



# FI-C

## 2, 4 & 8 Zone Conventional Fire Alarm Control Panel

### QUICK SET-UP GUIDE MANUAL

CONTENTS

OVERVIEW

Introduction.....

Key Features.....

Important Safety Notes / Mounting the panel.....

Cable Types / Detection Zone Wiring.....

Sounder Circuit Wiring / Auxiliary Input Wiring.....

Connecting the panel.....

Operating & Programming the panel.....

Panel Buttons.....

Battery requirements.....

Technical Specifications.....

- 2
- 2
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

PATRS LIST

PANELS

- FI/C2 - Conventional Fire Panel 2 Zone.
- FI/C4 - Conventional Fire Panel 4 Zone.
- FI/C8 - Conventional Fire Panel 8 Zone.
- FI/C/REP - Full Size Repqeter Panel.
- FI/C/REP-COM-RS232 -
- FI/C/MREP - Mini Repeater Panel.

DETECTORS

- FI/FB/323-2L - Rate of Rise & Fixed Temp detector c/w Base.
- FI/FB/338-2L - Optical Smoke Detector c/w Base.
- FI/FB/338-2H-L - Multi-Sensor, Smoke/Heat Detector c/w Base.
- FI/FB/983-Gas - Conventional Gas Detector c/w Base.
- FI/FB/983-CO - Conventional Carbon Monoxide Detector c/w Base.
- FI/FB/988 - Rate of Rise Detector c/w Base.
- FI/FB/988 - Fixed Temperature Detector c/w Base.

CABLES

- FI/CAB2/1.5/RD/100M - 2 Core 1.5mm 100m LPCB approved Fire Cable.

### Introduction

The FI-C is a 2-, 4 and 8 Zone microprocessor controlled conventional Fire Alarm Control Panel with all the functions necessary to control small and medium size fire detection installations.

This document covers the installation of a FI-C Fire Alarm panel and is intended for use by a competent, qualified, fire alarm installation engineer.

The FI-C Fire Alarm system should be tailored to the building requirements. The complete system should be designed to meet all applicable regulations. The installation must then be performed in accordance with the system design. This manual clarifies the components and connections used during installation.



ELECTRO-STATIC SENSITIVE DEVICES (ESD)  
TAKE SUITABLE ESD-PRECAUTIONS WHEN REMOVING OR  
INSTALLING PRINTED CIRCUIT BOARDS.

All PCBs contain Electrostatic Sensitive Devices.

Take suitable ESD (Electrostatic Discharge) precautions when removing or installing printed circuit boards (PCBs).

### Key Features

- Two, four and eight zone non-expandable control panels.
- Up to 20 conventional smoke and/or heat detectors per zone.
- Active End of Line monitoring.
- Programmable non-latching zones.
- Programmable delay timer for sounder and relay activation. Maximum 10 minutes.
- (Day/Night Function)
- Delayed operation selectable for each zone.
- Zone coincidence programmable for adjacent zones.
- Two Access Levels. Selectable by fixed code entry.
- One man test
- Supervised auxiliary 24 volt output
- 2 supervised/ monitored sounder circuits
- 3 Remote inputs for Class change, Day/Night Operation and remote reset.
- 2 Relay outputs for fire and fault indications. Unmonitored.
- Power supply 1,7A @ 28.5VDC nominal.
- Fully EN54 part 2 and 4 compliant

#### Optional Interfaces (coming soon)

- Repeater output. To be used with our standard data loop interfaces, Rs485, Fibre Optics and TCP/IP (LAN).
- Multiplexed output for LEDs and additional relay outputs per zone (Max 8 zones).
- Analogue interface cards available to interface FI-C panel to our range of addressable panels, FI-A and FI-N. (P/N: ADLI)



