

SPECIFICATIONS

Power Supply	Mains Supply Voltage	220V dc 50 Hz
	Transformer Primary Thermal Fuse	1A 102°C (Non Replaceable)
	Quiescent Current standby	48 mA (Buzzer Muted)
	Maximum Overall Current Supply	1A dc (MAX)
	Maximum Sounder Supply Current	750 mA (0.75A)
Battery Standby	Maximum Zone Output Current	50 mA (0.050A)
	Current Draw - Fault Buzzer On	61 mA (0.61A)
	Current Draw - Fault Buzzer Off	53 mA (0.53A)
Zone Circuit	Current Draw - Fire Alarm	95 mA (0.95)
	Number of Zones	FT1BS: 1 Zone FT2BS: 2 Zones
Sounders Outputs	Detector Voltage Supply	21Vdc +/- 10%
	Maximum Current Supply	50 mA dc
	Monitoring	Healthy 2mA <> 7.5mA (Nom.) Fire 17mA <> 41mA (Nom.) Short Circuit >43mA (Nom.) Open Circuit <2mA (Nom.)
	Maximum Detectors per Zone	20 (Low Current Types 30uA)
	Maximum Call Points per Zone	Unlimited
Battery Input	Switch Voltage Output	27.2Vdc +/- 10%
	Max Current	750 mA DC (MAX)
	Outputs	2 Independently fused
	Monitoring	Open Circuit Short Circuit Reversed
Auxiliary Relay	Battery Charging Voltage	27.2Vdc (adjustable)
	Monitoring	Open Circuit Short Circuit Less than 22Vdc Reversed
	Contacts	NO, C, NC (Voltage Free)
	Maximum Current	1A dc/ac
Fuses	Maximum Voltage	30Vdc
	F1 - Bell 1	1A Anti Surge 20 mm Glass
	F2 - Bell 2	1A Anti Surge 20 mm Glass
Housing	F3 - Battery	1A Anti Surge 20 mm Glass
	F4- Mains Supply	1A Fast Blow Mains 20 mm Ceramic
	Mains Thermal Safety Fuse	102°C (non replaceable)
Compliance	Front Cover	Polycarbonate - Fire Retardant
	Back Box	Polycarbonate - Fire Retardant
Re-Ordering	European	CE
	British	To conform to BS5839:Part 4 1988
Warranty	Ingression Protection Rating	IP20
	1 Zone	FT1BS
	2 Zone	FT2BS
		2 Years from Date of Manufacture (Date of manufacture can be found marked on the PCB)

If you experience any difficulties with this product,
please call our Technical Help-Line

01928 581098

FIRETRAX™ FT1BS FT2BS

FIRE DETECTION PANEL
Designed to Comply with BS5839 part 4 1988



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Manufacturing Global Security in Great Britain.....with Pride

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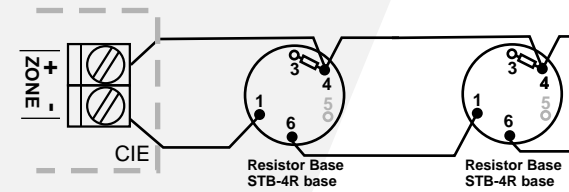
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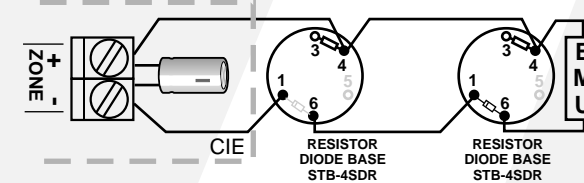
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5.9 PRACTICAL WIRING OF RESISTOR BASES FOR RESISTOR END OF LINE MONITORING

