
- Turn off the Fire relay.

The LCD screen will be as below.

<table>
<thead>
<tr>
<th>DD MMM</th>
<th>HH:MM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SYSTEM HEALTHY</td>
</tr>
</tbody>
</table>

5.3.3. Supervisory:
When the control panel detects supervisory signal via the any normally open contact devices, the panel will cause the following:
- The corresponding zone supervisory LED will blink.
- The common supervisory LED will glow.
- Turn on the panel buzzer with intermittent buzzer tone (pulse 0.25sec ON and 0.25sec OFF).
- Turn on the supervisory relay.

The LCD screen will be as below.

Supervisory [XX/YY]
Zone X
In case of multiple zone supervisory, the origin zone and recent zone supervisory LED will be viewed in LCD screen. The LCD screen will be as below.

```
Supervisory [XX/YY]
1st: aa  Zone X  Rt: bb
```

X – index no. of supervisory event; Y – Total no. of supervisory events;
aa – Origin supervisory zone number;
bb – Recent supervisory zone number;
Zone X – Denotes the zone number which is recent fire zone.

To change the other indexed supervisory event zones which are suppressed use right / left arrow keys.

**Restoral:** When the supervisory condition is cleared and Reset key has been pressed after entering the user or admin password if the zones are programmed for latching, the panel will perform the following:

- Turn off the supervisory LEDs.
- Turn off the zone supervisory LED.
- Turn off the supervisory relay.

The LCD screen will be as below.

```
DD MMM  HH:MM
SYSTEM HEALTHY
```

**Note:**

If the supervisory mode is selected as resettable, the resetting the zone is not required. The zone is retrieved automatically after clearing the supervisory condition.

**5.3.4. Fault:**

The fault may any one of the following Zone fault / disable / earth fault, NAC fault and power section fault. When there is one or more fault condition, the fire alarm control panel performs the following:

- Turn on the common fault LED.
- Turn on the zone fault / NAC fault / power fault LED.
- Turn on the panel buzzer tone with intermittent buzzer tone (pulse 0.5sec ON and 5sec OFF).
- Activate the fault relay.

The LCD screen will be as below.
Restoral: When the fault condition is cleared, the panel will perform the following automatically:

- Turn off the fault LEDs.
- Turn off the zone fault LED/NAC fault/power fault LED.
- Turns off the buzzer tone.
- Deactivate the fault relay.

The LCD screen will be as below.

DD MMM HH:MM
SYSTEM HEALTHY

Note: The Fault occurred will not affect the other normal functions of the panel

5.3.5. Disable/W.T:

Disable: The any Zone can be Disabled/Enabled in zone mode through the programming section 4.2.1 Page 35. The ON status indicates, the zone is disabled and the OFF status of the LED indicates the enabled and blinking of that LED indicates the zone is in walk test mode. In LCD the suppressed events are viewed in suppressed events from menu screen.

XX – nth no. of events; YY – Total no. of events; X – Zone No. Disabled.

Walk Test: Disable/W.T LED Blinking identifies the corresponding Zone, which is under walktest. If this LED is illuminates continuously then it identifies that particular zone is disabled. The walk test mode helps the user to test each device in that particular zone by a single person. During walk test mode, if any Fire is identified, the panel will be silenced and reset automatically after 4 seconds and 2 seconds respectively. In case of any other zone fire during this period, it is considered as actual fire and it comes out from the walk test mode. The LCD Display is as shown below.

WT: Fire [XX/YY]
Zone X
For More than One zone in Walk test fire condition, the screen as follows,

WT: Fire [XX/YY]
1st: aa Zone X Rt: bb

**Note:**

a. If there is no more testing please ensure that the zone is brought back to the normal Condition.

b. During in this mode, the Fire Relay will not be activated in fire condition.

c. If the zone is kept in Walk test mode for 10 minutes with out any test the panel comes out of the walk test mode automatically.

d. If other zone gets fire, the walk test mode is automatically removed.

**Restoral:** When the zone restored to normal condition from disable / Walk test mode, the zone which are all in disable/W.T mode the corresponding LED’s goes off.

5.3.6. **Input 1 & 2:**

The input 1 & 2 is used for the manual release and abort for the Releasing Agent Circuit (RAC) 1 & 2. Each inputs shall be configured separately for manual release, Abort functions. These inputs are monitored for loop short and open during normal condition i.e without pre release condition. During the fault condition like open or short, fault screen will be as below.

