RE - 15AR
Agent Release Panel

Ravel®
Reliability at reach

Product Overview

RE-15AR is a feature-packed control unit performing dual function of detection and controlled release of gaseous agent. Unlike usual conventional gas release panels, it has facility providing Class A type of wiring.

Features:

- Complies with UL -864 and NFPA-72.
- Rugged CRCA sheet with powder coated finish.
- Operates on 120-220v 60 / 50 Hz, A.C. Mains power supply.
- Standby (battery) backup 24v D.C. power supply with built-in charger
- 16x2 Dot Matrix LCD Display.
- 4 Class - B / 2 Class - A Initiating device circuits (I.D.C).
    - All zones accept smoke detectors and any normally open Contact device.
    - Any Zone can be configured as Alarm or supervisory Zone.
- 2 Class - B Releasing Agent Circuits (R.A.C).
- 2 Notification Appliances Circuits (N.A.C).
- Error free Fire / Fault status in unambiguous colored LED indication.
- System ON indication.
- Main, Stand-by status audible and visual indication.
- Battery Low visual warning with audible tone.
- 4 Form c programmable relay for fire/fault/supervisory/pre-release/release.
- 100 Events Log with RTC.
- 4 Programmable Input circuits for manual release /Abort/Pressure Switch/Actuator low pressure.
- Zone Isolation Facility.
- Walk test Facility.
- All Wiring Circuits are supervised.
- Earth Fault annunciation facility
- All Field Circuits are power limited except 120-220v AC and Battery.
- RS 485 Communication Facility (Optional for Zone wise contact / MODBUS).
- Two Modes of Operation (Auto /Manual).

Programmable Options

- 24V DC output (Steady/Resettable/Pre-Release).
- RAC's with Count down Timer.
- NAC's.
- Trouble reminder facility.
- A.C. loss Delay.

Specification

Primary Power (RE-SMPS-4A-R1)
120 - 220VAC ± 10%, 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 25 ±2° C/77 ±3° F.

Charging Circuit
Charging Voltage: 28.4V, ±0.2V With current 800mA (Max).

ID.C. Output Power
Supervised 24VDC regulated, 1A Max. (for 4 wire smoke detector)

Common Four Form C Relays
Relay Contact Rating: 2Amps @ 30 VDC, 2Amps @ 30VAC.
Power Factor: 0.6

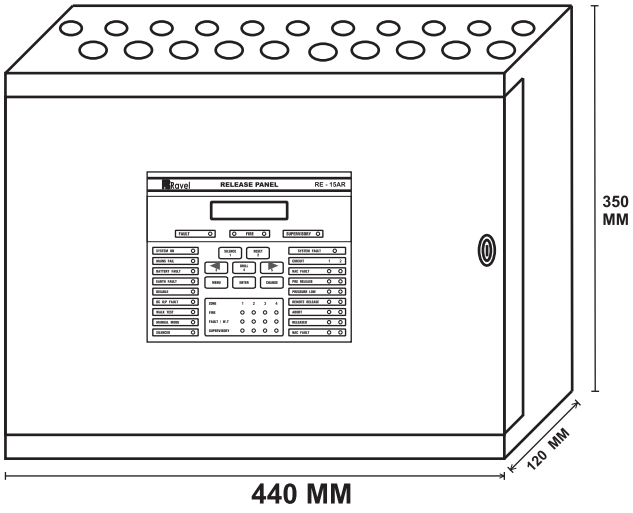
Dimension of the panel : 450 x 340 x 120 mm (length x height x width)

nitiating Device Circuits
Class A/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)

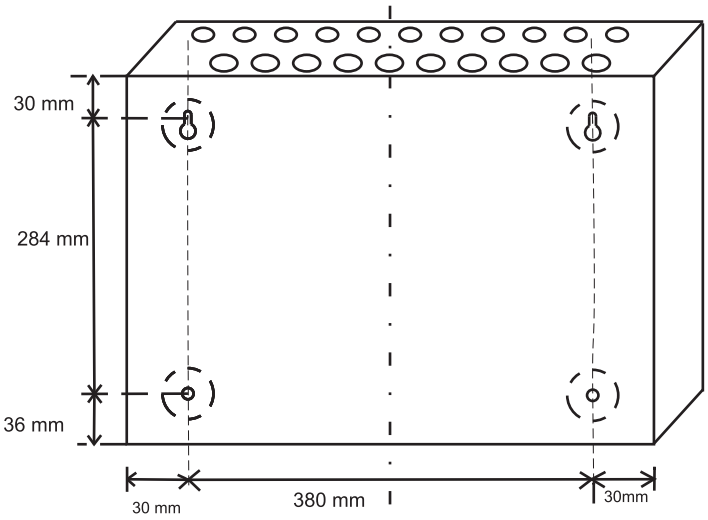
Notification Appliance Circuits
Class B Style - Y wiring
Operating Nominal Voltage: 24VDC Special Application
Current for NACs: 0.5A per circuit
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

Releasing Agent Circuits
Class B Style - Y wiring
Operating Nominal Voltage: 24VDC Special Application
Current for RACs: 2A
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt.

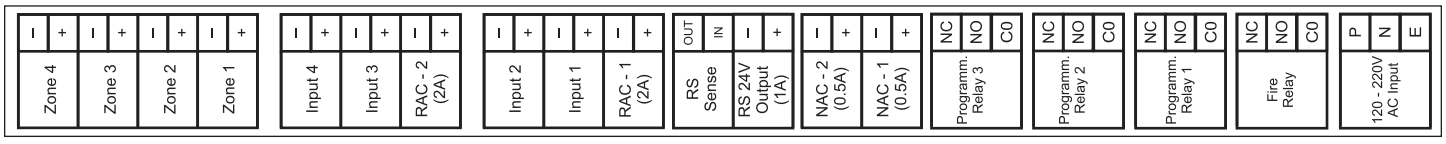
G.A.Diagram:



Mounting Detail:



Terminal Details:



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RE-24CS
Mini Horn

Ravel®
Reliability at reach

Product Overview

Mini horn sounders are designed to simplify installations to provide primary and secondary for fire and security applications. These are ideal where smaller notifications devices is desired. The horns can be flush / ceiling mounted with / without back box.

Features:

- Ravel Indian Manufacturer, International standard.
- Slim and Sleek
- Wall or Ceiling mountable
- Mini Horn with BackBox
- 24VDC Operation
- They are used in Fire, Burglar & Emergency Alarm System.

Electrical Specification

1.	Operating Voltage	:	24V DC
2.	Operating Current	:	40mA
3.	Sound Level	:	85dB@1m
4.	Operating Temperature	:	0 - 49° C / 32-120° F.
4.	Sounder Type	:	Piezo Electric Type
5.	Tone Type	:	Fire Engine Siren
6.	Material	:	ABS Plastic
7.	Colour	:	Red
8.	Dimensions	:	96 H mm X 76 L mm X 28 D mm
	Back Box	:	95 H mm X 75 L mm X 58 D mm
9.	Mounting Type	:	Surface / Flush Mount

Ordering Information:

Model	Description
RE-24CS	**Mini Horn**

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RE-24SS

Conventional Sounder cum Strobe

Ravel®
Reliability at reach

Product Overview

RE-24SS sounder cum strobe are designed to simplify installations to provide primary and secondary for fire and security applications. These are ideal where smaller notifications devices is desired. The horns can be flush / ceiling mounted with / without back box. Strobe shall be wired as primary (or) secondary signaling notification appliance flashing at 1Hz over entire voltage operating range. Strobe light consists of Xenon flash tube.

Features:

- Easy to install.
- Operates on 24VDC
- 100db at 30cm.
- Low Current.
- Ceiling / Flush Wall Mount.

Electrical Specification

• Material	:	FR ABS Plastic
• Input Voltage	:	24V DC (15-30V)
• Current	:	100 mA @24V
• Relative Humidity	:	93 ± 2 @ 32°C
• Operating Temperature	:	-10 to 50°C
• Sound Level	:	112 db +/- 5dB @ 30cm
• Tone Type	:	Sweep Siren
• Size	:	126(W)*126(H)*55(D)mm

Ordering Information:

Model	Description
RE-24SS	Sounder cum Strobe

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RE-25AR
Agent Release Panel

Ravel®
Reliability at reach

Product Overview

RE-25AR Agent Release Panel fully complies with UL-864 and NFPA-72. These panel are a feature packed control unit performing dual function of detection and controlled release of gaseous agent. These panels have 4 detection circuits and 2 agent release circuit with various programmable options. The panel have all the safety features to prevent accidental release, easy to install, commission with user friendly programmable option, this panel is ideal choice to protect the premises.

Features:

- 16x2 Dot Matrix LCD Display.
- Operates on 120-220v 60 / 50 Hz, AC Mains power supply.
- 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 or supervisory Zone.
- 2 Class B Releasing Agent Circuits (RAC).
- 2 Class B Notification Appliance Circuits (NAC).
- Standby (battery) backup 24v DC power supply with built in charger
- Main, Standby status audio visual indication.
- Battery Low audio visual warning tone.
- 3 Form C programmable relays for Fire / fault / supervisory / Gas Released.
- Two modes of operations Auto / Manual.
- Programmable 24v D.C Outputs.
- RS 485 Communication facility (Optional).
- 200 Events history log with RTC.
- Walk Test facility.
- Zone Isolation facility with voltage cutt off.
- Earth fault annunciation facility.
- All field wiring circuits are Power limited except 220v AC and Battery.
- All field wiring circuits are supervised.
- AC Low voltage cutoff.
- Programmable RAC's with count down timer.
- Programmable AC loss delay
- Programmable Trouble remainder.

Special Features:

- Ravel Indian Manufacturer, International standard.
- UL Listed (9th Edition).
- Switch Mode Power Supply.
- Modular Construction, Serviceable.
- Special logic circuitory to prevent accident release.
- Auto Resettable Fuse.
- Surge Protected.
- Battery polarity & deep discharge protection.

NAC's Output:

- Variable solenoid ON / OFF time.
- 4 No's of programmable Initiating Device Circuit and 2 No's of Releasing Agent circuit, with the independent correlation of any no of initiating devices circuit with any one of Release Agent Circuit.
- 4 No's Programmable (Fire, Cross Zone & Gas Release) relays for integration of third party system
- Separate LED indications on front facia for individual Releasing Agent Circuit.

SIGNALING
UL
LISTED

Electrical Specification

Primary Power (RE-SMPS-4A-R1)
120 - 220VAC ± 10%, 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 / 90 ± 3° F.

Charging Circuit
Charging Voltage : 28.0V, ± 0.2V
Charging current : 800mA (Max).

D.C. Output Power
Supervised 24VDC regulated, 300mA.

Common Relays
Type : Form C
No of Relays : 3
Relay Contact Rating: 2 Amps @ 30 VDC,
0.5 Amps @ 125 VAC.

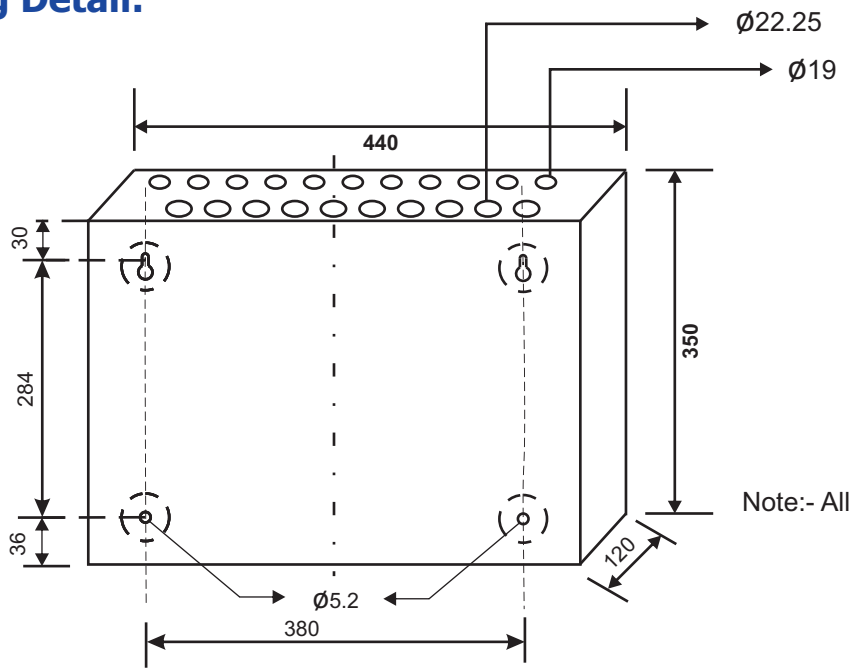
Programmable Input circuits
No. of Inputs: 4
Normal Operating Voltage: 8 - 12 VDC.
Short Circuit Current: 5mA Maximum.
Loop resistance: 100 ohms Maximum.
End-Of-Line Resistor: 3K9, 1/2watt
Standby Current: 2.5mA
Maximum Manual Release Switch: 3 No's.

