



SENSOTEC

MICROFIRE

APPLICATIONS AND DESIGN CONSIDERATIONS

Microfire is a miniature control panel which accepts Firex smoke alarms and call points to create a unique range of mini systems in applications such as small houses of multiple occupation, small places of work and larger private houses. It is especially suitable where there is a need for fire detection, alarm sounders and a manual means of raising an alarm of fire (call points).

Microfire is also ideal for use in building cabins, etc, which simply require a break glass and sounder unit; in fact any property where there is no specific requirements for full specification industrial/commercial systems as required BS5839 Part 1 1988.

Microfire has also been designed to comply with the guidance indicated in BS5839 1995 for Grade C systems and provides a superior and safer solution because of its distributed mains and secondary power supplies which mean that cable failure between smoke alarms will still leave the individual elements of the system fully operational.

A theoretical maximum of 36 Firex smoke alarms, heat alarms can be controlled by the Microfire controller which can be installed anywhere within the circuit and is connected in a similar manner to its associated smoke alarms on a 3 core house wiring cable (6243Y). Electrical contractors will be instantly familiar with this method of wiring which replicates general smoke alarm installations, which they undertake regularly. Any number of Microfire surface call points can be connected directly to the Microfire Controller via a separate low voltage two-conductor cable. Circuit designs and configurations are thus left extremely flexible minimising installation costs, particularly in retrofit applications.

Microfire Systems are intended for use in protected buildings up to the size of normal single zone fire alarm installations. Therefore, for installations in the UK, we do not recommend that more than 20 units are installed which equates one zone of a conventional fire alarm system, beyond this we would recommend the use of Sensotec conventional or intelligent fire alarm systems.

MICROFIRE 1 SPECIFICATION

General

The Microfire Controller incorporates a break glass call point and a sounder producing approx 85dba at 3 meters utilising the latest temporal sound pattern. It is software driven and based around a programmable intelligent controller (PIC) which provides and controls all the software functions of the system. There are two levels of access to the controls:

Level 1 – no code required – allows building occupiers to test lamps and mute the fault buzzer to avoid disturbance, for example in the instance of a prolonged power cut. No other controls are functional.

Level 2 – standard access code required – allows authorised personnel to locate, silence alarm sounders and reset the system.

All controls are tactile switches behind a high-grade attractively designed membrane fascia that also incorporates high brightness LED windows for instant recognition of fire, fault and quiescent signals.

Connections

The First smoke alarm or the controller should be connected to the AC supply via a lockable switch fuse rated at 5amps and clearly indicated "Fire Alarm System". The controller can be installed anywhere in the smoke-heat alarm circuit and that the devices can be wired in star or parallel circuits. Any additional break glass call points required are connected to the dedicated two-way terminal block, remove the end of line resistor from this block and connect across

the circuit at the last call point provided. Note that no spurs should be permitted on the call point circuit to ensure monitoring is continuous. The minimum conductor size to be used is 1.00mm², the maximum 1.5mm². While fire survival cables will improve, the overall specification integrity smoke alarms are generally installed utilising standard 6242Y and 6243Y pvc/pvc cables. The distributed power between the controller and the smoke-heat alarms ensures that individual components of the system maintain their integrity in the event of cable failure and that the break glass circuit is monitored against open circuit fault (short circuit faults will create a fire signal).

Circuit Monitoring

AC supply is monitored against failure at the Controller. This initiates a fault buzzer and an amber LED is illuminated, the green Mains Health LED is extinguished; if the smoke/heat alarms the green LED is extinguished.

Connection between alarm devices is unmonitored; each device contains its own secondary power.

The break glass call point circuit is monitored against open circuit fault utilising a 22K Ω end of line resistor supplied in the controller.





Power Supplies

230v AC mains supply is required and is terminated on the rear spine of the controller at the first fix stage; the interlink connection to all associated detectors is also made at this point. Microfire is designed to be used with Ultralife lithium PP3 9-volt battery, part nos. UL9VX (supplied separately). This will power the controller for 15 days in the event of mains failure instead of the usual fire alarm panel requirement of 24/72 hours. The battery status is monitored and a battery approaching the end of its working life will be indicated in a similar manner to the smoke alarms. The battery can be expected to provide circa 10 years Standby time provided that sustained power cuts are not experienced.

System Controls and Indicators


Microfire 1 incorporates a break glass call point that will activate the internal sounder and all connected smoke/heat alarm sounders.

There are four tactile control switches numbered , ,  and , they are indicated as follows:

-  Silence/mute/locate
-  Reset/test lamps
-  Evacuate and re-sound
-  Access

There are seven LED Status indicators, their functions are as follows:

- Green Mains healthy
- Red General Fire
- Red Call point activated
- Amber General Fault
- Amber Fault buzzer muted

The additional amber LED indicator is associated with the  tactile switch which indicates 'access' has been activated.