**Fault [xx/nn]**
RAC Z MR & Abt 'Status'

**Note:**

xx – nth fault, nn – Total number of fault and Z – 1 or 2
Status – open or short.

5.3.6.1. **Manual Abort:**

The Inputs 1 & 2 is used for the manual release and abort; it has the both options in one input as combination. This key will operate only during pre release time. During Pre Release time, if this input is activated (Short), the time delay is continued and output for the solenoid valve is aborted. After normalizing the Abort switch, the time delay starts from 10 seconds to activate the RAC output.

**Note:** The Abort switch should be non – latching switch.
5.3.6.2. Manual Release:

The Inputs 1 & 2 is used for the manual release and abort; it has the both options in one input as combination. Due to the combination of manual release and abort switch in single circuit, the RE - 2K2S (Input Series Device) should be connected in series with switch for manual release as shown in the below figure. The maximum 3 number of manual release switches can be connected in one Input. If this key is activated, the time (pre release timer) 1 to 30 seconds will start.

![Diagram of manual release and abort switch combination]

5.3.7. Input 3 & 4:

The input 3 & 4 is used for the pressure switch for the Releasing Agent Circuit (RAC) 1 & 2 respectively. These inputs are monitored for loop short and open during normal condition i.e without pre release condition. During the fault condition like open or short, fault screen will be as below.

![Fault screen for RAC Z Press Flt]

Note:
xx – nth fault, nn – Total number of fault and Z – 1 or 2

The pressure switch is used to get feed back from the cylinder to confirm the Agent release. After the completion of the pre release time delay the agent release output will on, cylinder is opened and agent is released to suppress fire. The pressure switch shall be gets contact (short); with this feed back agent release is confirmed in the panel.
5.3.8. **Agent Release:**

RAC Mode:

The possibilities for the agent release conditions are mentioned as below.

<table>
<thead>
<tr>
<th></th>
<th>ZONE 1</th>
<th>ZONE 2</th>
<th>ZONE 3</th>
<th>ZONE 4</th>
<th>CNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC X</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>Z</td>
</tr>
</tbody>
</table>

Note:
X = 1 or 2;
S = E or D; E – Enable, D – Disable;
Z = 0 to 4; number of counting zones

For Example:

<table>
<thead>
<tr>
<th></th>
<th>ZONE 1</th>
<th>ZONE 2</th>
<th>ZONE 3</th>
<th>ZONE 4</th>
<th>CNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC 1</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>D</td>
<td>2</td>
</tr>
</tbody>
</table>

The RAC 1 mode is programmed as shown above, and then RAC 1 will be activated for any 2 zone activated for fire, which is in enable mode. In these zones enabled condition, the count will be maximum 3. If the count is set as 3, then RAC 1 is activated only when all the three zones are activated for fire.

Similarly we can program it for RAC2 with various combinations.
When the control panel falls with above pre release condition as mentioned/configured in RAC mode, the panel will cause the following:

✓ Pre Release LED will ON for the corresponding RAC.
✓ Turn on the NAC’s.
✓ Turn on the panel buzzer with continuous tone.
✓ Turn on the relay (If relay is programmed for pre release).
✓ Turn on the timer for activate the solenoid valve.

The LCD screen will be as below.

![RAC X [ XX/YY]
PreRelease TT sec](image)

TT – Time (1 to 60 Sec) to release the agent from cylinder.

In case of manual release switch is activated during pre release time delay and if the pre release time delay greater than the manual release time (1 – 30 sec), then manual release time will be considered to activate the solenoid valve.

After the activation of the solenoid valve, the released LED will glow (if the Pressure switch input is in disabled condition).
Chapter 6: Servicing:

The servicing and maintenance of the system is described below. In this installation or replacement of PCB, Lamp test, Walk test and maintenance of the battery are given in this chapter.

6.1 Installation/Replacement of PCB:

Remove the screws of PCB, which has to be change and remove the PCB from the mounting position and place the new PCB in that same position as shown below.


![Diagram of PCB mounting position]

Figure – 25

Mounting position for Power supply unit (RE – SMPS – 4A – R1):
6.2 **Lamp Test:**

The lamp test function done by pressing ‘Enter’ key in system (Panel) is normal condition. In this mode, all the LED’s are checked for good condition by glowing all LED’s.