Initiating Device Circuits
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)

Notification Appliance Circuits
Class B, Style - Y wiring
No of circuits : 2
Operating Voltage : 24VDC Nominal
Current : 0.6A per circuit
Line Drop : 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

Releasing Agent Circuits
Class B, Style - Y wiring
No of circuits : 2
Operating Voltage : 24VDC Nominal
Current : 0.6A per circuit
Line Drop : 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

Mounting Detail:

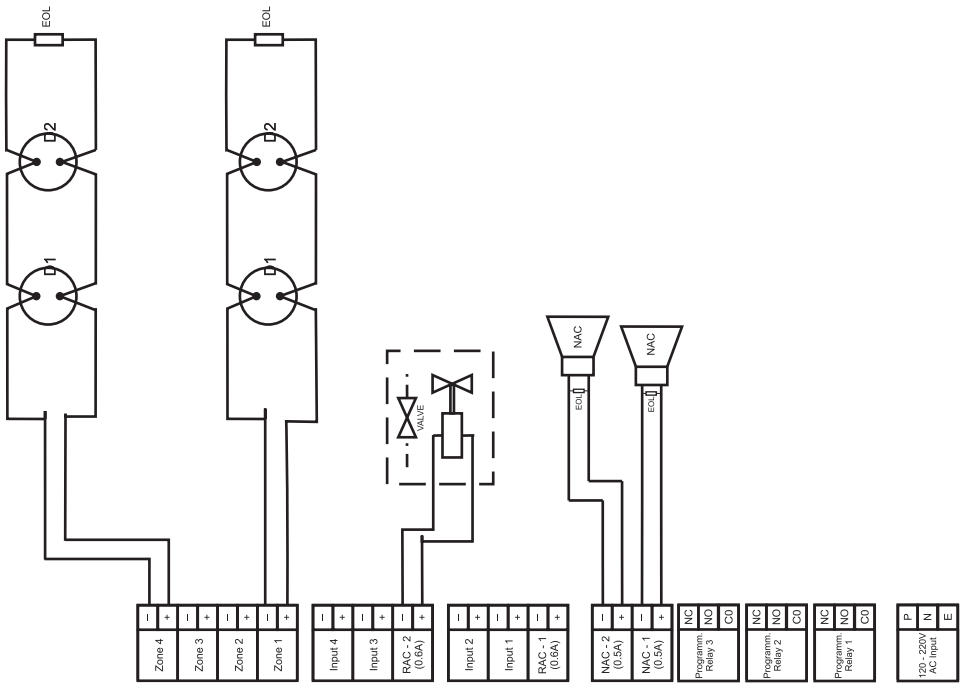


Note:- All Dimensions are in MM

Mechanical Specification:

Dimensions	: (440W X 350H X 120D)
Color	: Red / White
Construction	: 18 Gauge (1.22mm) CRCA sheet with powder-coated Finish
IP Rating	: IP50
Cable Entry	: 11xø19mm Knockout in top of the cabinet 10xø22.25mm Knockout in top of the cabinet

Wiring Diagram:



Note:

D1,D2 - Two wire detectors
EOL - End Of Line Resistor
NAC - Notification Alarm Circuit

Initiating Device Circuit
IDC's are 1 to 8, Class B StyleB/C
End of Line - 3K9 1/2W
PN: RE3K9

⊙***All the field wiring circuits are supervised.***
⊙***All the field wiring circuits are Power limited except 120-220v A.C and Battery.***

Compatible Devices:

MODELS	DESCRIPTION
11591NC	Solenoid Valve
RE-3K9	End Of Line Resistor

Ordering Information:

MODEL	DESCRIPTION
RE-25AR-W	4 ZONE Gas Release Panel (White Color)
RE-25AR-R	4 ZONE Gas Release Panel (Red Color)

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Ravel

RE –102
RE - 104

Fire Alarm Control Panel

Installation, Commissioning & Operating Manual

NOTES:

Table of Contents

Chapter 1: Introduction

This manual is intended as a complete guide to the RE - 102 / 104 model Conventional Fire Control Panel. User operating Instructions are provided in the first part of this manual. This is followed with sections describing installation and commissioning procedures and full technical details are provided.

1.1 System Design and Planning

It is assumed that the system, of this control panel is a part, which has been designed by a competent fire alarm system designer in accordance with the requirements of IS 2189: 1999 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 comply with the requirements of IS 2189: 1999. The panel functions are microprocessor controlled and test and isolate functions are included. Provision is made for a repeater function of panel status output. The panel can accept, per zone, automatic detectors with a total maximum loading of 2.4mA quiescent current rating (refer to chapter 2.2), and an unlimited number of manual call points.

End of Line (EOL) devices

The panels can continue to monitor manual call points with detectors removed, providing the detectors are fitted with a Schottky diode and an a EOL device is used.

Installation

The panel is easy to install and operate. The panel fascia is retained by tamper-proof screws.

1.3 Fire Alarm Procedures

In accordance with IS 2189: 1999, 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.

Fault Indication:

If the control panel indicates a Fault condition, make a note of all illuminated indicators, refer to the chart on **Page 23**, and call the 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. The user's responsibilities are described fully in IS 2189: 1999.

1.5 Routine Testing

In order to ensure that the system is fully operational, and to comply with the requirements of IS 2189: 1999, 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 that the appropriate actions have been taken, e.g. informing 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 and any link to a remote manned centre, Central Station, 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 case should be cleaned periodically by wiping with a soft, damp cloth. **Do not** use any solvents.

Chapter 2: Product Description

The RE - 102 / 104 is a 2 / 4 zone microprocessor based conventional Fire Alarm Control Panel. The Panel accepts water flow devices, conventional input devices like 2 wire smoke detectors, pull stations and other normally open contact devices. The Outputs include Notification Appliance Circuits (sounders), Three Form – C relays 2 for alarm, 1 for fault and RS485 port to interface with remote annunciator (Optional). It supervises all wiring, AC voltage and Battery level.

2.1 Product Features

- Rugged CRCA sheet with powder coated finish.
- Operates on 220v, 50Hz AC supply.
- Standby battery back up with built in charging.
- Error free Fire / Fault status in unambiguous colored LED indication.
- Switch Mode Power Supply.
- 16 X 2 LCD Display.
- Tactile key pad for easy operation.
- Main, Standby status indication.
- Low Battery visual warning with audible tone.
- Zone wise one man walk test facility.
- RS 485 communication port for Repeater / network. (Optional).
- Relay output for actuators.
- Lamp Test facility.
- Zone Isolation facility with loop voltage cut off.
- Programmable Keypad lock.
- Programmable Auto Silence.
- Compatible to all types of conventional detectors.

2.2 Specification

AC Power

220 VAC, 50 Hz. +10% - 15%

Battery (Lead Acid only)

Charging: Constant Voltage – 27.6v @ 0.5A(Max)

Charging Capacity: 7 Amp Hour Battery Max.

System Quiescent Current: 60mA

Initiating Device Circuits (Zone Circuit)

All zones are Class B wiring

Normal Operating Voltage: Nominal 24 VDC

Alarm Current: 15 – 35mA threshold

Short Circuit Current: 42mA Maximum

Loop resistance: 50 ohms Maximum

End-Of-Line Resistor: 4.7K, 1/4watt

Standby Current: 6.8mA (2.4mA for Detectors)

Notification Appliance Circuits (Sounder Circuit)

Class – B wiring

Operating Nominal Voltage: 24 VDC

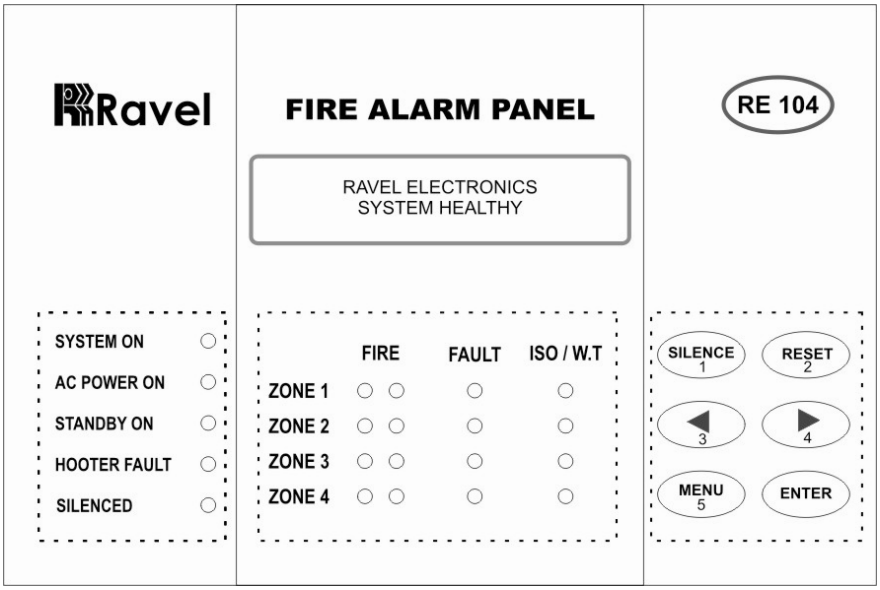
Hooter (NACs) output: 1A

End-Of-Line Resistor: 4.7K, 1/4watt

Three Form – C Relays

Relay Contact Rating: 2Amps @ 30 VDC, 2Amps @ 30VAC (Fire – 2 No's, Fault – 1 No.).

2.3 Controls and Indication



2.3.1 LED Indication

System On – Green

A.C Power On – Green

Standby On – Green

Hooter Fault – Yellow

Silenced – Yellow

Zone Fire – Red

Zone Fault – Yellow

Zone Isolate / Walktest – Yellow

Local Buzzer

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

- Alarm – steady
- Fault – pulse 0.5sec ON and 0.5sec OFF

2.3.2 Controls

SILENCE Key: During fire/fault condition, silence key is used to silence the external Sounders (NAC) and the internal buzzer tone.

RESET Key: This key is pressed to reset the entire system and While in reset condition, all detector loop voltages are cut off up to 3 seconds for Detectors and MCP's, Then voltages are put on to the loop.

CURSOR KEYS: The cursor keys (Right / Left arrows) are used to move the menu list and menu options.

ENTER Key: This key is used to enter into menu edit mode and accept the changes of edited menu. This key also used for lamp test in system normal condition.

MENU Key: This key is used to enter into the Main menu in the LCD.

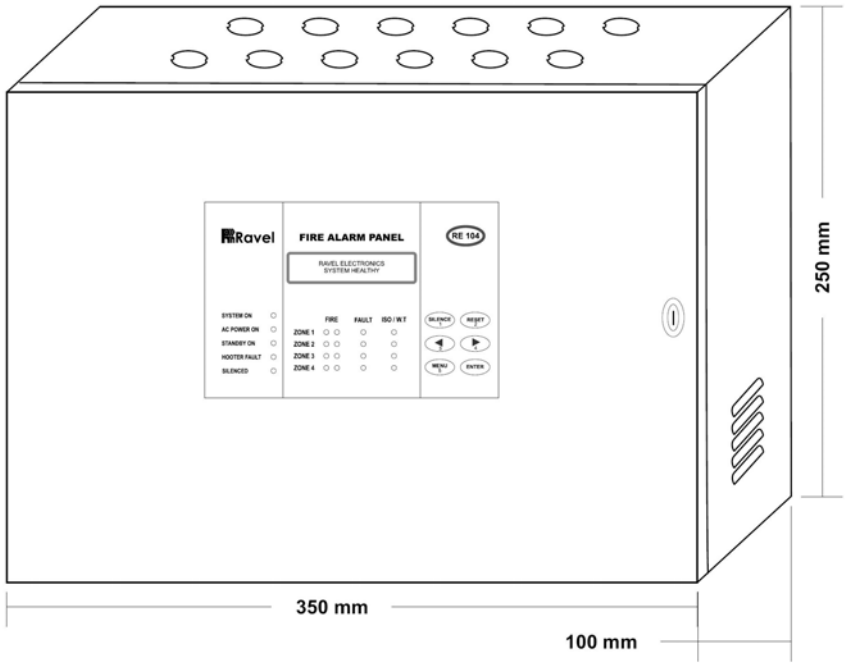
2.4 Mechanical Construction

The enclosure of the Panel is constructed by CRCA sheet with powder coated finish and it's designed to afford the degree of protection as per IP-54. The ∅19mm knock outs are given for cable entry at the top of the cabinet.

The panel also has a built in battery provision to accommodate 2 Nos. of 12v, 7Ah batteries.

The front side of the panel consists of the following,

a. Tactile switches.
b. LED indications



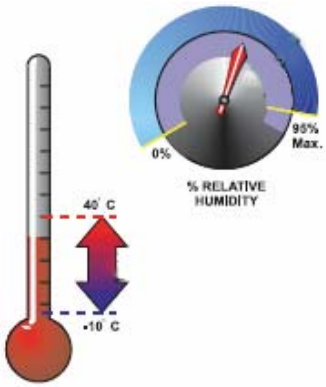
Chapter 3: Installation

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/90 ±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 0-50° C/32-120° F.

Verify that wire sizes are adequate for all initiating and Indicating device 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.