Diode bases should never be used when using EOL resistor monitoring

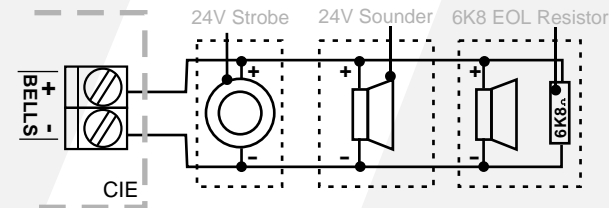


5.10 PRACTICAL WIRING OF DIODE RESISTOR BASES FOR EMU END OF LINE MONITORING



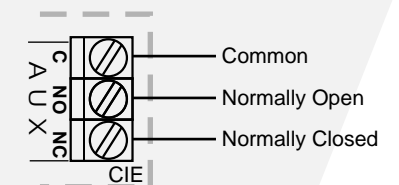
5.11 SOUNDERS

All sounder wiring should be in fire retardant type cables. 1mm² or greater copper cables should be used to avoid minimum volt drop. Its may be necessary on long cable runs to use greater cable sizes, there should be no spurring or "T offs" from the main run.

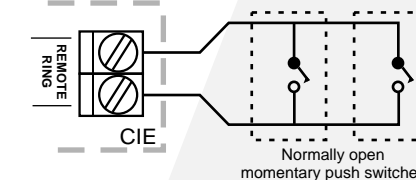


5.12 AUXILIARY RELAY WIRING

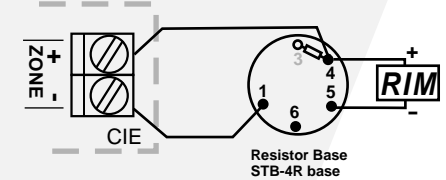
The Auxiliary relay should be considered as a low current switch, and should not be connected directly to magnetic door holders and should only be used to switch a larger switching relay.



5.13 REMOTE RING

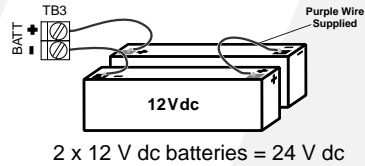


5.14 REMOTE INDICATOR MODULE



5.4 INSTALLING THE BATTERY

Install the 24 V battery normally made of 2x12 V SLA batteries connected in series. Correct polarity connection must be observed. The pre installed 6K8 resistor must be removed before connecting the batteries.



5.5 ADJUSTING THE BATTERY CHARGING VOLTAGE



On completion of the installation and during regular maintenance the battery charging voltage should be 27.2 V dc, measured at the battery input terminals on TB3 14 & 15 while not connected to the battery. The battery charging voltage may be set by adjusting potentiometer VR1 whilst measuring across the battery terminals 14 & 15 on TB3. Access to VR1 is gained from the rear of the PCB.

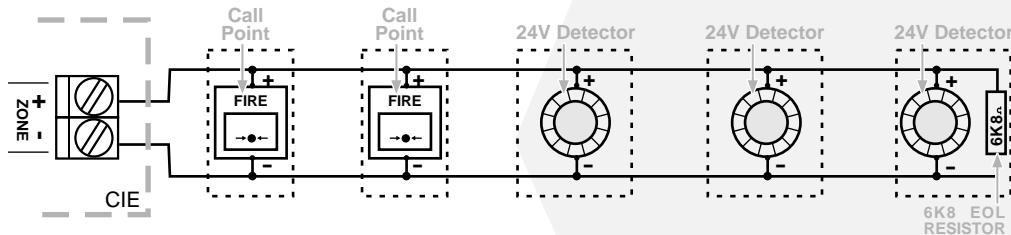
5.6 INSTALLING MANUAL CALL POINTS AND AUTOMATIC DETECTION DEVICES

Devices should be wired in 1mm² or greater copper cable, there should be no spurring or "T offs" from the main run. Manual Call Points must be installed before automated detection devices as shown below in (fig. 5.7), when using End of Line resistor monitoring. In the very last device a 6K8 ohm resistor must be placed across the device to provide end of line monitoring. In all detection devices automatic or manual a 470 ohm resistor should be connected in series with its terminals which are presented to the CIE.