6.3 **Walk Test Mode:**

The RE - 25AR provides the capability to perform a walktest of the system without triggering the Fire Relay, alarm output (NAC) relay. Walk test Mode allows for testing of all the eight zones. An audible or silent walktest may be performed. For an audible walktest, the initiating device activated on a zone will cause the Notification Appliance Circuits to turn on for five seconds. Any smoke detectors that are activated will be reset automatically. Zonal faults (open circuits) will cause the NAC to remain on steadily. Prior to entering Walktest Mode, check to be certain that zone fault have been cleared.

Placing the control panel into Walktest Mode will only be possible if the system has no active alarms.

After entering into the walktest mode, the fire relay contact disablement is activated automatically and it will go back to previous status while we are coming out from this mode. For other zones that are not in test condition, if they sense any fire, then the Fire relay output will activate by considering it as actual fire.

This feature helps to perform the testing of devices by a single person. In this mode if the panel detects any fire then after 4 seconds the panel will get automatically silenced. After 2 seconds of silence, the panel will go to reset. This reset is done for only that particular zone.

Once in Walktest Mode, the control panel will immediately:
- Turn on the Notification Appliance Circuits for 4 seconds for the alarm on a zone if an audible walktest is performed. For a silenced walktest mode, all NAC outputs remain off.
- Disable the fire relay
- Display all alarm conditions as they occur
- Display all zone troubles as they occur
- Display all system troubles as they occur

**Note:**

1. If any one zone is in walktest, then other zones will operate normal condition.
2. The actual alarm zone cannot be selected for walktest mode.
3. By Reset the panel using the reset key then walktest selected zone goes to fire (Normal) mode.
6.4 Battery & Fuse:

Battery: Two 12V sealed lead-acid batteries should be replaced after each period of 2 to 3 years of normal service / as recommended by the battery manufacturers. If the battery trouble indicator activities, obtain required service.

Fuse: The fuses used in the panel are automatic resettable fuse; hence the replacement is not required. When the rated current rating reaches the fuse is gets heated and opened, after removed the load or panel gets normal fuse become normal.

6.5 System Power:

<table>
<thead>
<tr>
<th>Power</th>
<th>Current</th>
<th>Max. AH Capacity</th>
<th>Derating Factor</th>
<th>Max. standby current</th>
<th>Max. Alarm current</th>
<th>Max. standby time</th>
<th>Max. alarm duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (power supply)</td>
<td>2.5A</td>
<td>N/A</td>
<td>N/A</td>
<td>0.04A</td>
<td>1.2A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Secondary (back up)</td>
<td>2.7A</td>
<td>12Ah</td>
<td>10%</td>
<td>0.4A</td>
<td>3A</td>
<td>24 Hrs.</td>
<td>5 Min.</td>
</tr>
</tbody>
</table>

NOTE: Use Over current circuit-breaking device, It should not exceed 15A.

6.6 Trouble Shooting:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Root Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no indication on the panel</td>
<td>No power to the Panel</td>
<td>Check Primary (AC) power and Standby power.</td>
</tr>
<tr>
<td>During Mains fail condition Battery fault LED is glowing</td>
<td>May be battery low (&lt;21.6V) or the battery reaches the de-rated (&lt;19.5V) Voltage.</td>
<td>Check the Battery voltage and charge the battery or replace the battery.</td>
</tr>
<tr>
<td>The Battery fault and charger fail shown in LCD.</td>
<td>The Battery connected in reverse.</td>
<td>Connect the battery properly.</td>
</tr>
</tbody>
</table>
Chapter 7: Battery Calculation

This total load determines the battery size (in AH), required to support the control panel under the fail of the AC Power Supply.

1. Enter the NFPA standby and alarm times (refer to NFPA requirements below).
2. Calculate the ampere-hours for standby and Alarm, and then sum the standby and alarm ampere-hours.
3. Multiply the sum by the derating factor of 1.2 to calculate the proper battery size (in AH).
4. Write the ampere hour requirements on the protected premises label located inside the cabinet door.

Total Secondary Power Requirements at 24 VDC

Normal Condition: \[ X = S \text{ (Amps)} \times \text{___ Hrs. (Backup time required)} \]

Alarm Condition: \[ Y = F \text{ (Amps)} \times \text{___ Hrs. (Backup time required)} \]

Battery Ah required: \[ AH = (X + Y) \times 1.2 \text{ (Derating Factor)}. \]

Note: Refer specification (Page 10) for Quiescent, standby, alarm currents

System current \( S \) = Quiescent Current +
(Standby current \( \times \) No. of zone)

Fire current \( F \) = (Alarm Current \( \times \) no. of zones) +
(NAC Current \( \times \) No. of NAC's).
Chapter 8: Wire Requirements

Connecting external system accessories to the RE – 25AR 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 RE – 25AR circuit. Reference the chart below to specify wire requirements and limitations for each RE – 25AR.