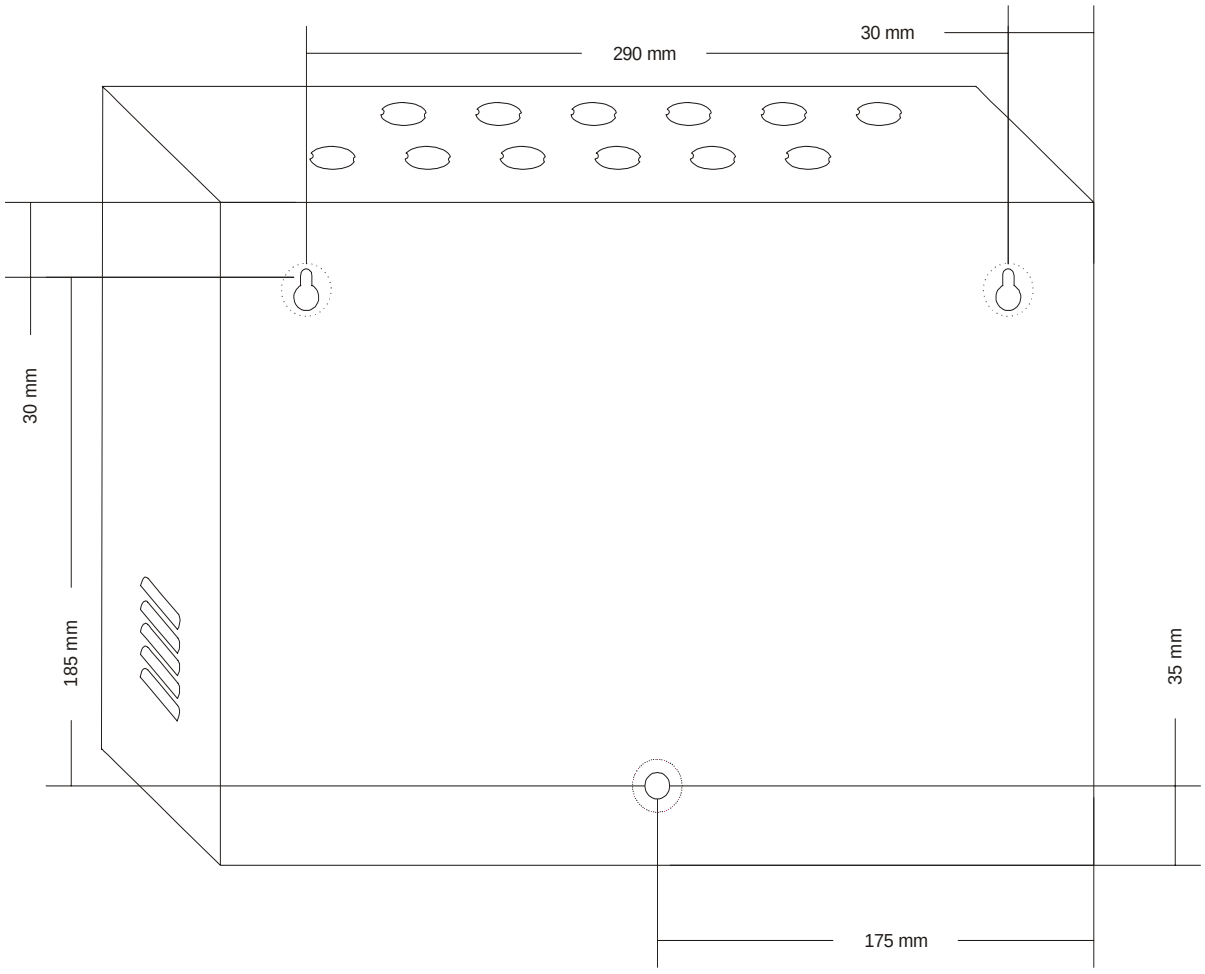
Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, and printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs.
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



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. All external cables are to be entered via the ∅19mm preformed knockouts located at the top of the panel.

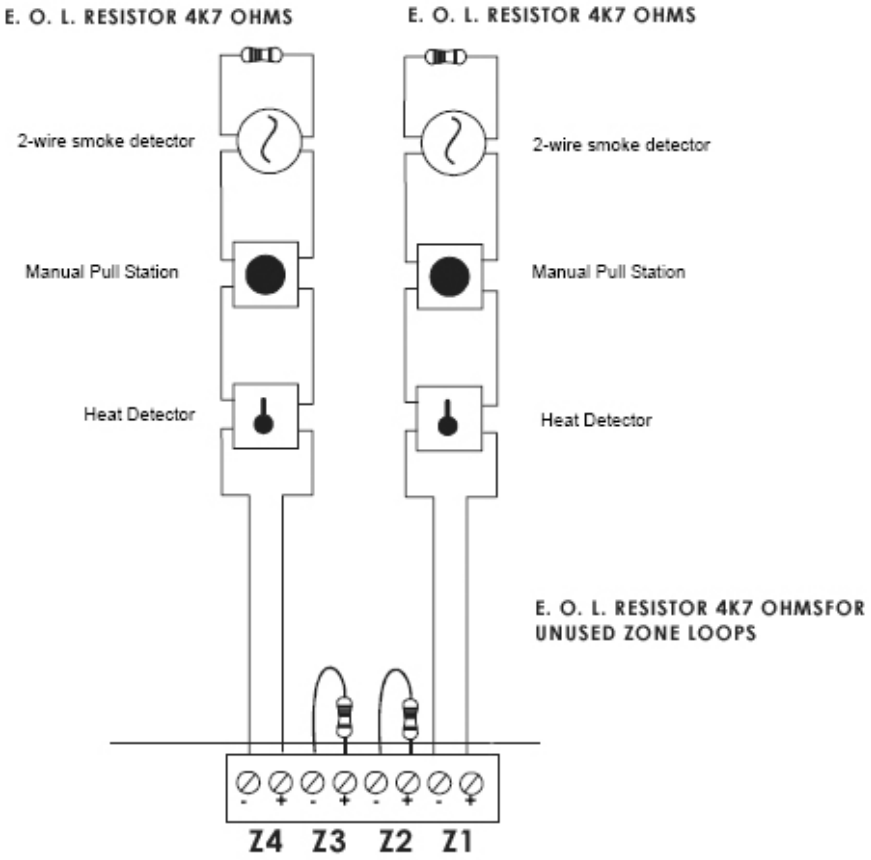
When the installation of all the cables has been completed, clean the interior of the enclosure ensuring all masonry debris and drilling swords are removed.

3.3 Input Circuits

The control panel has 2 / 4 zone input circuits depending on the variant. The maximum loop resistance limit for each input circuit is 50 ohms. All field wiring of each zone is supervised for opens and ground faults. Both conditions are visually and audibly (toggle tone) annunciated.

Each zone is a Class B Initiating Device Circuit (IDC – Zones) designed to accept any normally open contact devices and conventional 2-wire, 24 volt smoke detectors.

It is allowable to mix an assortment of device types (i.e. smoke detectors, heat detectors, pull stations, etc.) on any zone.

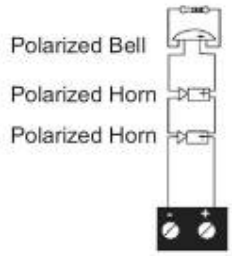


Zone Circuit – Class B

3.4 Output Circuits

Sounder Circuits: The RE - 102 / 104 provides Notification Appliance Circuits standard as Class B. The total load capacity of this circuit is capacity of this O/P is 1Amps.

Class B Notification Appliance Circuit (Supervised) 4.7K ohms, ½ watt



Notification Appliance Circuit polarity shown in alarm state

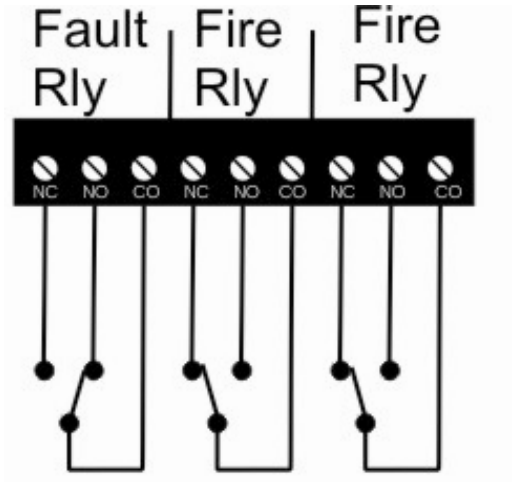
E. O. L. RESISTOR 4.7K OHMSFOR UNUSED NAC(Sounder) LOOPS

Sounder Circuit – Class B

Note: *If the non polarized devices are used, connect the device as mentioned in page 23.*

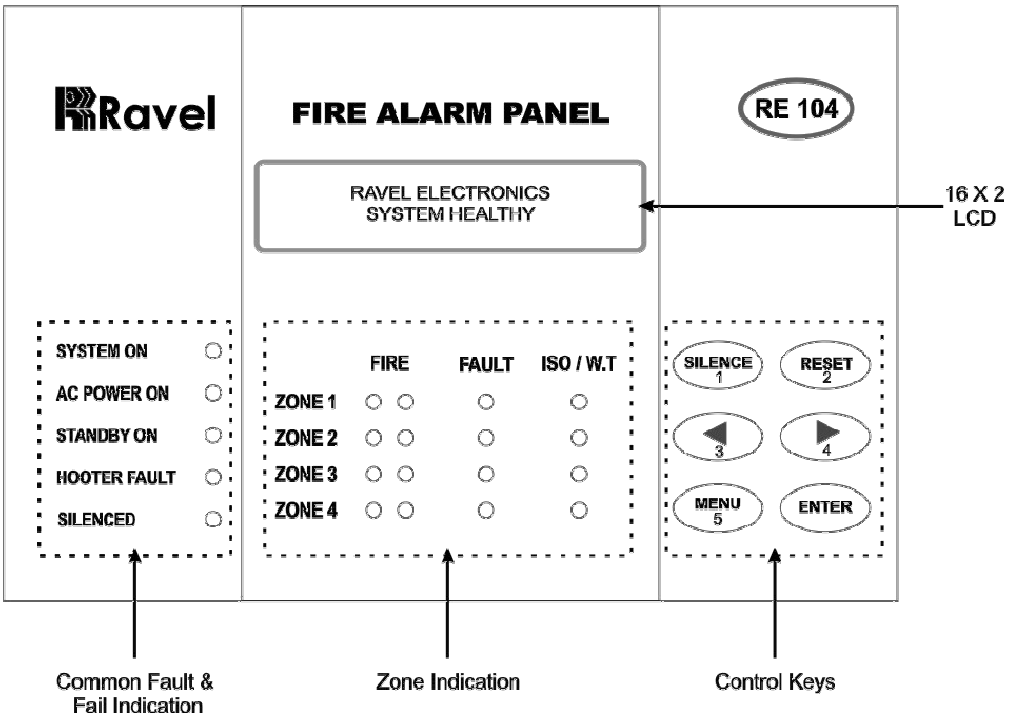
Standard Relay

The control panel provides three Form-C relays (2 for Fire & 1 fro Fault) rated for 2.0 amps @ 30 VDC and 2.0 amps @ 30 VAC. Relay connections are power-limited.



Relay contacts shown with power applied to the panel no active Events

Chapter 4: Operating Instruction



4.1 Switch Functions

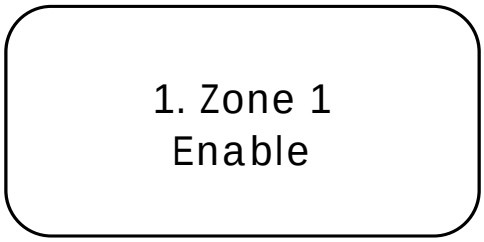
SILENCE Key: This key is used in Fire / Fault Condition. To acknowledge the external sounder / internal buzzer press this key. During fire condition, after silencing the silence LED glows to indicate that external Sounders (NAC) are silenced.

RESET Key: This key is used in only Fire Condition. The panel is reset by pressing this key followed by password if enabled. During reset condition, all the detector input voltages are cut off up to 3 seconds for Detectors and MCP's, Then voltages are put on to the loop.

ENTER Key: This key is used to check the all LED's in panel is in good condition with continuous buzzer tone in normal operating condition. The same key is used to accept the selection of menu and changes done in the menu.

CURSOR KEYS: The cursor keys (Right / Left arrows) are used to move the menu list and menu options.

MENU Key: The **MENU** key is used to enter into the programming mode for changing the zone status and other settings. The various steps involved in this menu are shown as flow chart 4.3.5. After entering into the menu, screen will be as below,



4.2 Status LED:

Normal: In the Normal Condition, **SYSTEM ON, AC POWER ON,** green LED will be illuminated. There should be **no other amber / red LED visual indication or audible tone.**

A.C POWER ON: This LED indicates the presence of main supply. Whenever the Main Supply (220v A.C) is present this LED will glow. Whenever the Main Supply (220v A.C) fails / fuse blown, the AC Power on LED will OFF and it also indicated by fault Buzzer tone.

BATTERY ON: This LED indicates the presence of standby power supply. Whenever the Main Supply (220v A.C) fails, the panel supply is switched to standby power supply with BATTERY ON indication. Whenever the backup battery fails / fuse blown, the battery fail is indicated by LCD with fault Buzzer tone.

Note:

Whenever the backup battery voltage goes below the 21v, the **battery on** LED will be blinking with toggle Buzzer tone.

HOOTER FAULT: Whenever there is any fault in Notification Appliances Circuits like Hooter (Sounder) loop open / short, it will be identified by COMMON HOOTER FAULT LED.

SILENCED: Whenever the External Sounders are silence in presence of actual fire. After silencing this LED glows with toggle buzzer tone.

4.3 Operation

4.3.1 ZONE FAULT RESPONSE:

When faults like Open/ Short occurred in the loop, the corresponding ZONE FAULT LED would identify it.

Note: *During the above fault conditions, apart from the specific fault identification LED, common fault relay and Local buzzer with intermittent tone will be activated. During this time, if 'SILENCE.' is activated, intermittent tone will be silenced.*

4.3.2 ZONE FAULT RESTORAL:

When the faults condition of the FAP is **restored**, then the corresponding fault LED goes off and also common fault relay and intermittent buzzer tone is deactivated.

4.3.3 ZONE FIRE RESPONSE:

When the control panel detects Fire via the Detector / MCP, the corresponding ZONE FIRE red LED will be illuminated. At the same time hooter, potential free contact (Fire Relay) and local buzzer (continuous tone) will be activated.

The External hooter (NAC / Sounder) and buzzer will be silenced by using the **Silence** Key and silenced LED indicates it.