In some installations it may not be convenient for all call points to be installed before the automated detection devices, in these cases an EMU (Electronic Monitoring Module) provides active end of line monitoring and allows the different types of detection devices to be mixed in any order. The EMU device must be placed in the furthest most detector. When using an EMU a capacitor must be placed across the zone terminals in the CIE. Shown in fig 5.8

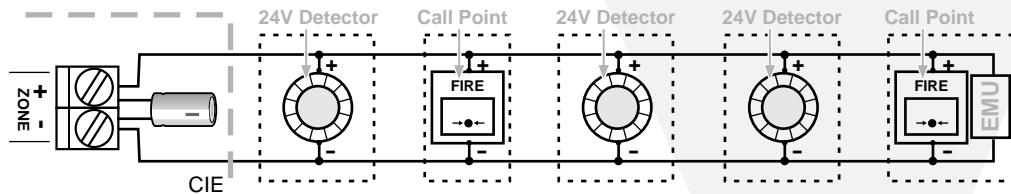
5.7 USING EOL (End of Line) RESISTOR MONITORING

Resistor bases must be used, diode resistor bases must never be used as fault will not be reported.



5.8 USING EOL ELECTRONIC MONITORING UNIT

When using electronic monitoring devices it may be necessary to fit a capacitor in the CIE, correct polarity must be observed when connecting the capacitor. Diode resistor bases must be used, shown below



1.0 INTRODUCTION

1.1 DESCRIPTION

The Ventcroft FIRETRAX (FT2BS & FT1BS) are both fire control panels designed to comply with BS5839:Part 4 1988 used in systems in the detection of fire, described in this manual as CIE(Control Indicator Equipment). The CIE has 1 or 2 fire detection circuits(model dependent) for the connection of fire detection and call point devices. The CIE is powered from the mains supply and utilizes a backup circuit to allow the connection of stand-by batteries allowing the CIE to function with a mains failure.

In the event of fire detection two sounder outputs are provided to drive 24V sounder or strobe units to communicate evacuation, the sounder output can also be remotely triggered via the remote ring input. A relay provides a switchable voltage free output which changes state during a fire activation and can be utilized, for example to switch devices such as digital phone communicators or to indirectly release power to fire door holding devices.

1.2 FEATURES

- MAINS POWER LED
- ZONE FIRE ALARM LED'S
- FACE MOUNTED CONTROL BUTTONS
- ZONE FAULT LED'S
- GENERAL FAULT LED'S
- TWO FUSED SOUNDER OUTPUTS
- FUSED BATTERY INPUT
- KEY SWITCH ENABLE
- MICROPROCESSOR CONTROLLED
- INTERNAL SYSTEM FAULT LED'S
- POLYCARBONATE HOUSING
- ACTIVE END OF LINE OPTION
- END OF LINE RESISTOR MONITORING
- CLASS CHANGE FACILITY
- DOUBLE POLE AUXILIARY RELAY
- 1 AMP TOTAL POWER SUPPLY
- INTERNAL SPACE FOR UP TO 2 x 2.1 Ah 12 V BATTERIES
- COMPLIES WITH B.S. 5839 PART 4 1988
- UP TO 20 AUTOMATIC DETECTION DEVICES PER ZONE
- UNLIMITED NUMBER OF CALL POINTS PER ZONE
- CE

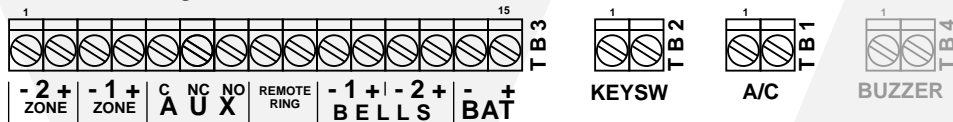
1.3 Box Contents

- 1x FIRETRAX FT1BS OR FT2BS - Fire CIE Panel
- 1x Instructions VI40.1
- 1x User Insert VI41.1 for Instructions VI40.1
- 1x Accessory Bag Including
 - 2x 816 Keys
 - 2x Self Tapping Screws - For Fixing Front Cover to the Base
 - 1x Purple Fast-on to Fast-on Lead
 - 1x Black Fast-on to Tinned End Lead
 - 1x Red Fast-on to Tinned End Lead
 - 2x Spare 1A 20mm Glass Fuses
 - 2x 6K8 Resistors

