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# **FIRE ALARM PANEL**

**MODEL : IFP - 02/04**

## **1. INTRODUCTION**

This manual intended as a complete guide to the model **IFP - 02/ 04**, Conventional Fire Alarm Control and Indicating panel.

First part of this manual guides the user about the panel Installation and Commissioning and then it is describing User Instruction Operation with full technical details.

## **2. SYSTEM DESIGN AND PLAN**

This panel is designed to meet the general requirements of IS - 2189.

## **3. GENERAL**

The microcontroller based Automatic Fire Alarm control and indication panel is designed to detect the fire in its earliest practicable moment through the detector and developed with the state of art technology. It provides a high reliable monitoring of protected area.

The panel operates on 220V AC mains, with 24V DC battery as a standby power. The built in circuit provides constant voltage charging to maintain the battery capacity.

## **4. FEATURES:**

- 1 Rugged CRCA sheet with powder coated finish.
- 1 Operates on 220V, AC supply
- 1 Battery backup with built in charging.
- 1 Error free fire/ fault status in unambiguous colored LED indication.

- 1 Low battery visual warning with audible tone.
- 1 Watchdog, system on, AC on, Battery on, Charger on indications.
- 1 Relay output for actuators.
- 1 Lamp test facility.
- 1 Compatible to all types of Conventional detectors.
- 1 Twin RED LED indication for fire.
- 1 Zone isolation facility.
- 1 24VDC Auxillary output external notification devices ( soulder, Bell, etc )
- 1 Hbater loop monitoring facility.
- 1 Hbater test facility.

## **5. MECHANICAL CONSTRUCTION :**

The enclosure is constructed of CRCA sheet with powder coated finish.

The panel enclosures are designed to afforded the degree of protection as per IP 54. The cable entry is via performed 20mm dia knockouts located at the top of the cabinet .The panel also has a built in battery provision to accommodate 2 No's of 12V/7AH batteries.

## **6. INSTALLATION AND COMMISSIONING :**

### **6.1. INSTALLATION :**

**Note :** The installation of the fire detection and alarm comply with :

- a The IEE wiring regulation.
- b The Indian Standard of fire detection and alarm for building.
- c Care should be taken not to install cable in the proximity of high voltage cables or in areas likely to induce electrical interference.

Fix the panel in its mounting position using the key slots and fix the panel to the wall using the screws. Ensure the enclosure and the inner parts of the panel are given sufficient protection during installation period.

All external cables are to be glanded via the 20mm dia performed 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 sword are removed

## **6.2. COMMISSIONING :**

Check all the entered wiring is correctly identified and also check the cables are free from fault conditions using a multimeter. Connect the external wiring into their respective terminals and replace the END OF LINE resistor to the last device in the circuit.

***Prior to the initial powerup of the panel, conduct the following preliminary checks :***

- a Check for any external signs of damage caused during installation.
- b Check all the PCBs are secure in its monitoring position.
- c Check the cables are secure and correctly connected.
- d Check all the cable termination is tight & secure.
- e Connect the batteries ensuring the correct polarity.

**All damages/Fault must be rectified before proceeding**

Switch on the panel. The panel will indicate the following in the LED indicating section

- a WATCHDOG ( W.D )
- b SYSTEM ON
- c AC ON
- d CHARGER ON

## **OPERATIONS**

### **\*POWER CONDITIONS:**

#### **1. A.C FAIL:**

During AC mains fail the A.C. **ON** LED goes off and charger on LED also goes off with intermitted panel buzzer fault tone. Battery **ON** LED lights on. To silence the fault tone,press the **SILENCE** key.

If A.C. mains resumes then the panel would automatically go to the normal condition.

#### **2. BATTERY LOW :**

If the Battery voltage goes down less than 20V then the Battery **ON** LED blinks with intermitted panel Buzzer fault tone. till the Battery voltage goes low to 18.5V. If the voltage goes below 18.5V Panel buzzer generates continuous tone. In this condition **SILENCE** key cannot respond to silence the panel buzzer, and there is no response from input actions. Such as fire, open fault, short fault & sounder loop fault. In this case the user can switch off the panel or change the battery. If battery voltage cross, above 18.5V - 20V Panel automatically goes to normal mode.