Always the recent fired zone FIRE LED will blink continuously, rest of the fired zone FIRE LED's will glow constantly till it goes to RESET. **The FIRE LED indication will remain ON condition till the panel is RESET.**

4.3.4 ZONE FIRE RESTORAL:

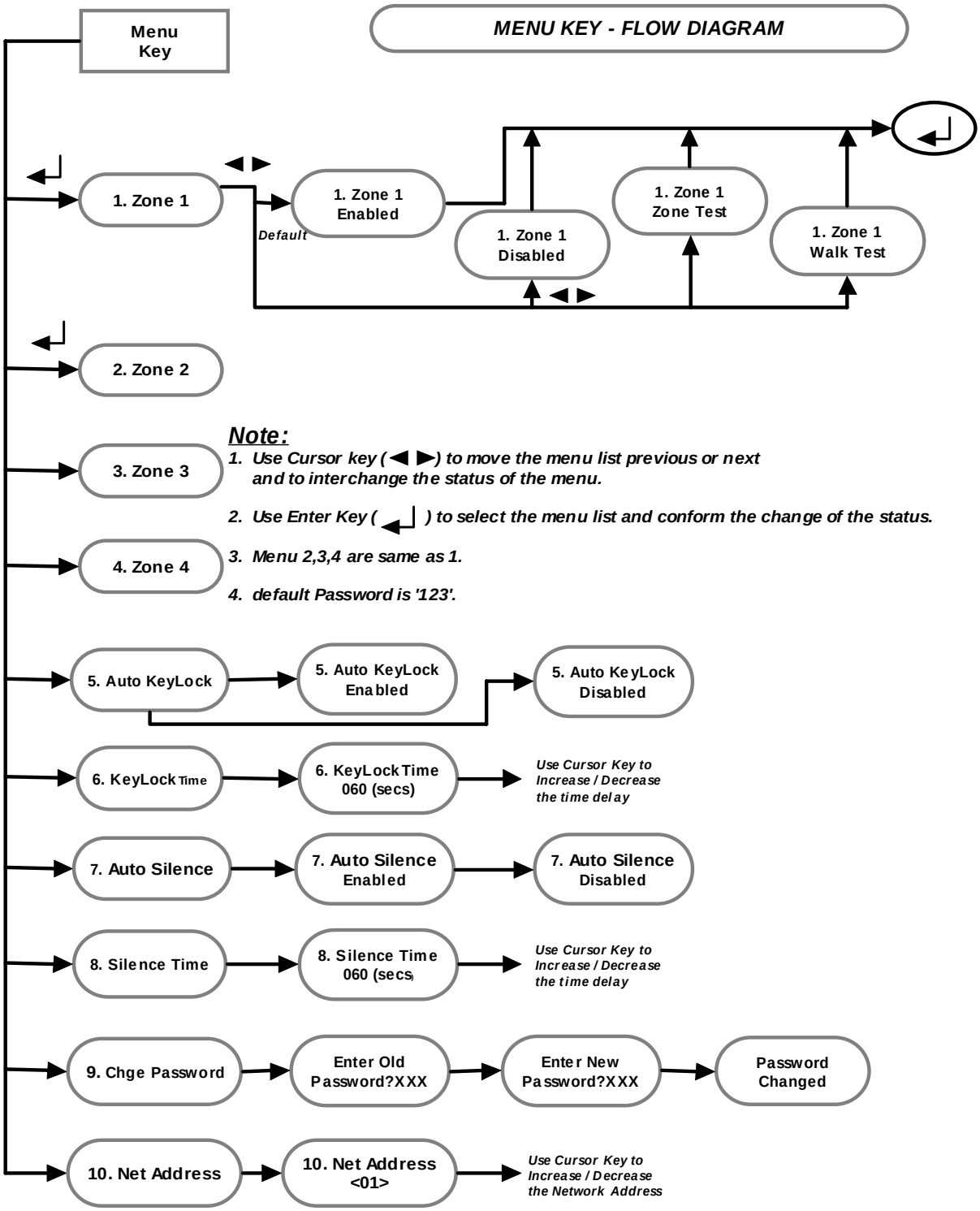
The control panel returns to normal after all alarms have been cleared and a system reset key has been pressed followed by the password if enabled. The control panel will perform the following upon restoral of all active alarms, The Zone Fire LED, Hooters, buzzer and fire relay are turn off.

Note:

1. *The Fire relay will be in ON condition till the fire and fault LED's go OFF.*

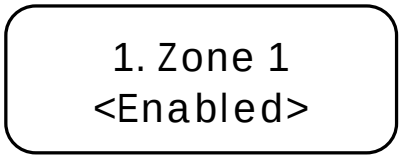
2. *By silencing, sounders are switched off and Fire relay output for actuators will remains in ON Condition until reset.*

4.3.5 Programming Menu Flow Chart:



4.3.5.1. Zone 1

From this menu, the zone 1 loop can configured as enable, disable, Zone test and Walk test. The default option is 'Enable'. To change the options press 'Enter' key, then change the options by using the left/ right cursor keys. The Screen will be as shown below.



Enable Mode: In this mode the zone will be in normal condition to detect the fire with detectors and manual call point (normally open devices).

Disable Mode: In this mode the zone is disabled with loop voltage cut off.

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

Zone Test Mode: In this mode the zone is Tested for Fire, Open, Short and Isolate automatically without disturbing the normal operations.

Walk test Mode: 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.

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 with out 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.

4.3.5.2. Zone 2

From this menu, the zone 2 loop can configured as enable, disable, Zone test and Walk test. The default option is 'Enable'. To change the options press 'Enter' key, then change the options by using the left/ right cursor keys. The Screen will be as shown below.

2. Zone 2
<Enabled>

4.3.5.3. Zone 3

From this menu, the zone 3 loop can configured as enable, disable, Zone test and Walk test. The default option is 'Enable'. To change the options press 'Enter' key, then change the options by using the left/ right cursor keys. The Screen will be as shown below.

3. Zone 3
<Enabled>

4.3.5.4. Zone 4

From this menu, the zone 4 loop can configured as enable, disable, Zone test and Walk test. The default option is 'Enable'. To change the options press 'Enter' key, then change the options by using the left/ right cursor keys. The Screen will be as shown below.

4. Zone 4
<Enabled>

4.3.5.5. Auto Key Lock

From this menu, the Auto key lock can enabled or disabled. By pressing the 'Enter' key from this menu the option can be changed by using the Left / Right keys. The default factory setting option is 'disabled'. If the key lock is enabled, the Auto lock time is enabled automatically and after the set time delay key pad will be locked.

4.3.5.6. Auto Lock Time

The Auto key lock time will be enabled only when the Auto Key lock is 'Enabled'. If the Auto Key Lock is in Enabled condition, then by pressing the 'Enter' key from this menu the key lock time can be changed by using the Left / Right keys. The default factory setting option is 'disabled' and default set time is 60 Seconds.

4.3.5.7. Auto Silence

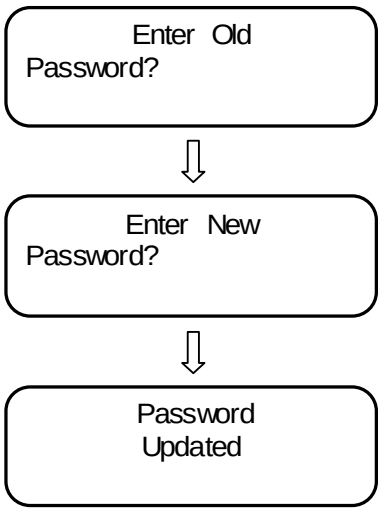
From this menu, the Auto Silence can enabled or disabled. By pressing the 'Enter' key from this menu the option can be changed by using the Left / Right keys. The default factory setting option is 'disabled'. If the Auto Silence is enabled, the Silence time is enabled automatically and after the set time delay Sounders will be silenced automatically.

4.3.5.8. Silence Time

The Silence time will be enabled only when the Auto silence is 'Enabled'. If the Auto Silence is in Enabled condition, then by pressing the 'Enter' key from this menu the key lock time can be changed by using the Left / Right keys. The default factory setting option is 'disabled' and default set time is 60 Seconds.

4.3.5.9. Change Password

From this menu, the password used for key panel enable can be changed. The default factory setting password is '123'. The password should be three digits.



4.3.5.10. Net Address

From this menu, the network address used for network panel can be changed. The default factory Net work address is '1'. The network address can changed by pressing 'Enter' key from this menu, it enters into change mode then the address is changed by using the Left / Right keys.

Chapter 5: Servicing

5.1 Walk Test Mode:

The RE - 102 / 104 provides the capability to perform a walktest of the system without triggering the Fire Relay. Walk test Mode allows for testing of all the zones.

For a walktest, the initiating device activated on a zone will cause the Notification Appliance Circuits (Sounder/Hooter) to turn on for three seconds. Any smoke detectors that are activated will be reset automatically after 6 seconds.

Placing the control panel into Walktest Mode will be possible only if the system has no active alarms. While the selected zone work as walk test and other zone will works normally.

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.

This feature helps to perform the testing of devices by a single person. In this mode if the panel detects any fire then after 3 seconds the panel will get automatically silenced. After 6 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:

- 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.
- If fire is created, turns on the Notification Appliance Circuits for 3 seconds for alarm on a zone.

Note:

a. *If the other zone (Normal Zone) get triggered by actual fire, the FAP treat as real fire and activates NACs and actuators.*
b. *The maintenance person should enter into the walktest mode in normal condition of the panel.*
c. *If there is no more testing, ensure that the zone is brought back to the normal Condition.*
d. *During in this mode, the Potential free Relay will not be activated while in fire condition.*
e. *If there is no more testing for 10 minutes, the panel return back to normal mode automatically.*

5.2 Installation/Replacement of PCB:

Remove the screws of PCB, which has to be changed and remove the PCB from the mounting position and place the new PCB in that same position with the screws tightened properly.

5.3 Test:

This feature is used to test whether the LED and zone card is working properly or not.

To test a particular zone, follow the procedure as below

1. Press the 'menu' key zone1 selects first.
2. Press 'cursor' key consequently until select the zone which is to be test.
3. After selecting the zone press the ENTER KEY
4. After the ENTER KEY is pressed, Select the 'Zone Test' using the cursor key then press enter key, Open , Short & Fire test is Performed for that particular zone.

Once the testing procedure is finished, the previous conditions of the panel are retained.

5.4 Lamp Test:

The lamp test function done by pressing 'ENTER' key in system (Panel) is normal condition. In this mode we can check that all the LED's are working in good condition by glowing all LED's.

Chapter 6: Battery Calculation

Normal Condition : X = **S** (Amps) x ____ Hrs. (Backup time required)

Alarm Condition : Y = **F** (Amps) x ____ Hrs. (Backup time required)

Battery Ah required : AH = (X + Y) x 1.2 (Derating Factor).

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

System current (**S**) = Quiescent Current + (Standby current X No. of zone)

Fire current (**F**) = (Alarm Current x no. of zones) + (Hooter Current x No. of Hooter).

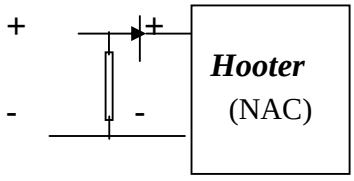
Example: (4 Zone with 48 Hrs in normal condition & 1 Hr in Alarm condition)

S = 0.060A + (0.0068A X 4) = 0.0872A
F = (0.035A X 4) + [0.2 X 4(no. of sounder)] = 0.94A
X = S (0.0872A) x 48 Hrs. = 4.1856
Y = F (0.94A) x 1 Hrs. = 0.94
AH = X+ Y = (4.1856 + 0.94) X 1.2 = 6.15072 Ah

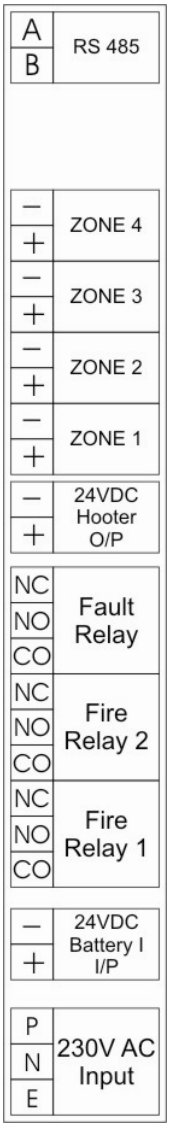
Chapter 7: Trouble Shooting

<table>
<tr><th>Indication</th><th>Root Cause</th><th>Remedy</th></tr>
<tr><td>There is no indication on the panel</td><td>No power to the Panel</td><td>Check AC power and Standby power.</td></tr>
<tr><td>If there is any false alarm from the detector</td><td>May be the detector is faulty or check EOL resistor</td><td>Ensure the AC supply within range 185 - 245v (or) Change the faulty detector</td></tr>
<tr><td>Detector OPEN is not detected by the panel</td><td>Total zone loop current exceed the rated value</td><td>Check number of detectors connected in the loop. Total detectors current should not go above 3mA</td></tr>
<tr><td>Hooter fault indication</td><td>There is no proper connection in the hooter
Or loop Fault.</td><td rowspan="2">If there is no hooter connected to the output, check if EOL resistor connected there or not.
Check loop wiring for short / open using a meter.
If hooter is non-polarized, then ensure each hooter's +ve loop is connected to 1N 4007 diode's cathode and the hooter –ve loop connected to the anode of 1N 4007.</td></tr>
<tr><td colspan="2"><u>Connection Details for Non Polarized Hooter</u>

Diode
IN4007

 
</td></tr>
</table>

Chapter 8: Terminal Details



RAVEL ELECTRONICS PVT. LTD

No. 150-A, Elec. Indsl. Estate, Perungudi, chennai – 600 096. India
Tel.: 24961004 / 24960825 Fax: 044-4204 9599
Email: marketing@ravelfirepanels.com
Web: www. ravelfirepanels.com

DATE:

TEST CERTIFICATE

This is to certify that the following items are tested and checked.

Microprocessor Based Conventional Fire Alarm Control Panel.