2.0 CONNECTIONS

FIRETRAX CIE PANEL

2.1 Terminal Diagrams



2.2 FIELD CONNECTIONS - TB3

These terminals provide the inputs allowing the connection of smoke heads and alarms points to the CIE. All devices must be connected in parallel to the CIE. 22V DC is supplied to the zone terminals supplying a maximum current of 50 mA per zone, a 6K8 Ohm end of line resistor must be fitted in the further most detection device from the CIE. To produce a fire state the detector should draw sufficient current to trigger a fire alarm and have a 470 Ohm resistor in series. Not only do the terminals detect a fire state but they offer detection of open and short circuit of the cables.

X C The CIE is fitted with a double pole auxiliary 1 Amp relay which operates only when a fire condition is recognised. The relay does not operate if the manual SOUND ALARM is pressed.

U NO

A NC

REMOTE RING The REMOTE RING terminals can be used to force trigger the bell relay without a fire condition occurring or operating the auxiliary relay. This gives the ability to wire remote evacuation switches. This is NOT a latching trigger and will return to a normal state when the connection is broken. Often used as a class change.

BELL 1 These terminals provide the outputs to drive the internal and external sounders and strobes. There are two separately fused outputs, both circuits are monitored for open and short circuits conditions with EOL monitoring resistors (6K8). Sounders must be polarised, fully suppressed and designed for 24VDC operation. The total load for both circuits must not exceed 750mA. If the sounders or strobes are not polarized a fault will be indicated. The same wiring rules apply as for the detector circuits.

BATT These terminals provide connection for a 24V backup battery. 12V batteries are connected in series. The 6K8 Ohm resistor must be removed before fitting any battery to this terminal. Failure to remove the resistor will not enable the panel to test the batteries health.

2.3 KEY SWITCH - TB2

KEYSW These terminals provide the connection for the on board key switch which enables and disables the control buttons. When the switch is closed the control buttons are enabled. No other connection should be made to these terminals.

2.4 A/C SUPPLY INPUT - TB1

A/C These terminals provide the connection from the on board transformer, which provides approximately 32 V ac. No other connection should be made to these terminals

2.5 INTERNAL BUZZER - TB4

BUZZER These terminals provide the connections to supply a wired internal buzzer. These terminals are only fitted when the on board buzzer SND1 is not fitted. No other connection should be made to these terminals.

4.11 REMOTE RING

The connection of a normally open switch to the remote ring terminals, will allow the external sounders to be used for ancillary functions for example 'Class Change.' Multiple switches can be used by connecting the switches in parallel.

5.0 INSTALLATION AND WIRING GUIDE

5.1 MOUNTING THE CIE EQUIPMENT

Identify a suitable location for mounting the CIE (Control Indicator Equipment) taking into consideration the routing of cables and access to the CIE for both installation and user. Remove the PCB and keep safe, mark the location of the holes to be drilled by offering the CIE rear enclosure to the wall. Drill holes for suitable rawl plugs to provide a strong and secure installation.

5.2 PRE-INSTALLATION TESTING

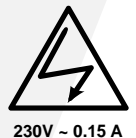
It is **STRONGLY** recommended that the panel is powered up and tested prior to the external system circuits being connected.

- Make sure the external system wiring has been tested and the results recorded.
- Connect the batteries together (see FIG 5.4, page 10) and connect the + & - 'spade terminals' to the PCB terminal block. Ignore the fault indication at this stage.
- Connect the mains supply (see FIG 5.3, page 9). The fault indication will be removed
- In turn, temporarily disconnect each of the monitoring resistors from the terminals, check for a fault indication, and reconnect for the fault to reset.
- In turn, use a 470 ohm resistor to temporarily connect across the detector circuit terminals to create a FIRE condition. Reset as per the Operating Instructions.

