

Analogue Addressable  
Fire Alarm Repeater Panel

## **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 detectors.

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.

**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 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. Re-acceptance testing is required after any change, addition or deletion of the 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 device that are not directly affected by the change, up to 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 15-27° C/60-80° F.

**Verify that wire sizes are adequate** for all initiating and indicating device loops. Refer to manual Specifications section for maximum allowable I.R. drop from the specified device voltage.

**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 DC power** 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 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.

**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.

**Cautions and Warnings**

**READ AND SAVE THESE INSTRUCTIONS.** Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depends upon proper installation.



**DO NOT INSTALL ANY PRODUCT THAT APPEARS DAMAGED.** Upon unpacking your equipment, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier.



**ELECTRICAL HAZARD** - Disconnect electrical field power when making any internal adjustments or repairs. Servicing should be performed by qualified personnel.



**STATIC HAZARD** - Static electricity can damage components. Therefore, handle as follows:

- Ground yourself before opening or installing components
- Prior to installation, keep components wrapped in anti-static material at all times.



**RADIO FREQUENCY ENERGY** - This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

**SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES** - To ensure proper system operation, this product must be tested in accordance with NFPA72-1996, Chapter 7 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.

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## Chapter 1: Product Description

The MonitI repeater is a compact, cost effective, intelligent addressable repeater panel has an extensive list of powerful features. The mother board and display board housed in a metal cabinet, providing a complete fire control system for most applications. The panel has maximum capable of showing all the information of all the panels in the network.

### 1.1 Features.

- 160 (40X4) character LCD display.
- RS 485 Communication for Network/Repeater.
- USB 2.0 Interface for PC Connectivity.
- Operates on 12 VDC.
- One form C relay for Fire.
- Extensive, built-in transient protection.

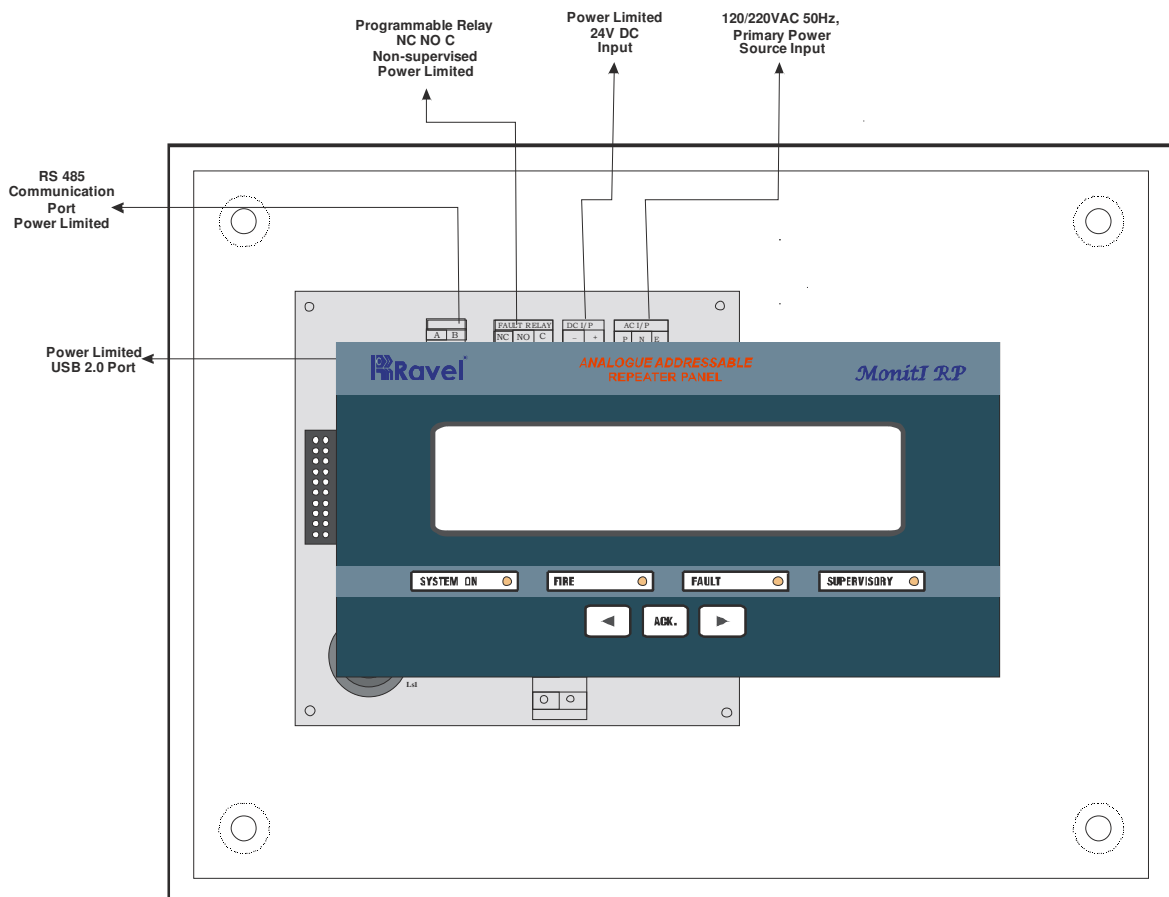


Figure - 1

## 1.2 Specifications.

### Primary Power

120 / 220v AC + 10% -15%, 60/50 Hz.