Model No.: **RE – 102 / RE - 104**

Serial No.:

No. of zones: **2 Zone / 4 Zone**

For **RAVEL ELECTRONICS PVT.LTD,**

Q.C. – Engineer **Tested By**

RAVEL ELECTRONICS PVT. LTD

No. 150-A, Elec. Indsl. Estate, Perungudi, chennai – 600 096. India
Tel.: 24961004 / 24960825 Fax: 044-4204 9599
Email: marketing@ravelfirepanels.com
Web: www. ravelfirepanels.com

WARRANTY CERTIFICATE

Model No.: **RE – 102 / RE – 104**

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

Ravel Electronics Pvt Ltd.,
150A, Electronic Industrial Estate,
Perungudi, Chennai – 600096, India.
Web: www.ravelfirepanels.com
Email: marketing@ravelfirepanels.com

RE-102 / 104
Fire Alarm Control Panel

Ravel®
Reliability at reach

Product Overview

RE-102/104 is a right blend of affordability design, user friendly, latest technology and quality for fire alarm panels. While implementing the latest in microprocessor technology for conventional panels ease to operate along with clear visible indications come at an advantage for the end user. These are stand alone panels with 2 & 4 zones versions. It has the optional facility for zone wise sounder / relay contacts.

Special Features:

- Ravel Indian Manufacturer, International standard.
- Switch Mode Power Supply.
- Modular Construction, Serviceable.
- Surface Mount Technology.
- Battery polarity & deep discharge protection.

Features:

- As per IS -2189 Standard.
- Standby battery backup with built in charging.
- Fire / Fault status in unambiguous colored LED indication.
- Switch Mode Power Supply.
- Tactile Keypad for easy panel operation.
- System on indication.
- Main, Standby status indication.
- Low Battery visual warning with audible tone.
- Relay output for actuators for Fire and Fault.
- Lamp Test facility
- Zone wise one man walk Test Facility.
- Zone wise Isolation facility with loop voltage cut off.
- Compatible to all type of Conventional Detectors.
- Optional Zone Wise Sounder / Zone Wise Contact.

Electrical Specification:

Primary Power

120 - 220VAC , 50 Hz

Standby Power

24V D.C (2 Nos of 12v, 7Ah 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/90 ±3° F.

Charging Circuit

Charging Voltage 28.2V, ±0.5V
Charging Current 0.5 A (Max.).

Notification Appliance Circuits

Class B wiring
Operating Nominal Voltage: 24VDC
Current for NACs : 1Amps
End-Of-Line Resistor : 4K7, 1/4 watt

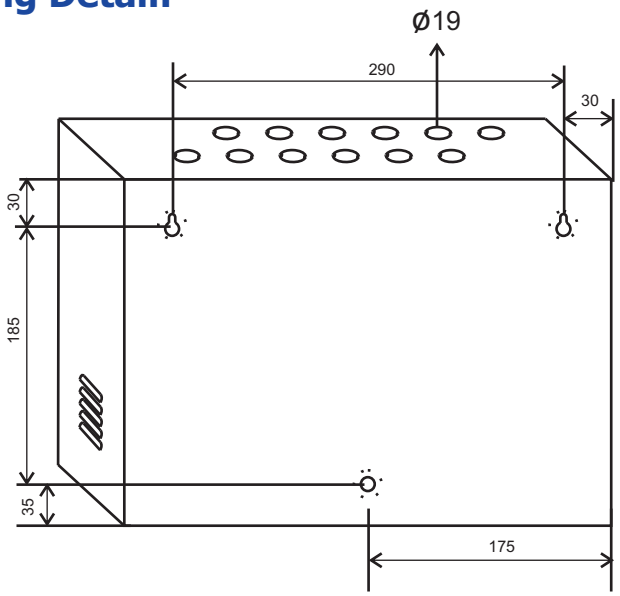
Common Relays

Type : Form C
No of Relays : 3
Relay Contact Rating : 2Amps @ 30 VDC, 2Amps @ 30VAC.
Power Factor : 0.6

Initiating Device Circuits (Zone Circuit)

All zones are Class B wiring
Normal Operating Voltage : Nominal 24 VDC
Alarm Current : 15 - 35mA
Short Circuit Current : 42mA Maximum
Loop resistance : 50 ohms Maximum
End-Of-Line Resistor : 4.7K, 1/4watt
Standby Current : 6.8mA (2.4mA for Detectors)

Mounting Detail:

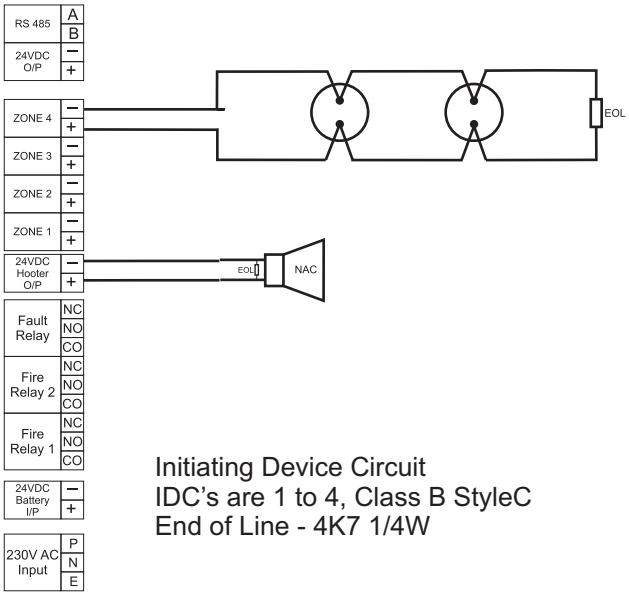


Note:- All Dimensions are in MM

Mechanical Specification:

Dimensions : (350W X 250H X 100D)
Color : Red / White
Construction : 18 Gauge (1.22mm) CRCA sheet with powder-coated Finish
IP Rating : IP50
Cable Entry : 11xø19mm Knockout in top of the cabinet

Wiring Diagram:



Initiating Device Circuit
IDC's are 1 to 4, Class B StyleC
End of Line - 4K7 1/4W

Ordering Information:

MODEL	DESCRIPTION
RE-102-W	2 ZONE Fire Alarm Panel
RE-102-R	2 ZONE Fire Alarm Panel
RE-104-R	4 ZONE Fire Alarm Panel
RE-104-W	4 ZONE Fire Alarm Panel

Note:

R- Red Color
W-White Color

Compatible Devices:

MODELS	DESCRIPTION
RE-316S-2L	Photoelectric Smoke detector with base.
RE-316H-2L	Heat detector with base.
RE-316SH-2L	Photoelectric & Heat detector with base

RAVEL ELECTRONICS LTD.
Unit 11, Chancel Industrial Estate, Newhall street, Willenhall WV13 1NX, West Midlands, United Kingdom.E-mail: info@ravelfire.co.uk
Web: www.ravelfire.co.uk

RE-120GR
Agent Release Panel

Ravel®
Reliability at reach

Product Overview

RE-120GR Agent Release Panel designed as per UL 864 standards . These panel are a feature packed control unit performing dual function of detection and controlled release of gaseous agent. These panels have 2 detection circuits and 1 agent release circuit with various programmable options. The panel have all the safety features to prevent accidental release, easy to install, commission with user friendly programmable option, this panel is ideal choice to protect the premises.

Special Features:

- Ravel Indian Manufacturer, International standard.
- Modular Construction, Serviceable.
- Special logic circuitory to prevent accident release.
- Auto Resettable Fuse.
- Surge Protected.
- Battery polarity & deep discharge protection.

NAC's Output:

- Variable solenoid ON / OFF time.
- 2 No's of programmable Initiating Device Circuit and 1 No's of Releasing Agent circuit.

Features:

- Operates on 220V, A.C supply
- Battery backup with built in charging.
- 16 X 2 LCD Dot Matrix Display.
- Evacuate and Key pad Enable, Disable Facility.
- Low battery visual warning with audible tone.
- Relay output for actuators.
- Provision for Remote fire with Audio / Visual Indications.
- Compatible to all types of conventional detectors.
- Zone Disable (Isolation) facility with loop voltage cut off.
- Resettable 24v DC output for 4 wire detectors.
- Three 24V Sounder Output (Fire, after Cross zone, after gas release).
- Two mode operation facility (Auto / Manual).
- Programmable Solenoid Output with ON and OFF Timer.
- Programmable Main / Standby Cylinder output Facility.
- Gas Inhibit and Instant release facility.
- Manual Gas Release with or without timer.
- Actuator pressure low sensing facility.
- RS 485 Output for Repeater.

Electrical Specification

Power

220-240 VAC, 50 Hz.
Wire size: 1.5 Sq. mm with 600V insulation

Battery (Lead Acid only)

Charging Voltage	: 28 VDC.
Charging Current	: 0.5 Amps (Max)
System Quiescent Current	: 80mA

Initiating Device Circuits (Zone Circuit)

All zones are Class B wiring

Normal Operating Voltage	: Nominal 24 VDC
Alarm Current	: 15 - 35mA
Short Circuit Current	: 40mA Maximum
Loop resistance	: 50 ohms Maximum
End-Of-Line Resistor	: 4.7K, 1/4watt
Standby Current	: 6.8mA (2.4mA for Detectors)

Notification Appliance Circuits (Sounder / Strobe Circuit)

1) Supervised

Operating Nominal Voltage	: 24 VDC
Operating Current	: 0.75A (Max)
End-Of-Line Resistor	: 4.7K, 1/4watt

2) Non - Supervised

Operating Nominal Voltage	: 24 VDC
Operating Current	: 0.3A (Max)
End-Of-Line Resistor	: 4.7K, 1/4watt

Releasing Agent Circuit

Operating Nominal Voltage	: 24 VDC
Solenoid output	: 0.75A
End-Of-Line Resistor	: 4.7K, 1/4watt (for Solenoid Output)

Remote Outputs

Fire Contact (C, NO, NC) : 220v AC/30v DC@ 1A
Fault Contact (C, NO, NC) : 220v AC/30v DC@ 1A
Cross Zoning Contact(C, NO, NC) : 220v AC/30vDC@1A

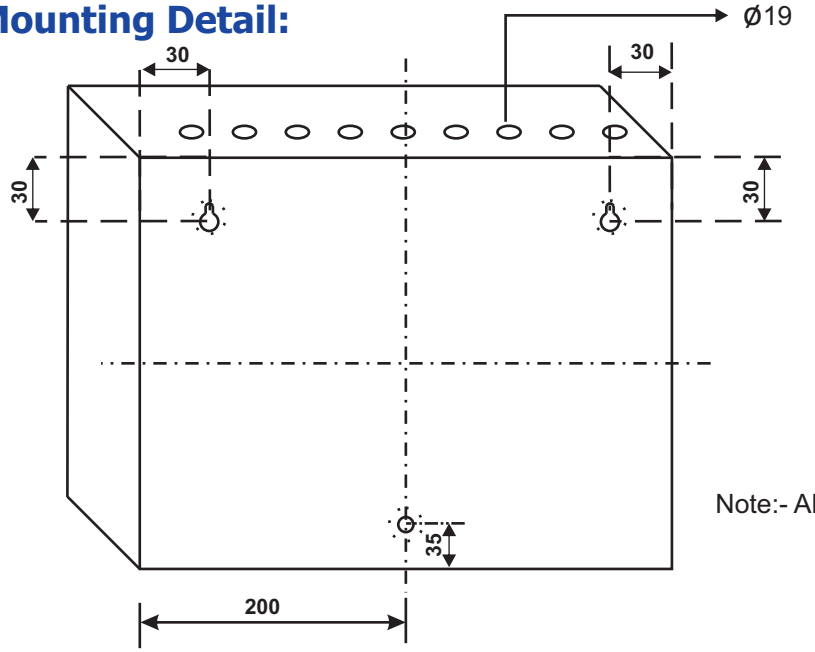
24 VDC Power For remote devices (Optional)

Operating Voltage : 24VDC, 500mA Max.

Operating Condition

Operating Temperature 0 - 49° C / 32-120° F.
Relative Humidity 93 ± 2% RH (non-condensing) at 32 ±2° C / 90 ± 3° F.

Mounting Detail:

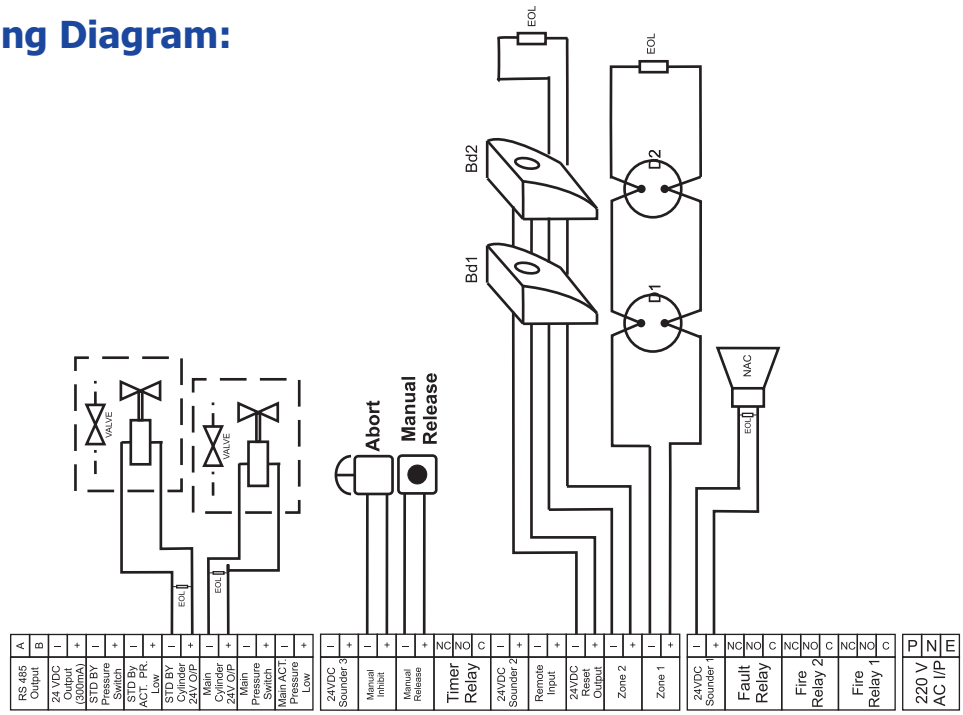


Note:- All Dimensions are in MM

Mechanical Specification:

Dimensions	: (400W X 300H X 100D)
Color	: Red / White
Construction	: 18 Gauge (1.22mm) CRCA sheet with powder-coated Finish
IP Rating	: IP50
Cable Entry	: 09 x ø19mm Knockout in top of the cabinet

Wiring Diagram:



Note:

D1,D2 - Two wire detectors
Bd1, Bd2 - Four wire detectors.
EOL - End Of Line Resistor
NAC - Notification Alarm Circuit (Sounder)
IDC - Initiating Device Circuit (Zone)

Initiating Device Circuit
IDC's are 1 & 2, Class B StyleB/C
End of Line - 4K7 1/2W

⊙*All the field wiring circuits are supervised.*
⊙*All the field wiring circuits are Power limited except 220v A.C and Battery.*

Compatible Devices:

MODELS	DESCRIPTION
RE-Monitor	24VDC Output for Monitor Module
RE-4K7	End Of Line Resistor

Ordering Information:

MODEL	DESCRIPTION
RE-120GR-W	2 ZONE Gas Release Panel
RE-120GR-R	2 ZONE Gas Release Panel

Note: R- Red Color; W-White Color

RAVEL ELECTRONICS LTD.
Unit 11, Chancel Industrial Estate, Newhall street, Willenhall WV13 1NX, West Midlands, United Kingdom.E-mail: info@ravelfire.co.uk
Web: www.ravelfire.co.uk

RE - 127 Series
Repeater Panels

Ravel®
Reliability at reach

Features:

- Operates on 120 to 220V AC, 60 / 50 Hz.
- 20 X 4 Characters LCD display.
- Repeats all the indication / Information of main panel.
- RS 485 Communication for Standalone / Network Repeater.
- System ON, AC ON, Battery ON, Charger ON indications.
- Alphanumeric keypads.
- Sounder (Evacuate) test facility.
- Lamp test facility.
- RE-127R, RE-127M Compatible with RE-2558, RE-2554, RE-700.
- RE-127GR Compatible with RE-120GR, RE-25AR.
- Passive / Active Programmable (RE-127M).
- Networkable Maximum 16 panels (RE-127R, RE-127M)

Electrical Specification:

AC Power :

120-220 VAC,60/ 50 Hz

Battery (Lead Acid only)

Charging Current: Constant Voltage – 27.6v @ 0.5A (Max.).
Charging Capacity: 7 Amp Hour Battery
System Quiescent Current: 70mA

Operating Condition
Operating Temperature : 0 - 49° C/32-120° F.
Relative Humidity : 93 ± 2% RH (non-condensing) at 25 ±2° C/77 ±3° F.

Notification Appliance Circuits (Sounder/Hooter Circuit)

Operating Nominal Voltage: 24 VDC

Sounder (NAC) output: 0.5A

End-Of-Line Resistor: 4.7K, 1/4watt

Rs485 Communication Port
Max. Distance: 1.2 Km Max. (Use CAT5E or Equivalent Cable)
Potential Free Contact
1 No Fire Contact (2A@30VDC / 0.5A@125VAC)

Ordering Information:

ZONES	MODELS	TYPE
Up to 8 Zones	RE- 127R	Passive
Up to 64 Zones	RE-127M	Active
Up to 128 Zones	RE-127M	Active
Gas Release Repeater Panel	RE-127GR	Passive

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RE 316H - 2L

Heat Detector

Ravel®
Reliability at reach

Product Overview

The RE 316H-2L Conventional detectors are designed to work with all conventional Panel. These detectors are low profile and have dual LED's for 360° visual indication. The LED's are blinking in normal operating condition whereas the steady state indicates fire status.

RE 316H-2L is a fixed cum rate of rise heat detector using a thermistor. These detectors will raise an alarm when the detector reaches 59° C(Fixed) or when the change in temperature exceeds the rate of rise of 11°C / min.

Features:

- UL listed.
- Dual LED's for 360° visibility.
- Advanced detection and communication protocol.
- Easy installation and maintenance.
- Sleek low-profile housing design.
- Regular 100mm base.
- Address setting by 8 digit DIP switch.

Electrical Specification

Operating Voltage	:	9 ~ 33V DC
Reset Voltage	:	less than 1V
Start-Up Current	:	120 μA.
Alarm Current	:	40 mA (Max)
Remote Output	:	15mA maximum open collector
Thermal Rating	:	59 °C (138 °F)
Rate of Raise of Temp	:	11.1°C / min (20°F/min)
Operating Temperature	:	-10 °C to 37.8 °C
Humidity	:	0 - 95% RH, non-condensing

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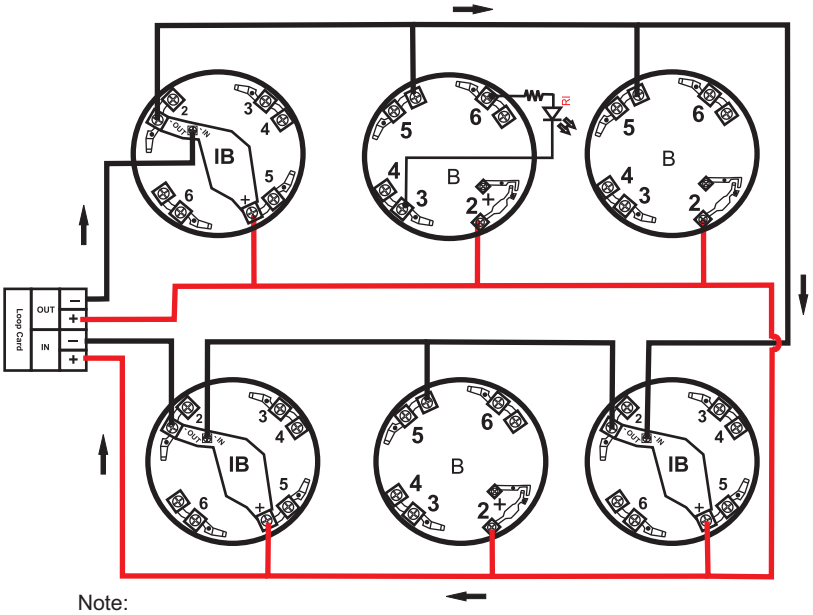
Mechanical Specification:

- Height : 46 mm with base
- Diameter : 100 mm dia
- Weight : 130g with base
- IP Rating : IP - 42

Wiring Diagram:



Note:

RI - Response Indicator
B - Standard Base
IB - Isolator Base

Compatible Device:

RE-314B - Normal Base

RE-314BI - Isolator Base

Ordering Information:

Model	Description
RE 316H - 2L	**Heat Detector**

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RE 316S - SL

Photoelectric Smoke Detector

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Product Overview

The RE 316S-2L conventional detectors are designed to work with all conventional Panel. These detectors are low profile and have dual LED's for 360° visual indication. The LED's are blinking in normal operating condition whereas the steady state indicates fire status. It has an unique protocol chamber designed to sense smoke produced by wide range of sources of combustion. The detectors sensitivity can be programmed via FACP. It has a unique drift compensation feature where in detector adjusts its normal reference based on environment conditions.

Features:

- UL listed.
- Dual LED's for 360° visibility.
- Advanced detection and communication protocol.
- Easy installation and maintenance.
- Sleek low-profile housing design.
- Regular 100mm base.
- Address setting by 8 digit DIP switch.

Electrical Specification

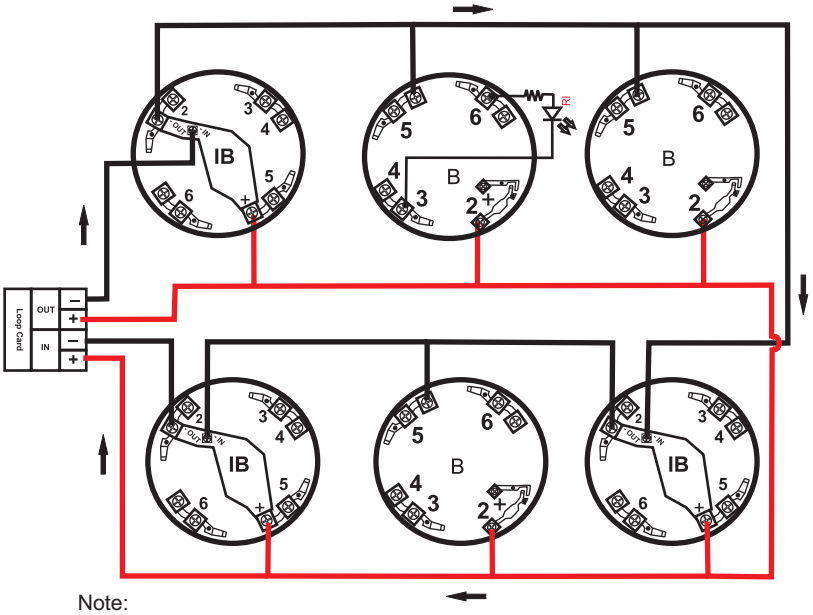
• Operating Voltage	:	9 ~ 33V DC
• Operating Temperature	:	-10 °C to 37.8 °C
• Humidity	:	0 - 95% RH, non-condensing
• Reset Voltage	:	less than 1V
• Start-Up Current	:	120 μA.
• Alarm Current	:	40 mA.(Max).
• Remote Output	:	15mA maximum open collector
• Smoke Sensitivity	:	(1.96 ± 0.76) % / ft
• Air Velocity	:	0 - 4000 fpm.

SIGNALING
UL
LISTED

Mechanical Specification:

- Height : 46 mm with base
- Diameter : 100 mm dia
- Weight : 130g with base
- IP Rating : IP - 42

Wiring Diagram:



Note:

RI - Response Indicator
B - Standard Base
IB - Isolator Base

Compatible Device:

RE-314B - Normal Base

RE-314BI - Isolator Base

Ordering Information:

Model	Description
RE 316S - 2L	Photo electric smoke detector with base

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RE 316SH - 2L

Multi Detector

Ravel®
Reliability at reach

Product Overview

The RE 316SH-2L conventional detectors are designed to work with all conventional Panel. These detectors are low profile and have dual LED's for 360° visual indication. The LED's are blinking in normal operating condition whereas the steady state indicates fire status.

RE 316SH-2L is a fixed cum rate of rise heat detector using a thermistor. These detectors will raise an alarm when the detector reaches 59° C(Fixed) or when the change in temperature exceeds the rate of rise of 11°C / min.

Features:

- UL Approved.
- Dual LED's for 360° visibility.
- Advanced detection and communication protocol.
- Easy installation and maintenance.
- Sleek low-profile housing design.
- Regular 100mm base.
- Max. 254 Address setting through 8 way DIP switch.

Electrical Specification

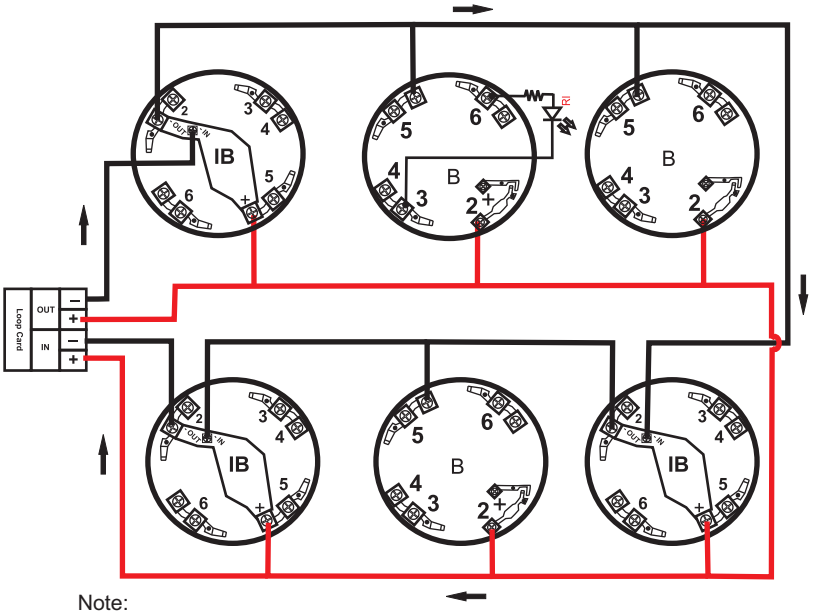
Operating Voltage	:	9 ~ 33V DC
Reset Voltage	:	less than 1V
Start-Up Current	:	120 μA.
Alarm Current	:	40 mA (Max)
Remote Output	:	15 mA maximum open collector
Thermal Rating	:	59 °C (138 °F)
Rate of Raise of Temp	:	11.1°C / min (20°F/min)
Smoke Sensitivity	:	(1.9 ± 0.76) % / ft
Air Velocity	:	0 - 4000 fpm.
Operating Temperature	:	-10 °C to 37.8 °C
Humidity	:	0 - 95% RH, non-condensing

SIGNALING
UL
LISTED

Mechanical Specification:

- Height : 46 mm with base
- Diameter : 100 mm dia
- Weight : 130g with base
- IP Rating : IP - 42

Wiring Diagram:



Note:

RI - Response Indicator
B - Standard Base
IB - Isolator Base

Compatible Device:

RE-314B - Normal Base

RE-314BI - Isolator Base

Ordering Information:

Model	Description
RE 316SH-2L	Photoelectric & Heat Detector

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RE - 700
Fire Alarm Control Panel

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Reliability at reach

Product Overview

"RE-700 range of conventional fire panel was designed considering the medium and Large size building and industry sector. Expandable from 12 to 128 zones , RE-700 has an inbuilt feature of 1 sounder circuits 2 fire relays and 1 fault relay, with a provision to have a zone wise sounder and relay which is optional. It supports the enhanced features of PC connectivity through RS232 connectivity and also has a provision of active repeater panel using RS485".