Once the panel has been tested and the operating procedure is understood, the external connections can be made, **ONE CIRCUIT AT A TIME.**

5.3 MAINS CONNECTION

Terminate the mains connection using suitable earthed mains cable to a fused supply, ensuring all power is isolated before attempting to terminate and wires. This supply should not be shared with any other appliances.



230V ~ 0.15 A

This work must be carried out by a suitably qualified engineer and installed to the latest mandatory Fire Alarm Installation Regulations which are applicable at the time of installation. The correct polarity must be observed and a good earth must be used.

The Fire Alarm system must not share its mains supply with any other electrical circuit and should be connected via an isolating protective device and labelled 'FIRE ALARM DO NOT SWITCH OFF.'

4.6 AUTOMATIC 'POINT' DETECTORS

There are four common types of automatic 'point' detectors installed to aid the detection of fires within a residential / commercial building. **Ionisation and Photoelectronic Devices** detect the products of combustion (smoke). **Rate of Rise and fixed Temperature Devices** detect changes in temperature (heat). **Optical smoke Devices** are used for, slow burning smouldering fires, ie for escape routes and corridors, wood or cardboard stores, do not use in steamy, dusty or smoky areas such as kitchens and bathrooms etc. **Ionisation Smoke Devices** are used for fast burning, high energy fires, ie for petrochemical or solvent stores, electrical switch rooms. **Heat Devices** are used when the environment is subject to constant levels of smoke or dirt, ie loading bays, boiler rooms, kitchens, laundries and plant rooms. **Fixed Temperature Heat Devices** are used where high ambient temperatures exist, or in areas where sudden changes in temperature may occur, ie near large windows or heat producing processes. **Rate of Rise Devices** have fixed temperature operation, but also looks for sudden rises in temperature giving faster reaction than standard fixed temperature detector. Sufficient detection devices should be installed to provide adequate protection coverage.

4.7 MANUAL CALL POINTS

Call points should be sited with the following considerations, the rules below are mandatory.

- 1, On all escape routes.
- 2, On landings of stairways.
- 3, Near final exits to the open air.
- 4, Nobody has to travel 30 metres to reach a call point.
- 5, Call Points must be 1.4 metres above the floor and be free from obstruction.

4.8 REMOTE INDICATOR MODULE

Remote Indicator Modules can be used to remotely indicate the state of an automatic detection device. i.e. there may be 10 rooms on a single corridor, if a single detection device were to alarm each room would have to be inspected, which would take valuable time. A remote indicator module can be placed outside each room to quickly guide a correct response.

4.9 AUXILIARY RELAY

The Auxiliary relay terminals can be used as a voltage free interface between the FIRETRAX FT1BS / FT2BS CIE. To such devices as magnetic fire door holding devices and communicating devices to be connected to a phone line. The Auxiliary relay should be considered as a low current switch, and should not be connected directly to magnetic door holders and should only be used to switch a larger switching relay.

4.10 SOUNDERS

Sufficient sounders should be installed so as to ensure alarm audibility in all areas of the building / location ensuring a fast and full evacuation. Two sounder outputs are provided on the CIE (Control Indicator Equipment) allowing the connection of two independent sounder circuits, see BS 5839 Part1:1988 section 9.4 for detailed information.

1. Sufficient sounders should be installed to ensure sufficient dB levels around the premises to aid a complete evacuation, even in the event of a failure of one of the sounder circuits. 75dB should be provided at the bed head of a sleeping person (With all doors closed). 65 dB should be provided in all other working areas or 5 dB above any noise the re-occur for more than 30 seconds.
2. The minimum sound levels must be produced in all parts of the building / location. This includes restricted areas that are infrequently visited, such as service ducts, store rooms, toilets or lift shaft motor rooms etc.
3. All sounders in a building should be of similar type, do not mix electronic sounders with bells.