To silence the fault tone press the **SILENCE KEY**

### **\*ZONE LOOP CONDITIONS :**

#### **1. FAULT CONDITIONS :**

The zone loops are monitor through an external END OF LINE ( EOL ) 4k7 Resistor **for open/short** circuit. If an **open/short** circuit is occurred in the Zone loops in any of the zone, the **open/short** LED in the corresponding zone will glow with intermitted fault tone in the panel buzzer.

Press the SILENCE KEY to silence the panel buzzer. The visual indication will remain till the fault conditions are rectified.

2. **FIRE CONDITIONS** :

In case of Fire in any of the zone, the corresponding RED TWIN LEDS will flash. In this condition the panel Buzzer will give wailing fire tone. The Auxiliary relays will be tripped.

Press the SILENCE key to silence the panel buzzer and all the external sounders. The TWIN LEDS will glow steadily, and the panel buzzer generate an intermittent tone. In this condition SILENCE key cannot respond to silence the panel buzzer. The conditions of the visual indications, Auxiliary relays and panel buzzer will remain, till the panel is **reset**.

Before pressing the silence key, If any subsequent fire in the second zone comes, it will be indicated by the corresponding flashing of TWIN RED LEDS and the previous indication will go to steady state.

3. **ZONE ISOLATION** :

To isolate the zone loops for maintenance purpose and bring back to the normal operating condition, follow the procedure as below.

**To Isolate a particular zone , perform the following steps.**

1. Hold the **SILENCE** key for 3 seconds.
2. Zone 1 ISOLATE LED start blinking and watch dog LED would glow stable manner.
3. To move to the second zone, again press the silence key.
4. After selecting the zone, press the ISOLATE key to isolate that zone.
5. Now the particular zone is ISOLATED with the glowing ISOLATE LED and every 4 second once, "Beep" sound will be enabled, and also the voltage to the loop is cut off .

To bring back the isolated zone to the normal monitoring condition, follow the steps below

- 1 Follow the above steps 1 to 3 , to select a particular zone.
- 2 After selecting the zone, press the ISOLATE key to bring back the zone to normal condition.
- 3 Now the particular zone comes to normal condition with the ISOLATE LED goes off.
- 4 **HOOTER LOOP SENSE :**

The Hooter loop is monitored through an external END OF LINE ( EOL ) 4k7 Resistor for open/short circuit. If an open circuit is occurred in the hooter loop, the hooter loop fault LED would blink. If short circuit is occurred in the Hooter loop, the hooterloop fault LED would continuously glow, with intermittent fault tone in the panel buzzer.

Press the **SILENCE** key to silence the panel buzzer. The visual indication will remain till the fault conditions are rectified.

## **KEY FUNCTIONS**

- 1 **LAMP TEST KEY :**

This key is provided to test whether all the LED'S available are in good conditions or not. When the key is pressed all the LED'S will glow with continuous tone in the panel buzzer, until the key is in pressed condition and the previous condition is retained after releasing the key.

- 2 **SILENCE KEY :**

This key is provided to silence the panel buzzer and the external sounders during the fire Conditions. If the key is pressed panel buzzer and external sounders are silenced, Similarly during the fault conditions, the panel buzzer is silenced by this key.



3. **RESET KEY :**

This key is provided to reset the panel to normal conditions.

4. **ISOLATE KEY :**

This key is provided to isolate and de-isolate the selected zone.

5. **HOOTER TEST KEY :**

When the key is pressed the external sounder and internal panel buzzer will be activated, until the key is in pressed Condition and the previous conditions retained after releasing the key.

**INSTRUCTIONS TO BE FOLLOWED**

1 In normal condition the following visual indications are available on front side of the panel.

- 1 WATCHDOG ( W.D ) in blinking condition ( Red LED )
- 2 SYSTEM ON indication ( Green LED )
- 3 AC ON indication ( Yellow LED )
- 4 CHARGER ON Indication ( Red LED )

1 In case of Fire the FIRE RED LED of respective Zone will flash with alarm Sound. To silence the alarm press the SILENCE key. After taking necessary actions, to restore the panel to normal operating conditions press the RESET key.