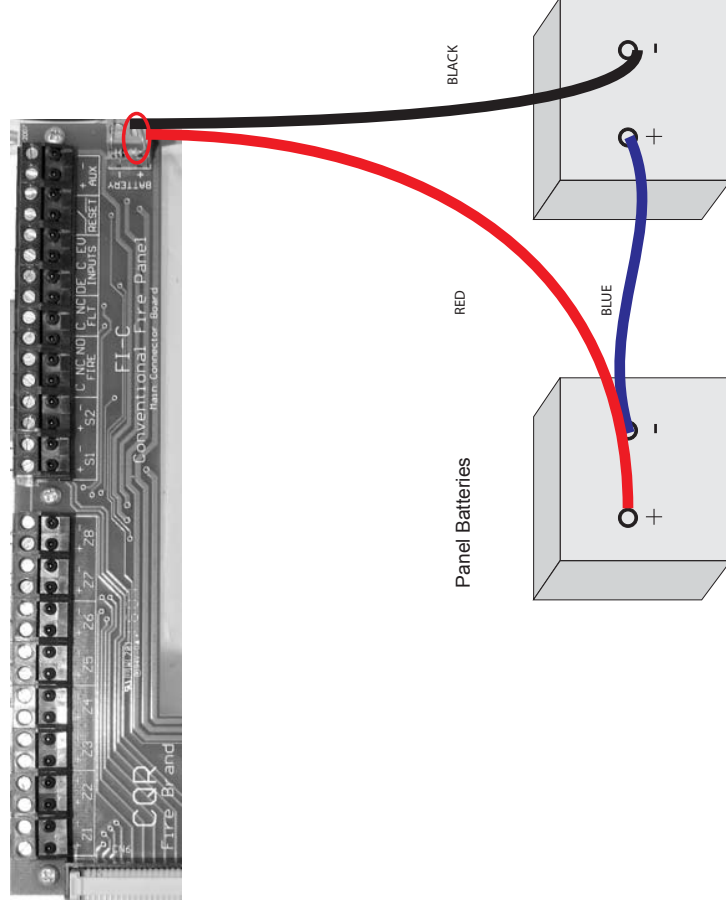
Panel Batteries

It is recommended that the batteries are fitted at the end of commissioning the system otherwise it can be difficult to remove the power quickly if there is a problem.

The batteries are connected to the FI-C connector board in the Panel. This battery connection not only supplies the panel with power if the primary supply should fail, it also provides a charging output to maintain the batteries in a fully charged state.

Before connecting the batteries check the voltage across the battery connection terminals. It should be 27.5V +/- 0.5V.

**Note - arcing and fire risk. Never short circuit the battery terminals. Always connect the blue wire between the batteries last.**



Cable Types

System wiring should be installed in accordance with National Standards and wiring regulations.

To protect against electrical interference we recommend the use of screened cables throughout the system. Separate cables should be used for sounder and detection circuits, the use of multi-core cables to carry sounder circuits and detector circuits is not recommended. The cable screens should be terminated and connected to Earth at the panel only.

Maximum cross section of cables to use is 2.5mm<sup>2</sup> to avoid damaging the terminals in the control panel.

Mains wiring should be 3 core 1mm<sup>2</sup> to 2.5mm<sup>2</sup> fed from an isolating fused spur, fused at 3A. This should be secure from unauthorized operation and be marked "Fire Alarm Do Not Switch Off". The mains supply must be exclusive to the fire panel.

Detection Zone Wiring

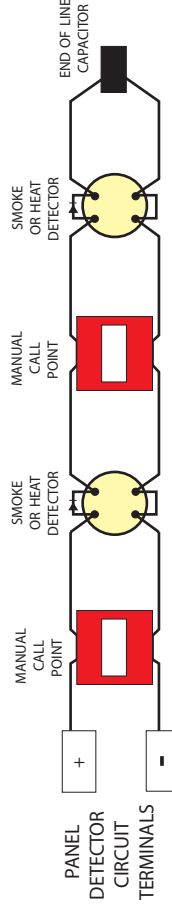
Two, four or eight zones are available for detection device wiring. Each zone has capacity for up to 32 smoke / heat detectors and an unlimited number of manual call points. This may be restricted by local regulations.

An active end of line module (capacitor) is supplied for each zone, as part of the monitoring circuit. This must be fitted to the last device of each Zone. If a detection zone is unused the end of line module must be connected at the panel, if is not fitted, a fault will be indicated for that zone.

A typical detector circuit wiring layout is shown below. Please consult the device manufacturer's instruction manual for detailed information.

If manual call points are wired on the same circuit as detectors then in order to comply with the requirements of BS5839 with respect to head removal monitoring, detector bases should have a Schottky diode fitted which permits manual call points after a removed detector to continue to operate normally. (see diagram). Manual call points should have a maximum internal resistance of (470-680) ohms in Alarm.

The wiring for each detector zone should be terminated in the relevant terminal blocks at the control panel and the cable screens connected to earth.



### Sounder Circuit wiring.

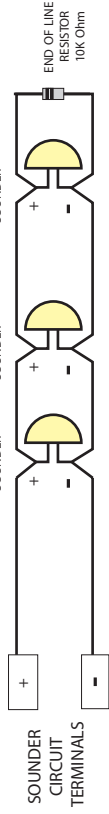
There are two conventional sounder circuits available on the F1 - C. The maximum current available for sounders is (500 mA) per circuit. All sounders must be polarized, non-polarized sounders will indicate a fault on the sounder circuit.