3.0 OPERATING CONTROLS

The key switch and three buttons on the front of the CIE allows the user and engineer to access the CIE different operation functions.

3.1 KEYSWITCH

The Keyswitch is used to enable or disable the three control buttons. SOUND ALARM, MUTE and RESET. The key can only be removed in the control disabled position, with the key inserted and turned clockwise the controls are enabled.

3.2 CONTROL BUTTONS

SOUND ALARM The SOUND ALARM button is used to activate the sounder circuits, and can be used to evacuate the building, resound or test the sounders. Labelled on the PCB as S1 EVAC.

MUTE The sounder mute push button is used to silence the system sounders and the internal buzzer during a fault condition. When the mute button is pressed during a fire activation the system sounders will be silenced but the internal buzzer will sound continuously until the reset button is pressed. The mute button is also used to silence the system sounders when the SOUND ALARM button has been pressed. If the mute button is pressed during fault condition the internal buzzer will cease to sound continuously and will only beep once every 5 seconds. Labelled on the PCB as S2 Mute.

RESET The reset button is used to reset and initialize the CIE after a fire activation or from powering up. After a fire activation before the reset button can be pressed the mute button must first be pressed, otherwise no reset will take place. If reset button is pressed with or without a fault condition present the CIE will re-initialize, illuminating all external LED's along with sounding the internal buzzer for 3 seconds. The auxiliary supply to the zone terminals is removed during the initialization period, resetting any smoke heads connected to the zone inputs. Labelled on the PCB as S3 RESET.

3.3 INTERNAL BUZZER

- Constant** A constant tone from the buzzer will indicate either :
1. General Fault
 2. Muted Fire Alarm
- Fast Beep** A rapid on / off tone indicates a fire activation

LED INDICATORS

3.4 FRONT PANEL INDICATORS

Description	Colour	Function
MAINS ON	TWIN GREEN	Constant Indicates mains power is supplied to the panel.
GENERAL FAULT	TWIN AMBER	Constant LED's indicates the presence of a general fault, either: Processor, Sounder or Battery. The actual cause of the fault is displayed on the internal fault LED's.
ZONE 1 FIRE	TWIN RED	Flashing LED's indicates fire detection in that zone. Constant LED's indicates the mute button has been pressed after a fire detection. Requires areset to initialize.
ZONE 1 FAULT	TWIN AMBER	Constant LED's indicates a fault condition in that zone.
ZONE 2 FIRE	TWIN RED	Flashing LED's indicates fire detection in that zone. Constant LED's indicates the mute button has been pressed after a fire detection. Requires areset to initialize.
ZONE 2 FAULT	TWIN AMBER	Constant LED's indicates a fault condition in that zone.

3.5 INTERNAL PCB MOUNTED INDICATORS

Description	Colour	Indicates
PROC	AMBER	When illuminated indicates the presence of a processor fault or that the CIE needs re-initializing using the reset button.
BELL	AMBER	When illuminated indicates the presence of a sounder circuit fault of either a open or short circuit.
BATT	AMBER	When illuminated indicates the presence of either an open or short circuit in the battery circuit.

4.0 GUIDE TO PLANNING A FIRE ALARM SYSTEM

4.1 INTRODUCTION

During the formulation of this manual, Ventcroft have tried to provide an insight into some of the capabilities and facilities of the FIRETRAX FT1BS / FT2BS CIE and to provide a guide as to some of the more general points of the electrical installation, testing and mandatory system design requirements which may be applicable at the time of installation. However, Ventcroft will not be held responsible for the interpretation of any of the points contained in this manual, as it is the sole responsibility of the commissioning company to install this equipment to current Electrical and local Fire Authority regulatory requirements.