### Standby Power

12v DC (1 No of 12v,4.5 Ah 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/96 ±3° F.

### Common One Form – C Relay

Relay Contact Rating: 2A @ 30 VDC, 0.5A @ 125VAC (Resistive).

Relay: Fire.

Power Factor: 1.0

## 1.3 Control and Indications



Figure – 2



### 1.3.1. Controls:

#### ACK. Key:

- ✓ To mute local buzzer in alarm condition.
- ✓ To mute local buzzer in Supervisory or fault condition.

**CURSOR KEYS:** The cursor keys (Right / Left arrows) are used to view the number Of (faults / fire) events , which are being transmitted from the FACP(main panel).

### 1.3 Indications:

#### 1.3.2.1LED indication

System On – Green  
Fire – Red  
Fault – Yellow  
Supervisory – Yellow

#### 1.3.2.2 LCD Indication

The 40 X 4 Character LCD is mainly used in this panel. It also indicates all events along with the LED indications except system on and system fault .

#### 1.3.2.3 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

### 1.4 Circuits

The main circuit board provides only visual indication and contains the system microcontroller, programming part (USB-2.0), non-volatile memory for system events storages. The main circuit board is used for the critical functions like programmable logic and timing functions and non critical functions.

The visual display board consists of a series LED's for common indication of power, alarm, fault and supervisory. The display board has 40 X 4 characters LCD, which describes for the system information with real time clock and it helps the user to program the system options easily. It also contains matrix touch key pad, which helps the user friendly access.

### 1.4.1 Main Circuit Board

The main circuit board controls the display board, input / output ports like RS 485 and USB 2.0. The main circuit board contains one relay output.

### 1.4.2 RS 485 IO Port

The main circuit board is having two RS 485 port one as input to get the information from the other panels and another one as output to connect next panel in network.

### 1.4.3 Relay

One programmable Form-C dry contact relays are provided. This relay is factory default programmed for alarm. Contacts are rated 2 A @ 30 VDC or 0.5 A @ 125 VAC.

## 1.5 Components

The main circuit board contains the system CPU, other primary components wiring interface terminal outputs and RS 485 communication port for networking.

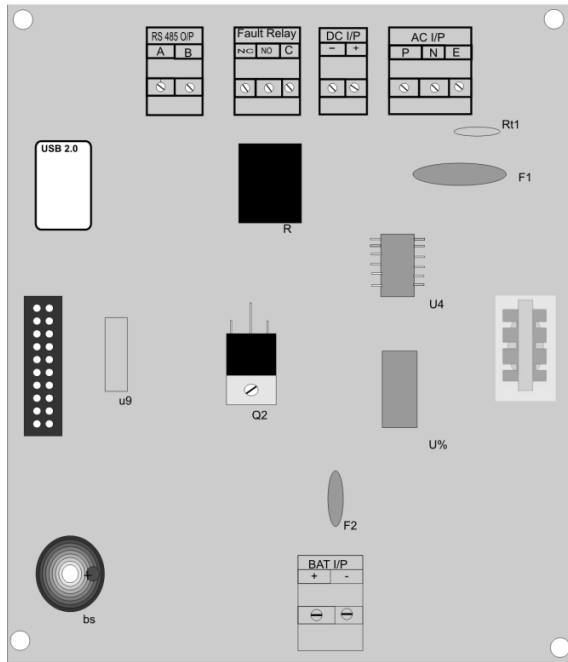


Figure - 3

The display board contains the LCD & LED display for common indications, zone group indications and touch key pad.

## 1.6 Mechanical Construction

The enclosure of the Panel is constructed by 18 gauge (1.22mm) CRCA sheet with powder-coated finish. The  $\varnothing 22.25\text{mm}$  ( $\varnothing 19\text{mm}$  [8No's] for Indian Std.) 7 no'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.