An end of line resistor (10 K Ohm) which is supplied with the panel, must be inserted in the last sounder for cable monitoring. If a sounder circuit is not used, the EOL resistor should be fitted in the control panel sounder output.

The sounder circuits are protected against short circuits, the electronic fuse will reset when the short circuit is removed and the control panel is reset.

The wiring for each sounder circuit should be terminated in their respective terminals and the cable screens connected to earth.

Typical sounder circuit wiring diagram:



### Auxiliary Input Wiring

There are three remote activation inputs. All remote inputs are activated using a voltage free dry contact like a relay.

**Reset:** The closure of a contact at this input will cause the panel to reset. In order to reapply a reset to the panel, contact has to be released and reapplied. Pulse action.

Auxiliary Inputs 1 and 2 are non-Latching inputs with the following functions:

**1° Class change/ Evacuate:** Activates sounders immediately when 0V is applied via a voltage free contact. Sounders active LED is illuminated, Sounders continue to operate until the input is removed. Pressing the Silence button will stop the sounders.

**2° Remote Day/Night Operation:** Allows switching between Day and Night operation from a remote location or with time clock etc..

In the Active state(contact closed) , programmed delays are active (Day operation) and the delays active LED is illuminated.

In the Normal state, programmed delays are ignored (Night operation) and the Delays active LED is extinguished.

The wiring for each auxiliary input should be terminated in their respective terminals and the cable screens connected to earth.

### Connecting the Panel

Before connecting zone or sounder cables, power up the control panel with the Active EOL connected to the zone inputs and the EOL resistors for the sounder lines connected. Connect mains and battery power; there should be no fault indications.

The mains supply should be routed away from the other cables and enter the control panel adjacent to the mains terminal block.

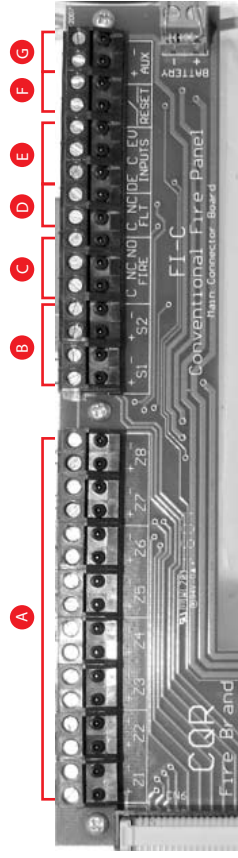
Wiring to the Mains supply should only be undertaken by a suitably qualified and competent person.

Depending on panel load and standby requirements, two 12 volt valve regulated lead acid batteries of capacity up to 7Ah may be fitted in the housing. The batteries should be wired in series (24 V) using the supplied link. Take care not to short circuit the battery terminals.

Check zone and sounder wiring for continuity. Short or open circuit indications must be rectified before connecting to the control panel. All cable testing must be carried out with a Multi meter...NEVER use a Megger when devices are connected.

Induced voltage higher than 1 Volt indicates possible cable problems or bad earth connection and must be rectified before connection.

Transfer Active EOL modules and EOL resistors to the last device on Detection and sounder circuits and connect the cables to their respective terminals in the control panel. See Diagram below.



- A** Zones
- B** Sounder Circuits
- C** Fire Relays
- D** Fault relays
- E** Programmable Remote I/P's
- F** Remote Reset
- G** Auxiliary Supply Output (24 Vdc)

Introduction

This section covers the physical installation of the system. It primarily focuses on the parts that are required and how they should be connected together. Do not connect the mains power or the batteries at this stage commissioning the system is covered in the next section of this manual.

Installation should always be performed in accordance with a system plan.

Panel

The control panel should be located where access to the internal components is not restricted and where the unit is not exposed to high levels of temperature, moisture, vibration and shock.

Any metal swarf could damage the PCBs if it is still present when the panel is powered up so it is recommended that all PCBs are removed from the box whilst the box is being installed. Make a note of the positions of the PCBs before removal.

Mains Power Connection

The panel must be earthed. The LIVE connection must be made to the fused input on the power supply module. This input will also have a BLACK or BROWN wire leading into the power supply unit.

The connector with a BLUE wire leading into the power supply unit is the NEUTRAL.

Other Panel connections

These are detailed in the relevant following sections. Most connections are made from the FI-C connector board.