1 In case of open/Short fault Green/Yellow LED of respective Zone will glow with Intermittent Panel buzzer sound. To silence the Intermittent buzzer Sound press the SILENCE key. When the Fault is cleared or corrected, the panel goes to the operating conditions automatically.

**TECHNICAL DATA****Panel Operating Condition :**

Operating Voltage (AC power )	:	220V AC, 50HZ $\pm$ 10%
Standby power	:	24V DC
Operating Temperature	:	0°C to 49°C $\pm$ 2°C
Operating Humidity	:	95% ( Non - Condensing )
Quiescent Current	:	35mA

**Zone Operating Condition**

Normal loop voltage	:	20.8V
Open Threshold Current	:	0 mA
Short Threshold Current	:	40mA
Fire Threshold Current	:	( 15 - 35 )mA
Standby Threshold Current ( EOL + Detector Current )	:	4.4mA + 2.5mA

**Alarm outputs**

Sounder Output	:	0.5A ( 24V DC )
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**Remote Outputs**

Fire Contact 1 ( C, NO, NC )	:	220V AC / 30V DC @ 1A
Fire Contact 2 ( C, NO, NC )	:	220V AC / 30V DC @ 1A

**General**

- Weight** : 5 Kgs( Approximate )
- Size** : ( 350 × 263 × 103 )mm  
( Width × Height × Depth )
- Colour** : Black with Siemens Grey  
[ Structure finish ]  
Dual colour

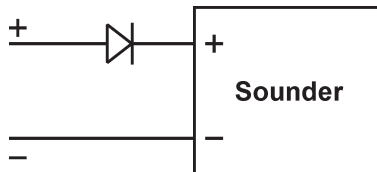
**Some DO'S and DON'T'S**

S.No.	DO's	DON'T'S
1	The panel and Detectors should be within the temperature range of 0°C to 49°C ± 2°C.	Don't fix the panel/ Detector in high range of vibrating area.
2	We strongly recommend to check the panel on daily basis and the detectors on weekly basis.	Don't put the panel /cables near to the high voltage area.
3	Ensure 220V AC ± 10% of the input Voltage level before switching ON the panel. If the voltage fluctuation is more than 10% use UPS supply or voltage stabilizer.	Don't fix the panel in highly moisture surrounded area.
4		Improved wiring will void the warranty