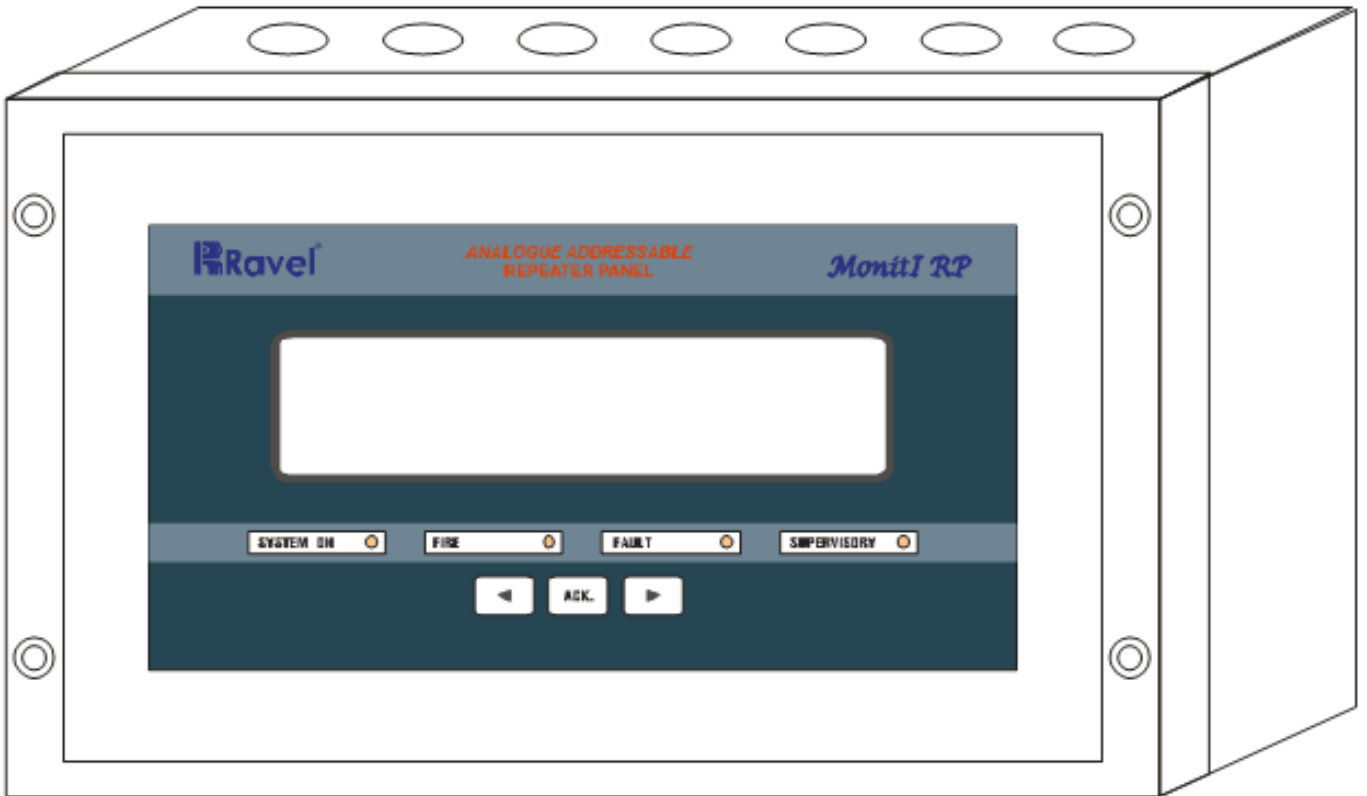


Figure-4

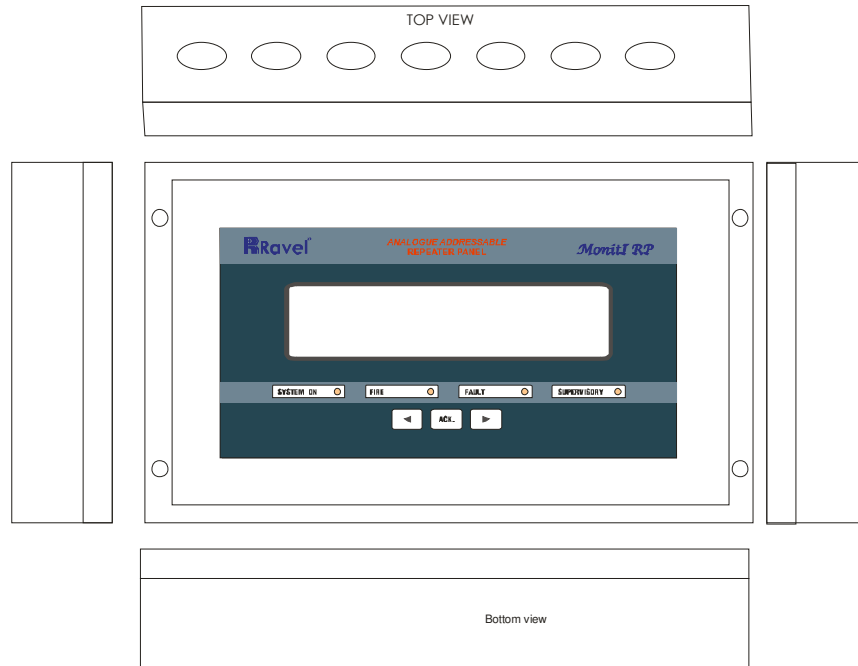


Figure-5

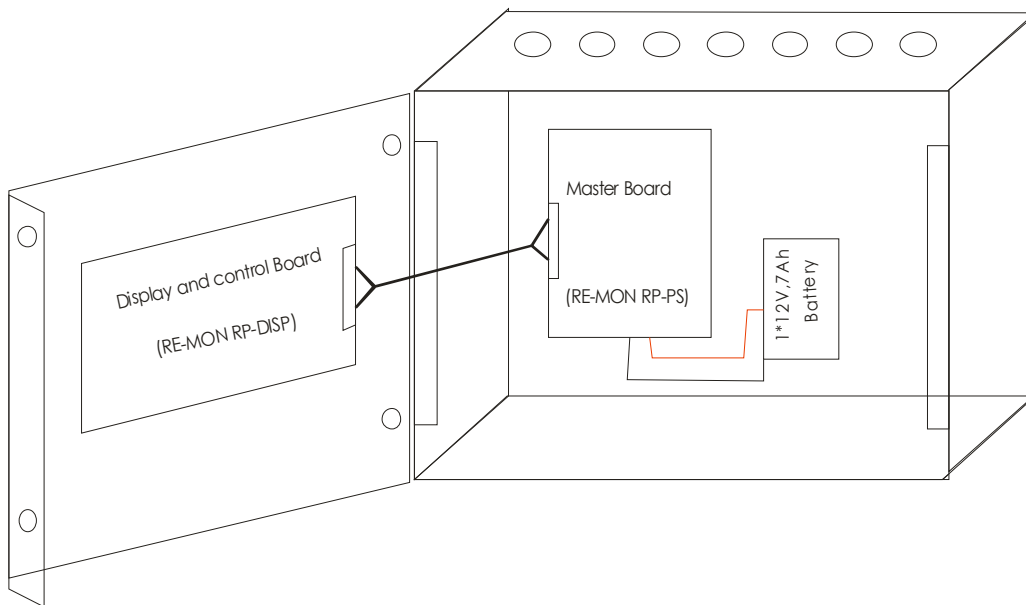


Figure-6

## Chapter 2: Installation

### 2.1 Installation Precaution

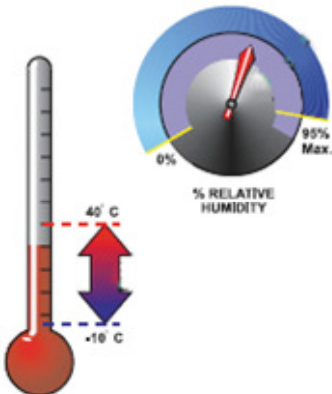
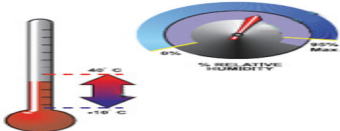
#### Installation Precautions



**WARNING** - Several different sources of power can be connected to the fire alarm repeater 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 35 ±2° C/77 ±3° F. However, the useful life of 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 15-49° C/60-120° F.