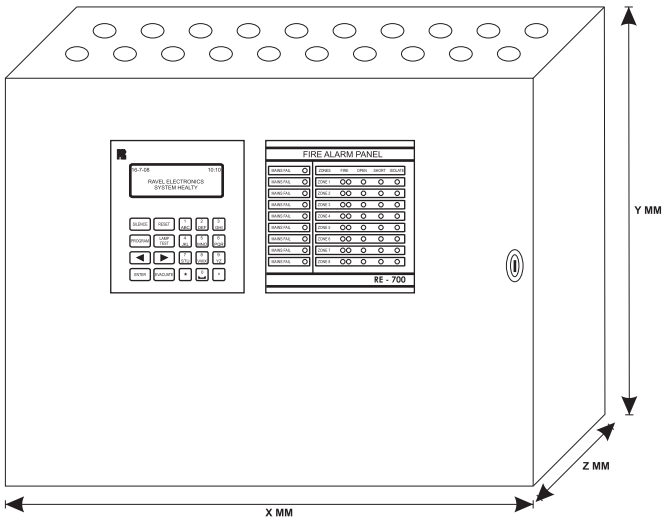
Features

- Fully complies with IS 2189: 1988.
- Rugged CRCA sheet with powder coated finish.
- 20 X 4 LCD Dot Matrix Display.
- 12 - 128 Class B initiating device circuit (IDC / Zone Circuits).
- One Class B Notification Appliance Circuits (NAC / Sounder).
- Low Battery / Warning audio / Visual Display.
- Operates on 220v, AC Mains power supply.
- Standby (battery) back up 24v DC power supply with built in charger.
- Operates on 48V DC (Without Battery Backup) (Optional).
- Error free Fire / Fault status in unambiguous colored LED indication.
- Main, Standby status with visual/audible indication.
- Battery Low visual warning with audible tone.
- Event storage with RTC.
- Form C relays for Fire and fault.
- RS 485 and RS 232 Communication Facility.
- TCP/IP (Optional) facility.
- Walk Test facility.
- Zone Isolation facility with loop voltage cut off.
- Zone loops with Zener Barrier. (Optional).
- Compatible with all types of conventional detectors, Pull Stations and any normally open contact devices.
- Zonewise Sounder & Relay Output (Optional).

TECHNICAL DATA

1. Power Supply:		
AC Input Supply	:	230 V AC, 50Hz
DC Input Supply	:	24 V DC
2. Operating Conditions	:	-10 to 45 °C, 95 % RH Max.
3. Operating Voltage	:	24 V DC
4. Normal Loop Voltage	:	20.7 DC
5. Open Threshold Current	:	4.2 mA
6. Short Circuit Threshold Current	:	40 mA
7. Stand by Threshold Current (EOL Current + detector's Current)	:	8.2 mA
8. Alarm Current	:	20 - 35 mA
9. Quiescent Current	:	50mA Plus 4.2mA per Zone
10. Colour of the Panel	:	Broken White (Red, Red Texture - Optional)
11. ALARM OUTPUT: Standard Common Output	:	0.2A per Zone.
12. REMOTE INDICATION OUTPUTS: Outputs	:	Fire, Fault Relay Contacts (230 V 2A contact).

G. A. Diagram

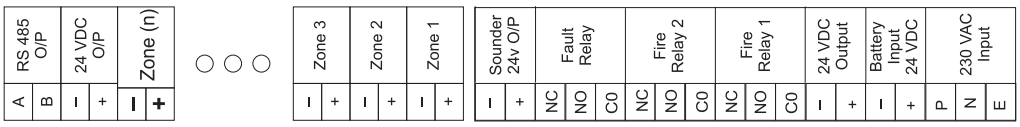


ALL DIMENSIONS ARE IN MM

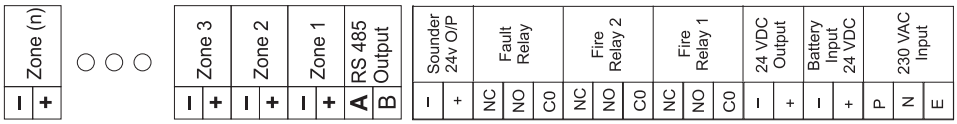
Panel Dimensions

RE - 700	X	Y	Z
12 -16 Zone	425	350	110
24 Zone	500	400	140
40 Zone	500	600	160
64 Zone	500	700	170
72 Zone	500	950	200
80 Zone	500	1000	200
90 Zone	500	1300	225
128 Zone	550	1500	225

TERMINAL DETAILS UPTO 8 ZONE



TERMINAL DETAILS UPTO 8 ZONE



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RE-716M Series

Manual Call Points for Gas Release

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Product Overview

RE-716M series are conventional call points to bypass gas release by pressing the front glass.

Features:

- Alarm status is indicated By Red colour LED.
- Operates on 24 VDC.
- Green Colored for Gas Release.
- Yellow Colored for Gas Abort.
- 1 No's of CO & NC Output.

Electrical Specification

- Operating Voltage : 24VDC
- Operating Current : 30mA
- Colour : Green / Yellow
- Material : Plastic
- IP Rating : IP-50
- Size : 86 X 86 X 50 mm

Ordering Information:

MODELS	COLOR
RE-716MG	MCP Green (Gas Release)
RE-716MY	MCP Yellow (Gas Abort)

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RE-716P Series
Manual Pull Station

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Product Overview

RE-716P Manual Pull Station is a high quality non-toxic die-cast manual pull station. Low profile design and smooth edges offer an attractive yet functional design. All components are prepainted or have plated surfaces to inhibit corrosion. Electrically the RE-716P Manual pull station is unbeatable with 10 Amp snap action switch offered in all possible contact arrangements (including gold contacts). The RE-716P pull station can be used with or without a break glass rod with replacement requiring no special tools.

Features

- Lift and pull
- Break glass cover
- Weather and Explosion proof versions
- All stations offer hex screw or key lock access.

Construction Material

- Painted Die Cast Housing.
- 14 Ga plated steel black plate.
- Corrosion Inhibited surfaces.
- Terminal block (4 Position)
- Single Gang Mounting
- 10 A , 120VAC snap Action Switch (S.P.S.T.)

Specification

Electrical
Switch : 10A@120VAC

Dimensions

Station	Weight : 3.200 in
	Length : 4.750 in
	Depth : 0.875 in
Weight	15.5 oz / 420 grams
Mount	Single gang

Ordering Information

MODELS	DESCRIPTION	COLOR
RE716P1T	Manual Pull station Single Action	RED
RE716P1TLP(R)	Manual Pull station Dual Action	RED
RE716P1TLP(Y)	Manual Pull station Dual Action	YELLOW
RE716P1TLP(G)	Manual Pull station Dual Action	GREEN

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*In the interest of improving quality and design, Ravel reserve the right to change the specification without prior notice.

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RE - 2504 / 08
Fire Alarm Panel

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Reliability at reach

Product Overview

The RE-2504/8 is a 4/8 zone UL Listed Fire Alarm control Panel . These control panels are designed to be used in small & medium commercial industries, buildings, hotels, schools, etc. and are compatible with all type of conventional detectors, manual call points and normally open dry contact devices. Unlike usual conventional range of panels this series comes with a bigger LCD display and a RTC clock for event log.

Features

- 4/8 Class B initiating device circuit (IDC).
  - All zones accept smoke detectors and any normally open contact device.
  - Any Zone can be configured as Alarm or supervisory Zone.
- 2 Class B Notification Appliance Circuits (NAC).
- Fully complies with UL -864 and NFPA-72.
- Rugged CRCA sheet with powder coated finish.
- Operates on 220v 50Hz, AC Mains power supply.
- Standby (battery) backup 24v DC power supply with built in charger.
- Error free Fire / Fault status in unambiguous colored LED indication.
- Main, Standby status audible and visual indication.
- Battery Low visual warning with audible tone.
- Form-C relays for fire, fault and supervisory.
- Zone Isolation facility with loop voltage cut off.
- Ground fault annunciation facility at 0 ohms.
- All field wiring circuits are Power limited except 220v A.C. and Battery.
- All field wiring circuits are supervised.
- AC Low voltage cutoff.
- Programmable NAC's.
- Programmable IDC's.
- Programmable AC loss delay.
- Alarm verification facility.
- Programmable Trouble reminder facility.
- Events history with RTC.

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Specification

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

120 - 220VAC ± 10%, 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 25 ±2° C/77 ±3° F.

Charging Circuit

Charging Voltage 28.4V, ±0.2V With current 800mA (Max).

ID.C. Output Power

Supervised 24VDC regulated, 300mA Max. (for 4 wire smoke detector)

Dimension of the panel :

440 x 340 x 120 mm (length x height x width)

nitiating Device Circuits

All Zones are Class B Style B/C operation (Programmable).
Normal Operating Voltage: 14 - 21 VDC.
Alarm Current: 15 - 30mA.
Short Circuit Current: 40mA Maximum.
Loop resistance: 100 ohms Maximum.
End-Of-Line Resistor: 3K9, 1/2watt
Standby Current: 7mA (2mA for Detectors)

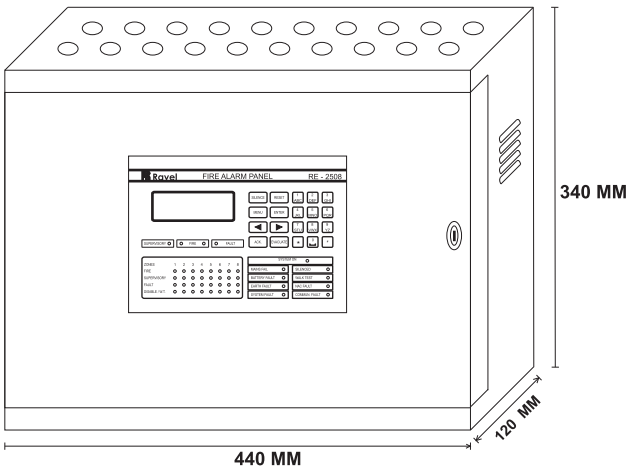
Notification Appliance Circuits

Class B Style - Y wiring
Operating Nominal Voltage: 24VDC Special Application
Current for NACs: 0.6A per circuit
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt

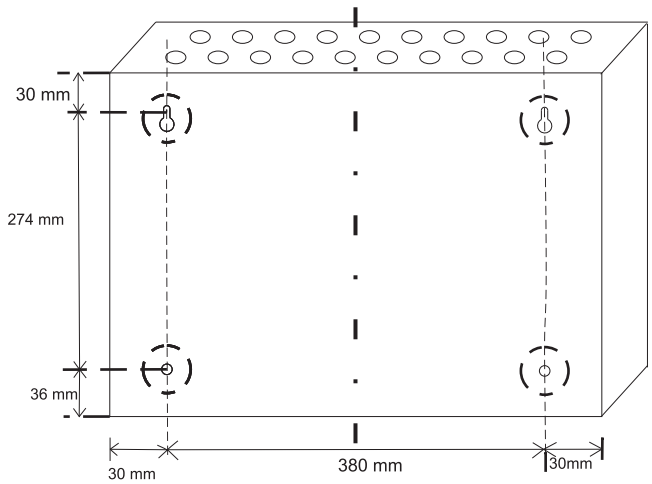
Common Four Form C Relays

Relay Contact Rating: 2Amps @ 30 VDC, 0.5Amps @ 125VAC.
Power Factor: 0.6

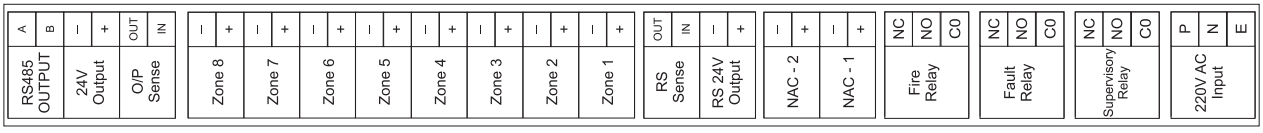
G. A. Diagram:



Mounting Detail:



Terminal Details:



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RE - 2554 / 58
Fire Alarm Panel

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Product Overview

The RE-2554/8 is a 4/8 zone UL Listed Fire Alarm control Panel . These control panels are designed to be used in small & medium commercial industries, buildings, hotels, schools, etc. and are compatible with all type of conventional detectors, manual call points and normally open dry contact devices.

Features

- Fully complies with UL -864 and NFPA-72.
- Rugged CRCA sheet with powder coated finish.
- Operates on 120 - 220v 50 /60 Hz, AC Mains power supply.
- 16x2 Dot Matrix LCD Display.
- 4/8 Class B initiating device circuit (IDC).
  - All zones accept smoke detectors and any normally open contact device.
  - Any Zone can be configured as Alarm or supervisory Zone.
- 2 Class B Notification Appliance Circuits (NAC).
- Standby (battery) backup 24v DC power supply with built in charger
- 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.
- FormC relays for fire, fault and supervisory.
- Resettable / uninterrupted 24v D.C. Output.
- RS 485 Communication facility (Optional).
- Lamp Test facility.
- All field wiring circuits are Power limited except 120 - 220v AC and Battery.
- All field wiring circuits are supervised.
- Walk Test facility.
- Zone Isolation facility with loop voltage cut off.
- Earth fault annunciation facility at 0 ohms.
- AC Low voltage cutoff.

Programmable Options

- NAC's.
- IDC's.
- Supervisory Mode.
- AC loss delay.
- Alarm verification facility.
- Trouble reminder facility.

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Electrical Specification

Primary Power CN1 (RE-SMPS-4A-R1)
120 - 220VAC ± 10%, 50 Hz, 2.5Amps.

Standby Power CN10
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/90 ±3° F.

Charging Circuit
Charging Voltage 28.2V, ±0.5V
Charging Current 800mA (Max.).