Table 8-1: Wire Requirements

<table>
<thead>
<tr>
<th>CIRCUIT TYPE</th>
<th>CIRCUIT FUNCTION</th>
<th>WIRE TYPE AND LIMITATIONS</th>
<th>RECOMMENDED MAX. DISTANCE Feet (meters)</th>
<th>WIRE GUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiating Device Circuit</td>
<td>Connects to Initiating Devices</td>
<td>Untwisted, unshielded wire (Do not exceed 100 ohms)</td>
<td>10,000 (3,000 m) 8,000 (2,400 m) 4,875 (1,480 m) 3,225 (975 m)</td>
<td>12 AWG (3.25 mm2) Belden 9583 WPW999 14 AWG (2.00 mm2) Belden 9581 WPW995 16 AWG (1.30 mm2) Belden 9575 WPW991 18 AWG (0.75 mm2) Belden 9574 WPW975</td>
</tr>
<tr>
<td>24 VDC resettable, nonresettable</td>
<td>Connects to annunciators and other accessories</td>
<td>No more than 1.2 volt drop allowed from supply source to end of any branch</td>
<td>Distance limitation set by 1.2 volt maximum line drop</td>
<td>12 AWG (3.25 mm2) - 18 AWG (0.75 mm2)</td>
</tr>
</tbody>
</table>
Chapter 9: Compatible Devices (ID: CD 01)

The compatible devices which are connected with this panel are given below:

Compatible IDC's:

3. System Sensor Beam Smoke Detector – Model: BEAM1224(S) - 1No / Zone.

Compatible NAC's:


End Of Line Devices:

1. RE – Monitor for RS24v O/P.
2. RE3K9 for IDC’s, RS sen and NACs.

Compatible Solenoid:

1. Viking – Model: 11591NC – 2 No’s.
Chapter 10: Abbreviation

The short forms, which are given in this manual and Panel Menu, are abbreviated below,

RE  –  Ravel Electronics
ARP –  Agent Release Panel
NFPA – National Fire Protection Association
AC  –  Alternating Current
DC  –  Direct Current
CRCA – Cold Rolled Carbon Alloy
LED –  Light Emitting diode
O/P –  Output
I/P –  Input
mm –  Millimeter
P  –  Phase
N  –  Neutral
E  –  Earth
V  –  Volts(s)
Ah –  Ampere per hour
EOL –  End Of Line
PCB –  Printed Circuit Board
CPU –  Central Processing Unit
MCP –  Manual Call Point
S.Nos –  Serial Numbers
mA –  Milli Ampere
C, NO, NC –  Common, Normally Open, Normally Close.
Zno –  Zone Number
Act –  Active
CNT –  Count
RMT –  Remote
ManRel –  Manual Release
RI –  Release
Relsd –  Released
Abrt –  Abort
Sw –  Switch
NAC –  Notification Alarm Circuit
RAC –  Releasing Agent Circuit
BPM –  Beats Per Minute
Dly –  Delay
Remin –  Remainder
Mde –  Mode
Inhbt –  Inhibit
Rt –  Recent
TEST CERTIFICATE

We hereby certify that the items details hereon have been manufactured, inspected and electrically tested to ensure the compliance with ravel products and process specification.

Model No.: RE-25AR

Serial No.: 

No. of zones: 4 Zone + 2 RAC

For RAVEL ELECTRONICS PVT.LTD,

Q.C. – Engineer Tested By
WARRANTY CERTIFICATE

Model No.: RE-25AR

Serial No.: 

Ravel Electronics warrants each product to be free from defects in material and workmanship. This obligation is limited to servicing or part returned to the company for that purpose and making good any parts thereof which shall be within warranty period, returned to the company under a written intimation and which to the company’s satisfaction to be found defective. The company reserves the right to decide the workplace for the repair work. The freight for defective material will have to be borne by the purchaser, and the transit risk for such material will rest with the purchaser.

This warranty will last for a period of 12 months from the date of Invoice of the product from the factory. The warranty is applicable only if the product is used within its specifications. The warranty for the replaced components will lapse along with that of the main product.

THIS WARRANTY IS VALID UP TO: 12 months from the date of invoice

Authorised Signatory