**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 DC power** 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 repeater panel and associated equipment. FACP operation and reliability depend upon proper installation by authorized personnel.

## 2.2 Panel Mounting

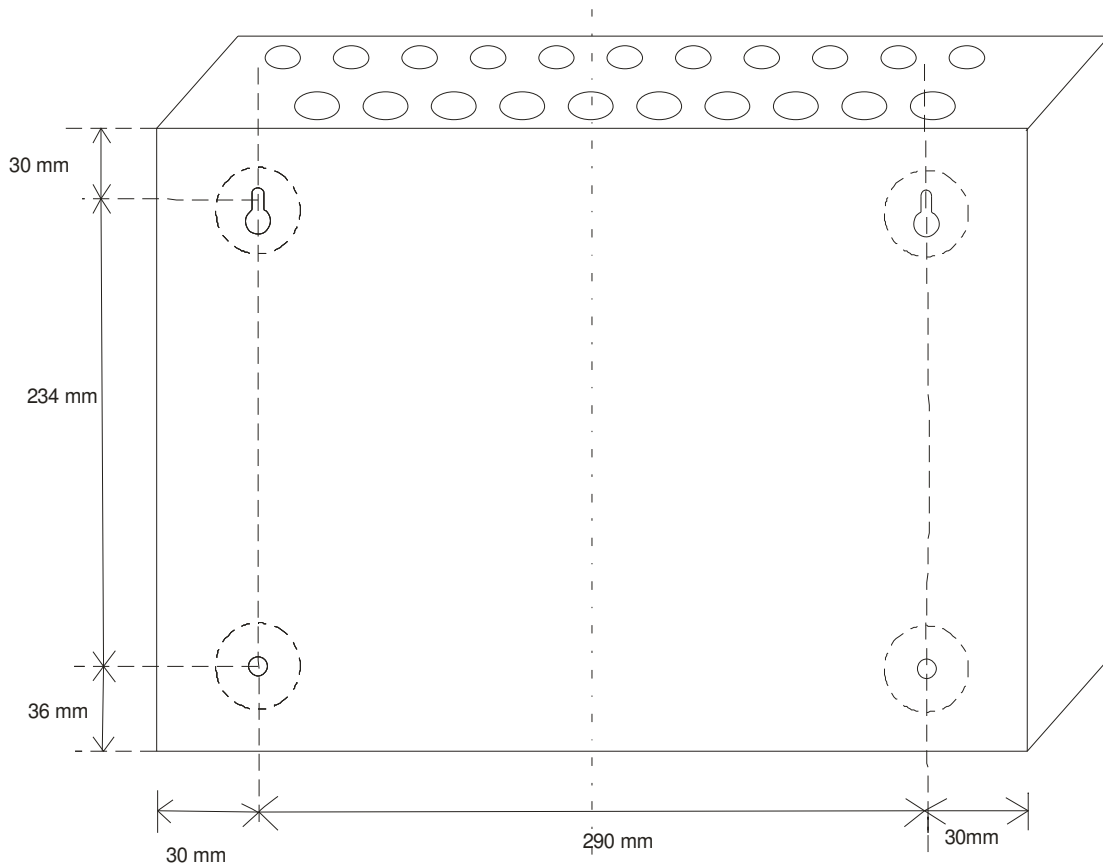


Figure-7

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 24, 25 & 26). All external cables are to be entered via the 7 numbers of  $\text{Ø}22.25\text{mm}$  and 8 Numbers of  $\text{Ø}19\text{mm}$  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.