Repeaters

Repeaters are installed in a similar manner to the Panel. Each FI-C panel can supply a maximum of 2 Mini-repeaters.

The Repeater should be located where access to the internal components is not restricted and where the unit is not exposed to high levels of moisture, vibration and shock.

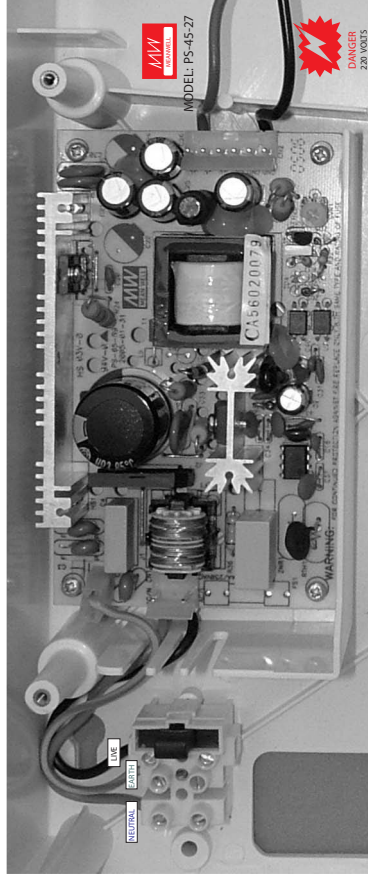
Avoid placing the Repeater in direct sunlight as this may impair reading of the LCD display.

Any metal swarf could damage the PCBs if it is still present when the Repeater is powered up so it is recommended that all PCBs are removed from the box whilst the box is being installed. Make a note of the positions of the PCBs before removal.



**Warning -** observe ESD precautions when handling the PCBs.

Power Requirements



**Power Supply Specification - MEANWELL Model: PS-45-27**

Mains supply voltage	85-264V 50/60 Hz
Internal power supply	Min. 20 V DC – Max. 30 V DC (28.5 V DC nominal) Max. Ripple 1 V peak-peak
Total output current	1.7A @230Vac
Supply and battery charger monitored	YES
Batteries monitored	YES
Max Battery size	2 x 12V 7AH VRLA
Mains Fuse	4 A – 250 V Slow Blow – 20 mm
Battery Fuse	1.6 Amp Resettable – Electronic Fuse
Max Current Draw from Battery (Mains Fail)	1.5 Amp Max.@ Max. Operating Temperature

Voltage

Primary supply voltage	85 - 264 V A.C.
EMC Standard	EN55022 class B EN61000-4-2,3,4,5,6,8,11 EN61000-3-2,3

Current 2.1 A PSU's recommended for All panels.

The maximum alarm sounder current is 1A for both conventional sounder circuits.

Battery

Internal maximum 24V / 7AH

## Standby Battery Calculation

Min battery capacity 2 x 2 Ah 12 V DC

Max Battery capacity 2 x 7 Ah 12 V DC

Always use Lead- acid VRLA Batteries.

The battery Ah required for a given installation is calculated from the following formula:

$$\left( \begin{array}{l} \text{Quiescent current in} \\ \text{mA of the panel with} \end{array} \times \begin{array}{l} \text{Standby time} \\ \text{required in hours} \\ \text{divided by 1000.} \end{array} \right) + \left( \begin{array}{l} \text{Alarm current in Amps} \\ \text{(sounder load)} \end{array} \times \begin{array}{l} \text{Alarm time in} \\ \text{hours} \end{array} \right) + 20\%$$

Round up to the next available battery size.

Quiescent current of the panel with everything is found by adding the standby current of all connected devices to the standby current of the panel (38mA)  
Consult the manual for the individual devices to confirm the standby current,

## Important Safety Notes

- This equipment must only be installed and maintained by a suitably qualified and technically competent person.
- This equipment must have an Earth Connection.
- A basic knowledge and training in the installation of Fire Detection systems is assumed.
- The Fire Detection system should be designed by a suitably qualified person with reference to the Local Regulations and Guidance from the fire Officer where applicable.

## Mounting the Panel

The FI - C housing is designed for either surface or semi-recessed mounting. Cable entry points are provided at the top and back of the housing. Do not drill additional holes as cables could then interfere with the PCB or standby battery position. Maintain separation between the incoming 230 volt mains cable and the low voltage detector and sounder cabling.  
The panel should be fixed to the wall using the 4 mounting holes provided and No 8-10 countersunk screws.

Any dust created during the fixing process must be kept out of the control panel and care must be taken not to damage any wiring or components.