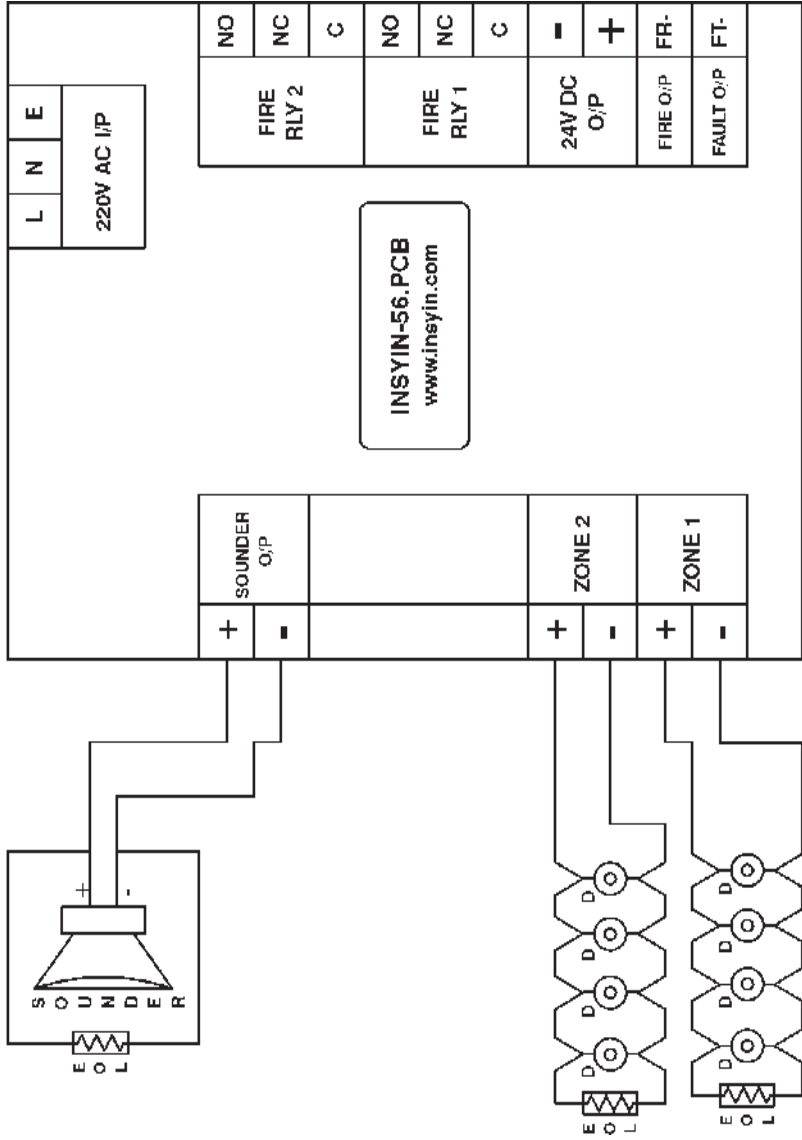
## **TROUBLESHOOTING**

<b>Indication</b>	<b>Root Cause</b>	<b>Remedy</b>
There is indication on the panel	No Power to the panel	Check Ac and Standby supply
If there is any false alarm from the Detector	May be the detector failure or low loop voltage	Ensure the AC supply within 220V±10% ( or ) Change the faulty detector
Detector OPEN is not detected by the panel	Total zone loop current exceed the rated value	Check number of detectors connected in the loop. Total nos.of detector current should not go above 2.5mA
Hooter fault indication	There is no proper connection in the hooter or loop fault	<p>If there is no hooter connected in the output, Check resistor EOL is connected there or not. Check loop wiring for short/ open using meter.</p> <p>If hooter is non - polarized, then ensure each hooter +ve connected to 1N 4007 diode cathode and the anode connected with hooter loop +ve.</p>

### **CONNECTION DETAILS FOR NON-POLARIZED SOUNDER**



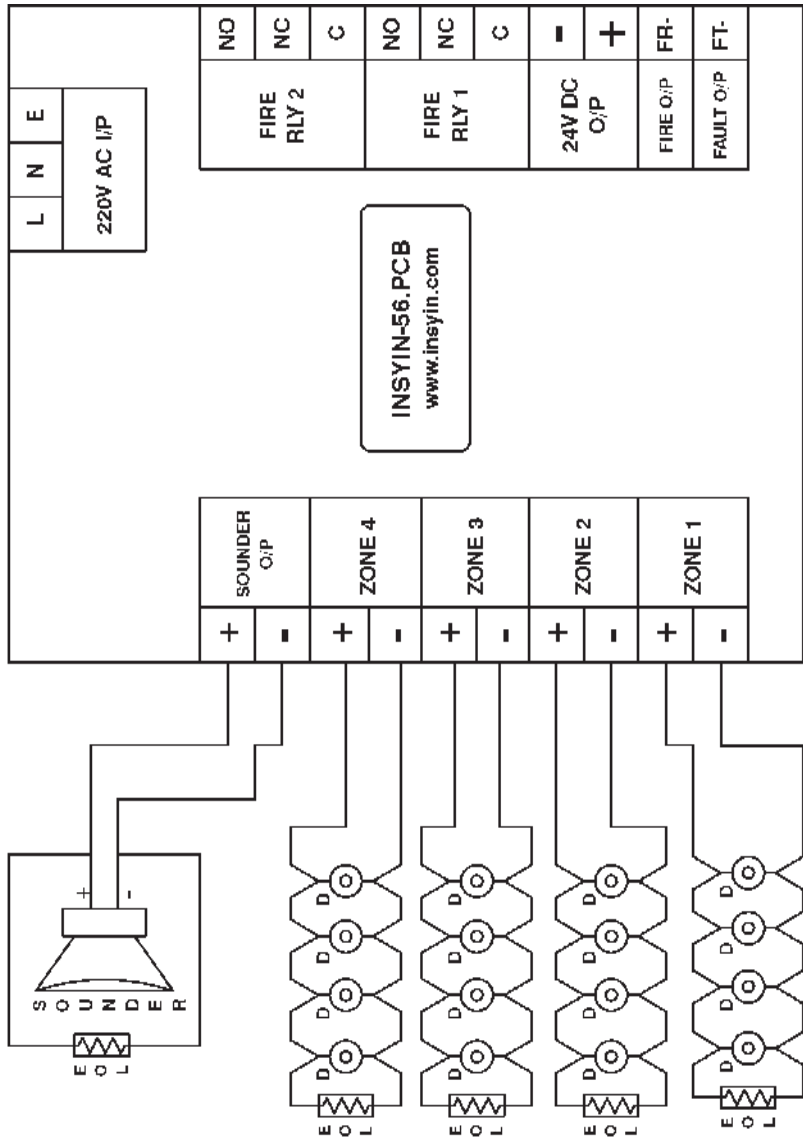
TERMINAL DETAILS FOR 2 ZONE PANEL [ MODEL : IFP - 02 ]