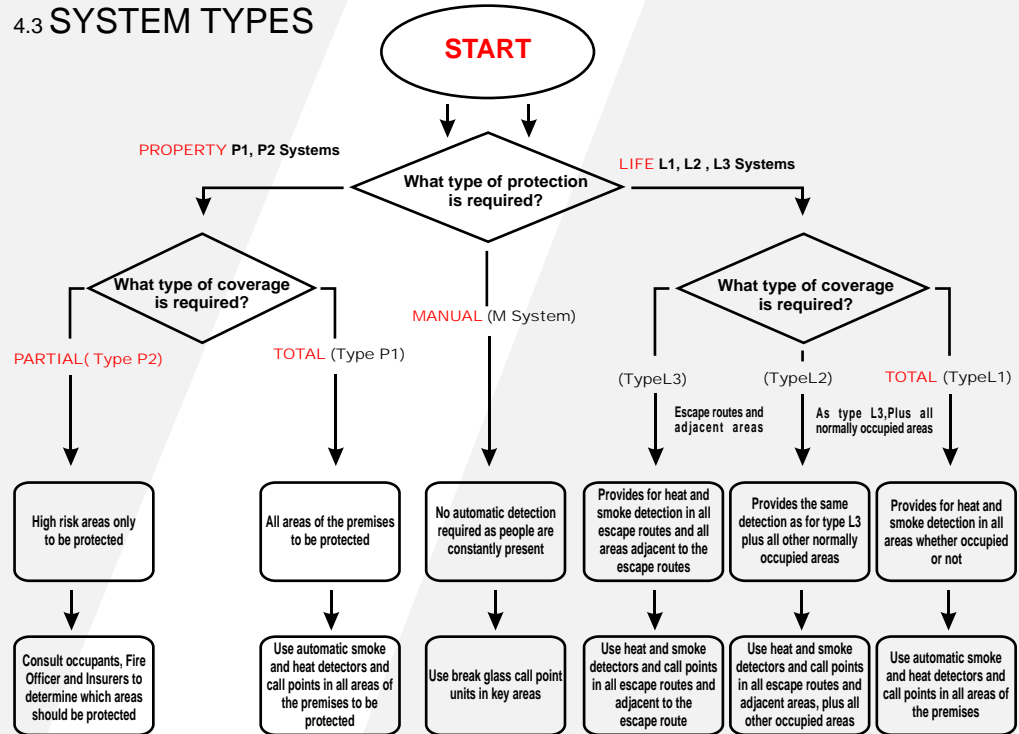
Before attempting to complete a fire alarm system it is recommend that its is fitted with knowledge of BS 5839 part 1:1988 entitled "Fire Detection and Alarm Sections for Buildings - Code of Practice for System Design, Installation and Servicing".

Ventcroft provides a web page which provides more details guidance which can be reached at www.ventcroft.co.uk/fire

4.2 INSTALL PLANNING.

Firstly decide the type of fire alarm system for the premises, a flow chart is shown below in fig. 4.3 to aid the decision. The correct selection of system is important so as to provide the necessary fire detection coverage for the premises to be protected.

4.3 SYSTEM TYPES



4.4 GENERAL INFORMATION

Any single fire zone must not exceed beyond a fire break, floor level or 2000 m². Lift shafts and high voids should be treated as a single zone.

4.5 DETECTION DEVICES

Two main types of fire detection device can installed to aid in the detection of fire and evacuation of building, call points offer manual operation to evacuate the premises on discovery of a fire, and automatic fire detection points provide automated reporting. Such automated detection devices include smoke detectors, heat detectors, each used in specific areas.

A more detailed description of the various types of manual and automatic detection devices is given in section 4.6 & 4.7

User Operating Instructions

FIRETRAX - FT1BS / FT2BS

SYSTEM NORMAL

The green mains light will be illuminated and the system will be silent.

FIRE ALARM

The red fire lamps will flash and the alarm will sound.

TO OPERATE THE PANEL CONTROLS, FIRST INSERT THE KEY INTO THE KEY SWITCH AND TURN THE KEY CLOCKWISE IN THE DIRECTION OF THE ARROW.