## 2.3 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 (DC) and Earth Ground Connections

DC Power connections are made inside the repeater panel cabinet. The Primary source for the MonitI RP is 120/220v AC and Standby Source for MonitI RP is 12V DC. As per National Electrical Code, use 14 AWG (2.00 mm<sup>2</sup>, 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 mm<sup>2</sup>) to the body of the cabinet.

### MASTER BOARD (MONITI – MB - RP)

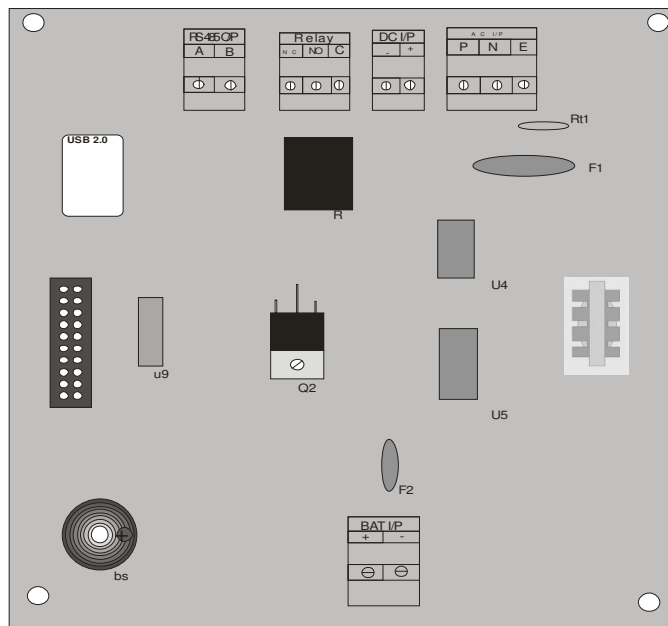


Figure-8



## Field Wiring Diagram

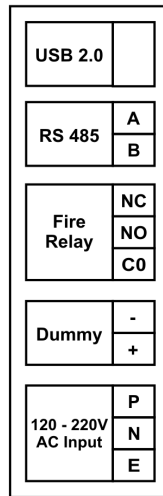


Figure-9

### 2.4 Relays

The one Form – C Fire relay is provided in this FACRP with the contact rating for 2 A @ 30 VDC or 0.5 A @ 125 VAC.

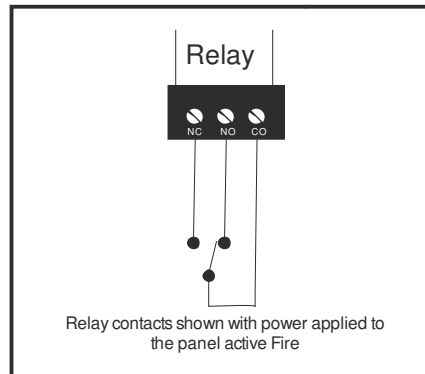
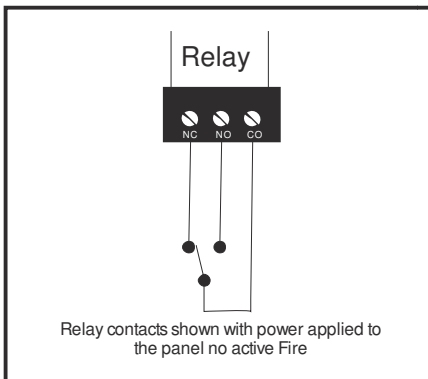


Figure - 10

**Note:** The relay connections may be power limited or non – power limited, provided that 0.25" spacing is maintained between conductors of power limited and non – power limited circuits.

### 2.5 UL Power-limited wiring requirements

The power limited and non-power limited circuit wiring must remain separated in the cabinet. All power limited circuit wiring must remain at least 0.25" (6.35mm) away from any other non- power limited circuit wiring and non-power limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits.

## Chapter 3: Programming

### 3.1 programming Concept

*Warnings: Before Programming*

**NOTE :**

All applicable codes and standards should be considered when programming the control unit.

#### 3.1.1 Programming

The MonitI-RP is completely field programmable and requires no special software skill when connected in MonitI. While programming the MonitII-RP, the fire protection capabilities of the repeater control panel are enabled. The location of the devices can be programmed to MonitI-RP using the MonitI configuration tool.

## Chapter 4 Operating Instruction

### 4.1 Panel Operation

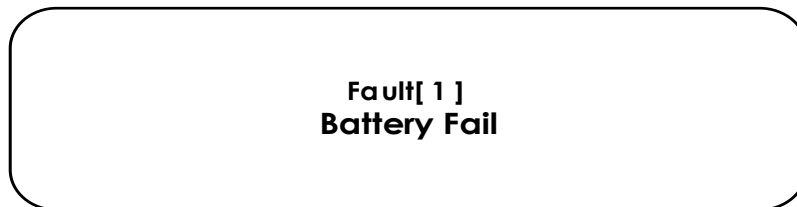
The operation of the panel is described in this manual. In this manual the following details are described in detail, like inputs / outputs, indications, control keys, alarm, fault supervisory conditions etc.,

### 4.2 Initial Power up Condition

When the power is applied to the panel, the LCD will first display "System Initializing" and the panel will not respond to any key presses or to zone activity. Once this step is done the panel will shows "Battery Fail" in LCD display and System On LED and Fault LED will glow.