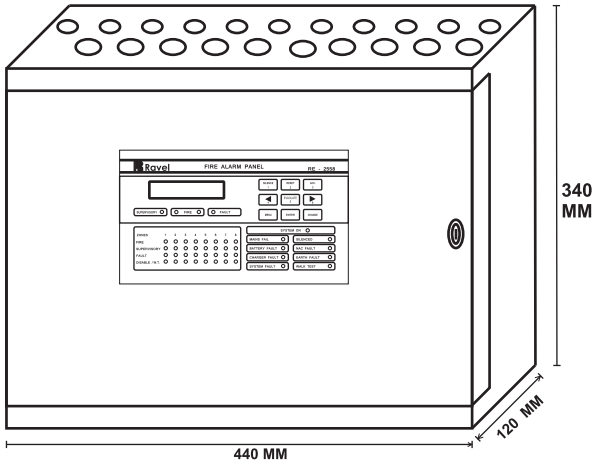
D.C. Power CN7
Operating Voltage: Supervised 24VDC regulated, 300mA Max. (for 4 wire smoke detector)

Common Three Form C Relays CN2, CN3, CN4
Relay Contact Rating: 2Amps @ 30 VDC, 2Amps @ 30VAC.
Power Factor: 0.6

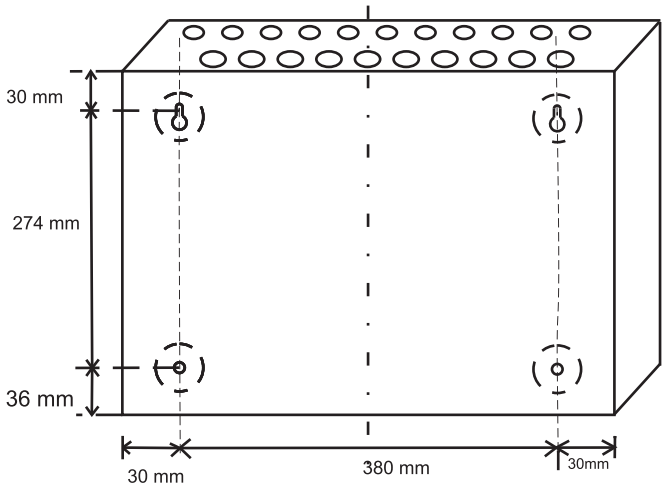
Initiating Device Circuits CN 8
All zones are Class B Style B/C operation (Programmable).
Normal Operating Voltage: 14 - 21 VDC.
Alarm Current: 15 30mA.
Short Circuit Current: 45mA Maximum.
Loop resistance: 100 ohms Maximum.
End-Of-Line Resistor: 3K9, 1/2watt
Standby Current: 7mA (2mA for Detectors)

Notification Appliance Circuits CN5 and CN6
Class B Style - Y wiring
Operating Nominal Voltage: 24VDC Special Application
Current for all NACs: 1.2Amps (0.6A per circuit)
Current Limit: CN5 and CN6 via Thermal Fuse
Line Drop: 1.8V
End-Of-Line Resistor: 3K9, 1/2watt
Note:
For compatible devices refer Chapter 9(CD 01).

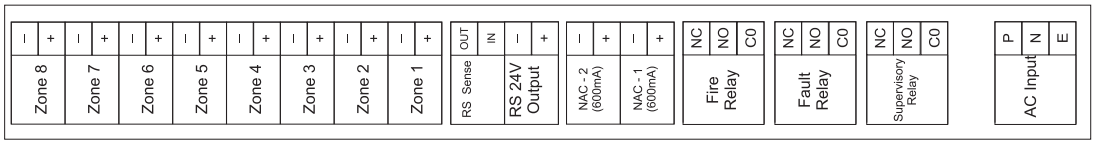
G.A.Diagram:



Mounting Detail:



Terminal Details:



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RE-2554 / 58
Fire Alarm Panel

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Reliability at reach

Product Overview

The RE-2554/8 is a 4/8 zone UL Listed Conventional Fire Alarm control Panel . These control panels are designed to be used in small & medium commercial industries, buildings, hotels, schools, etc. and are compatible with conventional detectors, manual call points and normally open dry contact devices.

Special Features:

- Switched Mode Power Supply (95-245)V
- Modular Construction
- Auto Resettable Fuse
- Surge Protection
- Programmable AC loss delay/Trouble Remainder/Alarm Verification
- Battery polarity reversible protection
- Surface Mount Technology
- Over All current consumption is low.

Features:

- Fully complies with UL -864 and NFPA-72.
- Rugged CRCA sheet with powder coated finish.
- Operates on 110 - 220v 50 /60 Hz, AC Mains power supply.
- 16x2 Dot Matrix LCD Display.
- 4/8 Class B Style 'B ' or Style 'C' initiating device circuit (IDC).
  - All zones accept smoke detectors and any normally open contact device.
  - Any Zone can be configured as Alarm or supervisory Zone.
- 2 Class B Notification Appliance Circuits (NAC).
- NAC shall be programmed as silenceable or Non Silenceable.
- Supervisory Zone shall be Latching or Resettable.
- Standby (battery) backup 24v DC power supply with built in charger
- 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.
- FormC relays for fire, fault and supervisory.
- Resettable / Steady 24V D.C. Output.
- RS 485 Communication facility (Optional).
- Lamp Test facility.
- All field wiring circuits are Power limited except 110 - 220v AC and Battery.
- All field wiring circuits are supervised.
- Walk Test facility.
- Zone Isolation facility with loop voltage cut off.
- Earth fault annunciation facility at 0 ohms.
- AC Low voltage cutoff.
- Programmable AC loss delay.
- Programmable Alarm verification.
- Programmable Trouble reminder.

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Electrical Specification:

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

110 - 220VAC ± 10%, 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/90 ±3° F.

Charging Circuit

Charging Voltage 28.2V, ±0.5V
Charging Current 800mA (Max.).

D.C. Output

Supervised 24VDC regulated, 300mA Max.

Common Relays

Type	: Form C
No of Relays	: 3
Relay Contact Rating	: 2Amps @ 30 VDC, 2Amps @ 30VAC.
Power Factor	: 0.6

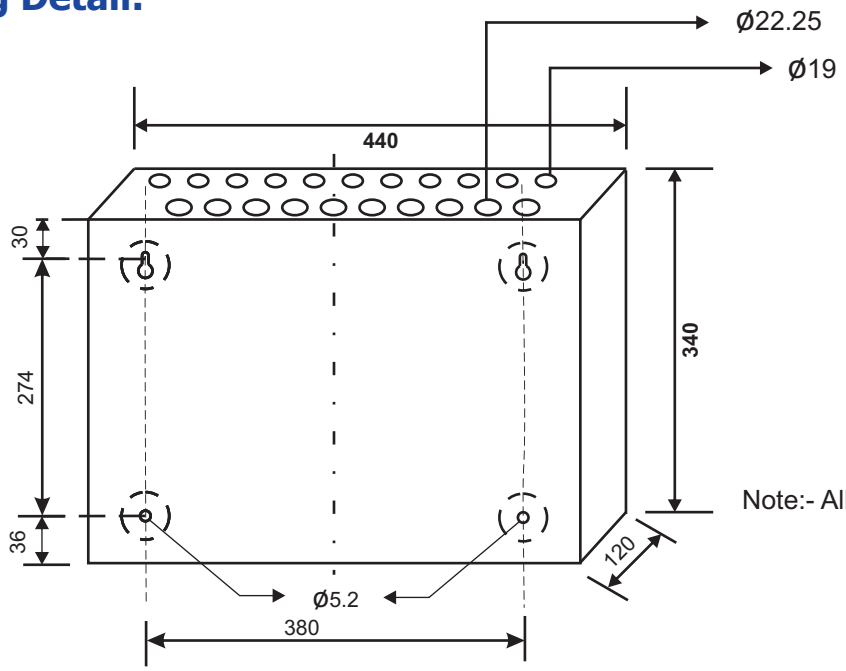
Initiating Device Circuits

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)

Notification Appliance Circuits

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

Mounting Detail:

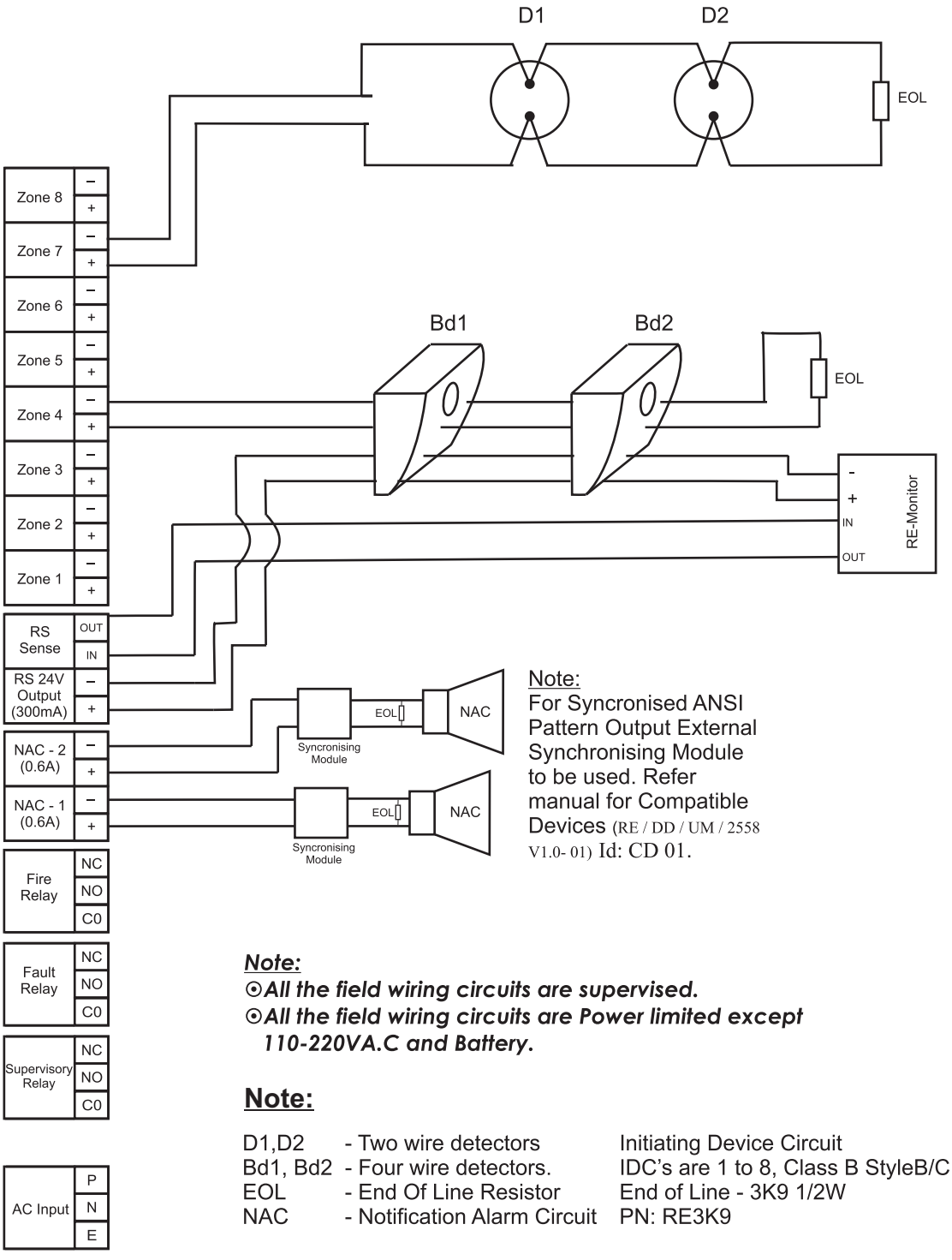


Note:- All Dimensions are in MM

Mechanical Specification:

Dimensions	: (440W X 340H X 120D)
Color	: Red / White
Construction	: 18 Gauge (1.22mm) CRCA sheet with powder-coated Finish
IP Rating	: IP50
Cable Entry	: 11xø19mm Knockout in top of the cabinet 10xø22.25mm Knockout in top of the cabinet

Wiring Diagram:



Note:
For Syncronised ANSI Pattern Output External Synchronising Module to be used. Refer manual for Compatible Devices (RE / DD / UM / 2558 V1.0- 01) Id: CD 01.

Note:

- ***All the field wiring circuits are supervised.***
- ***All the field wiring circuits are Power limited except 110-220VA.C and Battery.***

Note:

D1,D2	- Two wire detectors	Initiating Device Circuit
Bd1, Bd2	- Four wire detectors.	IDC's are 1 to 8, Class B StyleB/C
EOL	- End Of Line Resistor	End of Line - 3K9 1/2W
NAC	- Notification Alarm Circuit	PN: RE3K9

Ordering Information:

MODELS	ZONES
RE- 2554-W/R	4 Zones
RE-2558-W/R	8 Zones

NOTE:
W-White color
R-Red color

Compatible Devices:

MODELS	DESCRIPTION
RE-316S-2L	Photoelectric Smoke detector with base.
RE-316H-2L	Heat detector with base.
RE-316SH-2L	Photoelectric & Heat detector with base
RE-314	Common base for above
RE-716MR	MCP Red
RE-716MG	MCP Green
RE-716MY	MCP Yellow
RE-24CS	Mini Horn
RE-24SS	Sounder cum Strobe
RE-Monitor	24VDC Output for Monitor Module
RE-3K9	End Of Line Resistor

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RE-RI
Response Indicator

Ravel®
Reliability at reach

Product Overview

RE-RI is a Alarm Response Indicator to duplicate detector Alarm latching LED's if the detectors are placed above the false ceiling / inside closed rooms.

Features:

- Alarm status is indicated By Red colour LED.
- Operates on 12 VDC.
- Dual LED's for 360° visibility
- Flush / Ceiling wall mount

Electrical Specification

- Operating Voltage : 12 VD.C
- Operating Current : 10mA
- Alarm Indication : RED LED.
- Colour : Ivory.
- Material : Metal.

Ordering Information:

Model	Description
RE - RI	Response Indicator-Plate

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