EOL - END OF LINE RESISTOR [ 4K7 ]

D - DETECTOR

TERMINAL DETAILS FOR 4 ZONE PANEL [ MODEL : I/PF - 04 ]



EOL - END OF LINE RESISTOR [ 4K7 ]

D - DETECTOR

## **ABBREVIATIONS**

The short forms which are given in this manual are abbreviated below.

<b>IFP</b>	-	<b>Insyn Fire Panel</b>
<b>IS-2189</b>	-	<b>Indian Standard - 2189</b>
<b>AC</b>	-	<b>Alternating Current</b>
<b>DC</b>	-	<b>Direct Current</b>
<b>CRCA</b>	-	<b>Cold Rolled Carbon Alloy</b>
<b>LED</b>	-	<b>Light Emitting Diode</b>
<b>O/P</b>	-	<b>Output</b>
<b>IP 54</b>	-	<b>Industrial Protection</b>
<b>m m</b>	-	<b>millimeter</b>
<b>no(s)</b>	-	<b>number(s)</b>
<b>v</b>	-	<b>volts</b>
<b>Ah</b>	-	<b>Ampere per hour</b>
<b>IEE</b>	-	<b>Institute of Electrical Engineering</b>
<b>EOL</b>	-	<b>End of Line</b>
<b>PCB</b>	-	<b>Printed Circuit Board</b>
<b>CPU</b>	-	<b>Central Processing Unit</b>
<b>MCP</b>	-	<b>Manual Call Point</b>
<b>S.Nos</b>	-	<b>Serial Numbers</b>
<b>m A</b>	-	<b>milli Ampere</b>
<b>Kgs</b>	-	<b>Kilo grams</b>
<b>C, NO, NC</b>	-	<b>Common, Normally Open, Normally Close</b>





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## **WARRANTY CERTIFICATE**

Model No. :

Serial No. :

Insyin Electronics Private Ltd. , warrants each instrument 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 their of which shall be within warranty period. Returned to be company under a written intimation and which to the company's satisfaction to be found defective. The company reserves the right for decide the workplace for the repair work. The fright 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 dispatch of the instrument from the factory. The warranty is applicable only if the instrument is used within its specifications, The warranty for the replaced components will lapse along with that the main instrument.

**THIS WARRANTY IS VALID UP TO : 12 Months from the date of billing**

Authorised Signatory

# Insyin Electronics Private Ltd.,

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Phone : 044-2244 3405 / 4478

## TEST CERTIFICATE

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

1. Micro Controller Based Conventional Fire Alarm Control Panel

**Model No.**

**Serial No.**

**No. of Zone**

For Insyin Electronics Private Ltd.,

Production Engineer

Q/C - Engineer

**INSYIN®**

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**Fire Alarm Panel**

**Model : IFP-02/04**

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**User Manual**

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**MICRO CONTROLLER BASED  
FIRE ALARM CONTROL AND  
INDICATING PANEL**

Fire Alarm Panel

User Manual