### 4.3 Indications

**SYSTEM ON:** This LED will glow when the panel is energized by primary power. This is the only LED glowing in the normal monitoring condition. The LCD Display as shown below,In without battery condition.



The FAC RP shows only the fault of that panel till it's communicated with FACP via RS 485 cable. Once its communicated it shown as below.



The repeater panel is used to monitor the fault/fire events that are in main panel. In this panel, All repeater settings to be configured through USB only (PC Software). In this panel location can be configured from the main panel or via USB

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

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

**FAULT:** This fault LED will glow when any one or more than one fault occur.

**4.4 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

**4.5 Operating Keys**

The control keys are located at center of the front sticker and these keys are tactile key pad. They are as follows:

**ACK. Key:** This key is used to acknowledge the local buzzer tone during the fault and fire condition.

**CURSOR KEYS:** The cursor keys (Right / Left arrows) are used to view the number Of (faults / fire) events , which are being transmitted from the FACP(main panel).

#### **4.6 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 and the relay also will be in normal state and the onboard buzzer will be off. When the system is in normal condition the LCD screen will be as "System Healthy".

#### **4.7 Alarm Condition**

When the control panel detects Fire via the Detector / MCP, the repeater panel will cause the following:

- ✓ The common Fire LED will glow.
- ✓ Turn on the panel buzzer with continuous tone.
- ✓ Turn on the fire relay.

#### **4.8 Supervisory Condition**

When the control panel detects supervisory signal via the any normally open contact devices, the repeater panel will cause the following:

- ✓ The common supervisory LED will glow.
- ✓ Turn on the panel buzzer with intermittent buzzer tone (pulse 0.25sec ON and 0.25sec OFF).

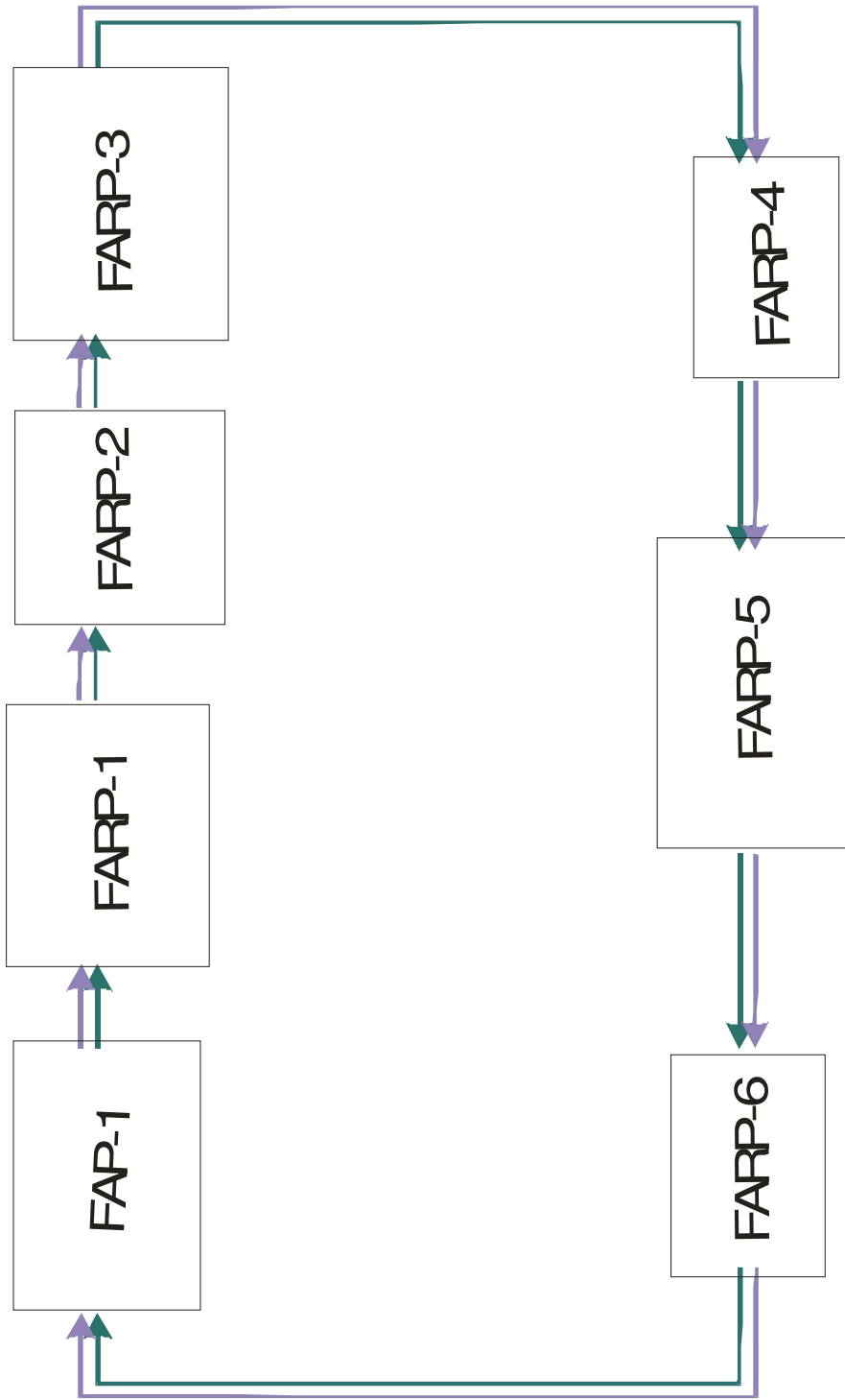
#### **4.9 Fault Condition**

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

- ✓ Turn on the common fault LED.
- ✓ Turn on the panel buzzer tone with intermittent buzzer tone (pulse 0.5sec ON and 5sec OFF).