To SILENCE the ALARM Press the MUTE button.

Once the Alarm has been investigated the panel can either be reset or reactivated.

To RESET the Panel Press the RESET button.

Note: The cause of the alarm must be removed for the panel to return to normal.

To REACTIVATE the ALARM Press the SOUNDALARM button.

Note: The above steps can be applied in any sequence during the Fire Alarm.

ONCE THE PANEL HAS BEEN RESET AND THE SYSTEM IS BACK TO NORMAL, ALWAYS RETURN THE KEY SWITCH BACK TO ITS ANTICLOCKWISE POSITION AND REMOVE THE KEY.

EVACUATE

To operate the sounders at ANY time, insert and turn the key and Press the SOUNDALARM button.

To SILENCE the ALARM Press the RESET button.

Return the key switch back to its anticlockwise position and remove the key.

SYSTEM FAULT

The yellow fault lamps will flash and an internal buzzer will sound.

To Quiet the internal buzzer - Insert and turn the key clockwise and Press the MUTE button

Note: The buzzer will now pulse intermittently.

Take note of the yellow lamps which are illuminated and immediately advise the alarm company.

Return the key switch back to its anticlockwise position and remove the key.

SYSTEM TEST

The whole system should be tested regularly in accordance with the current codes of practice.

To test sounders - Insert and turn the key clockwise and Press the SOUND ALARM button.

To silence alarm Press the MUTE button.

To test lamps and buzzers-Insert and turn the key clockwise and Press the TEST button.

Return the key switch back to its anticlockwise position and remove the key.

FIRE ALARM SYSTEM

CERTIFICATE OF INSTALLATION / COMMISSIONING

Protected area _____

Address _____

Contact Name: _____ Tel: _____

My attention has been drawn to the recommendations of BS 5839:Part 1:1988; in particular, to clauses 14 (false alarms), 28 and 29 (user responsibilities)

In accordance with BS 5839:Part 1988, subclause 26.1, record drawings and operating instructions have been supplied and received by:

Signed _____ Status _____ Date _____

Printed _____

Responsible person for and on behalf of (user) _____

In accordance with BS 5839:Part 1:1988, subclause 26.2, the installation has been inspected and been found to comply with the recommendations of the code.

In accordance with BS 5839:Part 1:1988, subclause 26.3, the insulation of cables and wires has been tested.

In accordance with BS 5839:Part 1:1988, subclause 26.4, the earthing has been tested.

In accordance with BS 5839:Part 1:1988, subclause 26.5, the entire system has been tested for satisfactory operation.

In accordance with BS 5839:Part 1:1988, subclause 26.6, it is certified that the installation complies with the recommendations of the code, other than the following deviations;

In accordance with BS 5839:Part 1:1988, subclause 26.7, it is certified that the handover complies with the recommendations of the code.

Signed (Commissioning engineer) _____ Date _____

Printed _____

For and on behalf of (installer) _____

Address _____

Contact Name: _____ Tel: _____

The system log book is situated _____

The system documentation is situated _____

Commissioning and Maintenance Record

Commissioning	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6	Visit 7	Visit 8
Zone 1 Resistance	Ω							
Zone 2 Resistance	Ω							
Sounder Circuit 1 FWD Resistance	Ω							
Sounder Circuit 2 FWD Resistance	Ω							
Sounder Circuit 1 RVS Resistance	Ω							
Sounder Circuit 2 RVS Resistance	Ω							
Remote Ring (Closed) Resistance	Ω							
Sounder Circuit 1 Current	Adc							
Sounder Circuit 2 Current	Adc							
Battery Charging Voltage Offload	Vdc							
Battery Charging Voltage Onload	Vdc							
Battery Charging Current	Adc							
Battery Terminal Voltage (not connected)	Vdc							
Zone 1 Voltage	Vdc							
Zone 2 Voltage	Vdc							
Mains Voltage	Vac							

Event Log

Date	Time	Event	Action	Date Repaired	Initials