CHAPTER 5  
Connection topology

RS 485 NETWORK



**NOTE**  
FAP- Fire Alarm Panel  
FARP - Fire Alarm Repeater Panel

Figure-1 1

# Chapter 6: Servicing:

## 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.

### Mounting position for Main Circuit board (RE – MONITI – MB – RP-1.0):

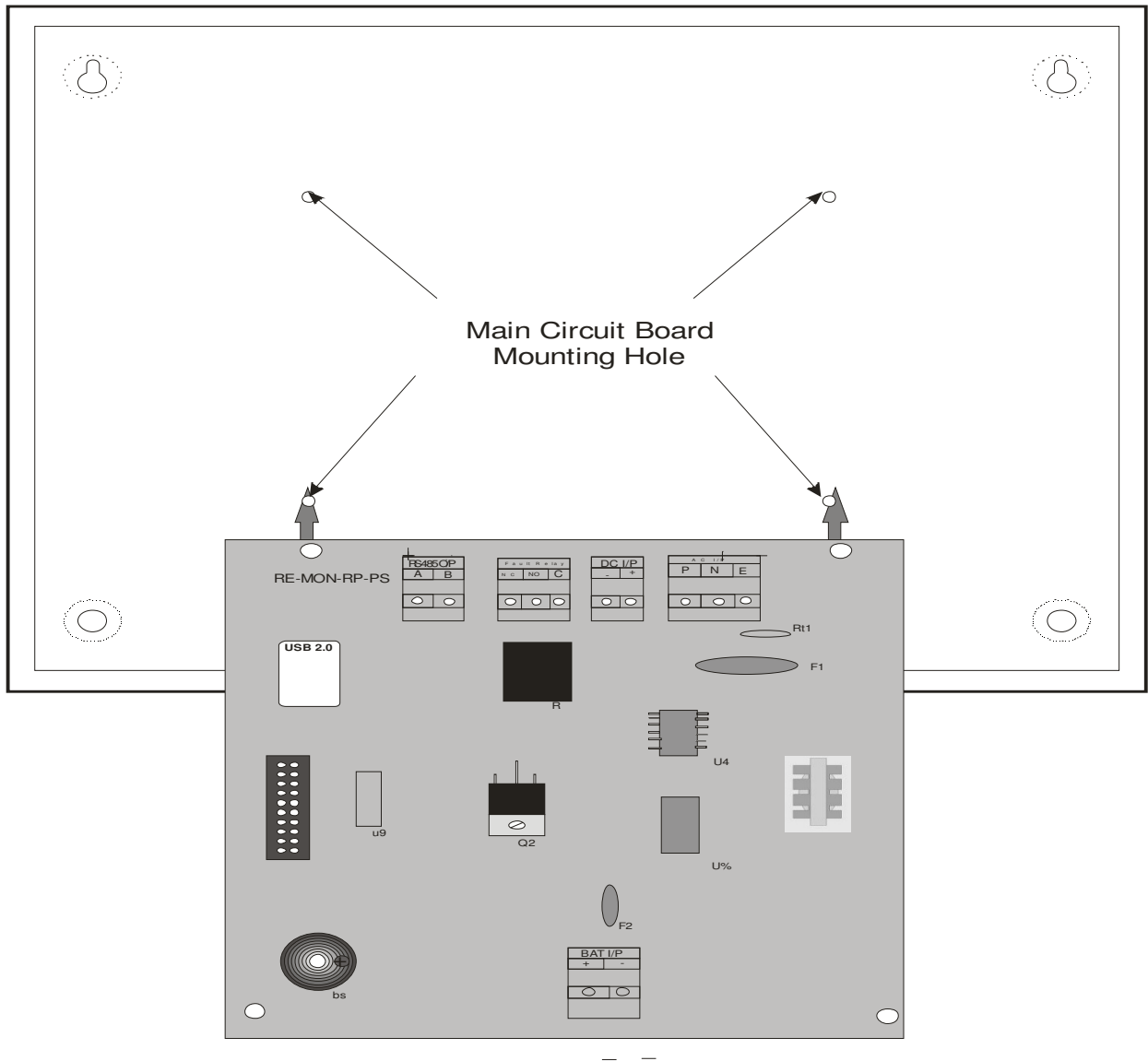


Figure-12

**Mounting position for Display board (RE – MONITI – RP – DISP-1.0):**

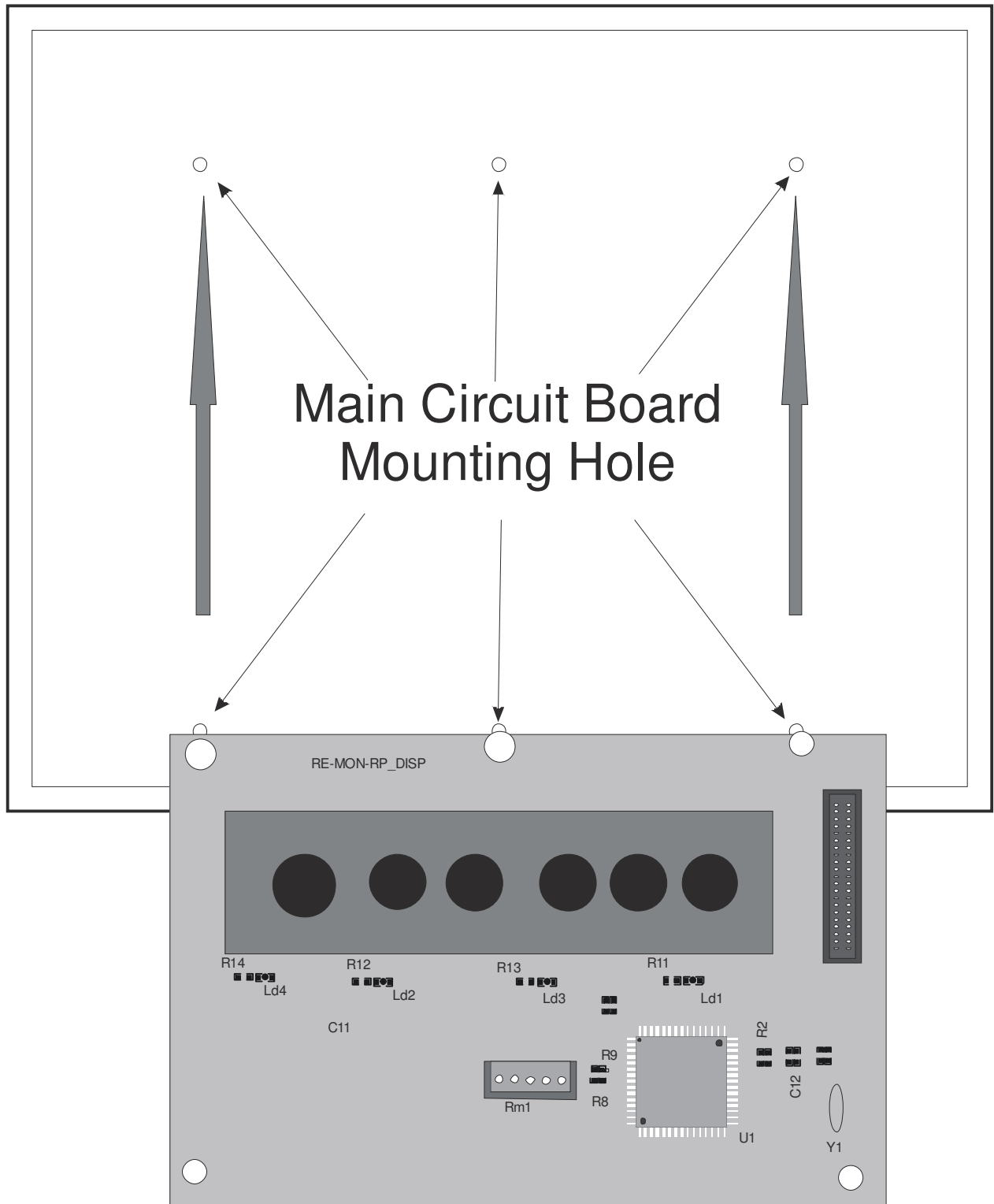


Figure – 13

## 6.2 System Power

Power	Max. AH Capacity	Derating Factor	Max. standby current	Max. Alarm current	Max. standby time	Max. alarm duration
Primary (power supply)	N/A	N/A	0.002A	0.2A	N/A	N/A
Secondary (back up)	4.5Ah	10%	0.05A	0.07A	24 Hrs.	5 Min.

## 6.3 Trouble Shooting

Condition	Root Cause	Remedy
There is no indication on The panel	No power to the Panel	Check DC / AC power on in the panel.
The event of the other panel is not showing.	RS485 Communication cable may be roughly connected.	Check the RS485 communication cable connection on the Terminal A and B.



## Chapter 7: Wire Requirements

Connecting external system accessories to the Monitl 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 Monitl circuit. Reference the chart below to specify wire requirements and limitations for each Monitl .

**TABLE 7-1: Wire Requirements**

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

## Chapter 8: Compatible Devices (ID: CD 03)

### Compatible Panel:

1. Monitl – Analog Addressable Fire Alarm Panel

## Chapter 9: Abbreviations

NFPA	–	National Fire Protection Association
AC	–	Alternate Current
DC	–	Direct Current
FACP	–	Fire Alarm control Panel
LCD	–	Liquid Crystal Display
SLC	–	Signaling Line Circuit
Evt	–	Event
NOD	–	Number Of Device
NOM	–	Number Of Modules
DD	–	Date
MM	–	Month
YY	–	Year
LC	–	Loop Card
RTC	–	Real Time Clock
OPTI	–	Optical Detector
MULT	–	Multiple Detector
IP_M	–	Input Module
OP_M	–	Output Module
IO_M	–	Input / Output Module
Cat	–	Category
Del	–	Delete



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DATE:

### 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.:           **MONITI-RP**

Serial No.:

For **RAVEL ELECTRONICS PVT.LTD,**

Q.C. – Engineer

Tested By



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### WARRANTY CERTIFICATE

Model No.: **MONITI-RP**

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.,

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