User Instructions

Systems Operation – Fire

The operation of a **smoke/heat detector** will cause all interlink units to sound together with the internal sounder in Microfire 1. The source of the alarm can easily be determined as follows:

- 1) To access controls press * button
- 2) Enter Access code 2 1 3
- 3) Access amber LED illuminates
- 4) Determine whether the alarm is genuine or not. If there is no need to evacuate press button 1
silence/mute/locate – all smoke/heat alarms will silence except the one originating the call
- 5) Inspect this location – when satisfied that the building is safe and any fire extinguished. If there is a new or re-occurring emergency press the “evacuate” 3 switch to re-sound the sounder
- 6) Press buttons 2 reset/test lamps when appropriate and the system will reset.
- 7) Press * button
- 8) Access amber LED extinguishes – Level 2 controls are disabled
- 9) System quiescent ready for next alarm

The operation of the break glass call point on Microfire 1 or any additional call points will cause all the smoke/heat alarms to sound together with the internal sounder. The source of the alarm will be indicated as ‘call point operated’ which can readily be identified by inspecting the state of the call point glass. The system may then be reset following steps 1 to 10 above.

System Operation – Fault

- AC Power Failure the Green LED extinguishes, internal buzzer sounds, General Fault LED flashes.
- Battery Fault General Fault LED flashes, buzzer sounds every 40 seconds – *Fit a new battery within the control panel Ultralife lithium PP3 9-volt battery, part nos. U9VL-J or U9VLX*
- Smoke Heat Alarm Faults on these units will be indicated at the smoke/heat alarm as described in the product manual.
- Break Glass Call Point Fault Call point Fault LED illuminates, Buzzer sounds every 10 seconds. *Check the break glass in all call points has not been broken and replace as necessary, part no Sensotec KAC 5KG1 (5 pack).*
- Mute Fault Buzzer the fault buzzer can be muted. Muting the Fault tone is indicated by the General Fault/Buzzer Silenced LED flashing every seven seconds.

For Service & Maintenance

Installation Instructions

The Microfire GGP Controller can be fitted anywhere in the circuit with associated Firex Smoke/Heat Alarms. The mounting position chosen should allow ready access to the break glass call point and should be adjacent to the most likely main fire exit route from the building. Ideally, the mounting height should be 1.4m above floor level. The control unit lid is removed by removing the 4 retaining screws, which must be carefully retained for future use.

All the electronics are fitted behind the lid which must be stored safely until you are ready to second fix and activate the system.

The back plate should be securely fixed to the wall at the chosen position, cable entry can be from the rear or the top or bottom of the unit via trunking entries. Screw fixing holes are provided for the BESA box mounting or the unit can be screwed to the wall.

Connect the incoming AC supply and interlink if present and the outgoing AC supply and interlink to the next Firex Alarm to the Terminals marked L (live) and N (neutral) and I (interlink) mounted on the back plate. This appliance must be earthed and the CPC is terminated in the terminal block marked E.

Additional call points are terminated at the terminal block which is the removable orange connector on the second PCB. Remove the end of the line resistor and fit across the circuit in the last call point on the line. Do not spur this circuit. The cable to these call points must not form part of the smoke/heat alarm circuit and is a separate extra low voltage signalling pair, monitored against open circuit fault. A cable short circuit will initiate a fire signal.

Assuming that all the Firex Smoke/Heat Alarms are fitted together with any additional call points, you can proceed to fit the controller electronics. Connect the earth flying lead with the spade connector to the lid and the Live Neutral and Interlink flying leads to the terminal block in the back plate opposite the in/outgoing cables on the detection circuit. Ensure that all terminations are correctly tightened and fit a fresh Ultralife Lithium battery, Part No SEN UL 9 VX. Fault lamps and the fault buzzer will operate as outlined in the user instructions.

Re-fit the front plate using the screws provided and energise the AC mains supply. The supply source to the circuit must be protected by a 5 or 6 amp fuse or circuit breaker and should not be accessible to unauthorised persons. The system is now ready to commission.

Commissioning

1. Press **2** – Observe correct operation of LED's and fault buzzer

2 Simulate a "Mains" fault:

- a) Observe green LED extinguishes (up to 10 seconds delay may occur)
- b) General fault LED will pulse and internal sounder operates every 40 seconds.
- c) Press **1** Silence/Mute/Locate – alarms/buzzer silenced LED illuminates – buzzer silences

Restore AC Mains – Observe green mains health indicators restores and fault LED extinguishes.

3 Test Fire Detectors:

Test all Firex smoke and heat alarms in turn observing correct operation of all sounders. Use the test buttons on each smoke or heat alarm. *Keep a detector in fire by continuing to press the test switch or use a recommended smoke test match or "Canned Smoke" spray.* Each test will result in all interconnected detectors sounding and the following:

- (1) General Fire Indicator Illuminate – all sounders operate
- (2) Panel operator - then press ***** Access **2** **1** **3**
- (3) Access LED illuminates
- (4) Press ***** silence/mute/locate – all smoke/heat alarm sounders except the initiating alarm will silence
- (5) Release test button or clear smoke from detector (Detector will automatically reset).
- (6) Press **2** reset test/lamps (A) Panel Sounder silences (B) General Fire LED extinguishes

4 Test Call Points

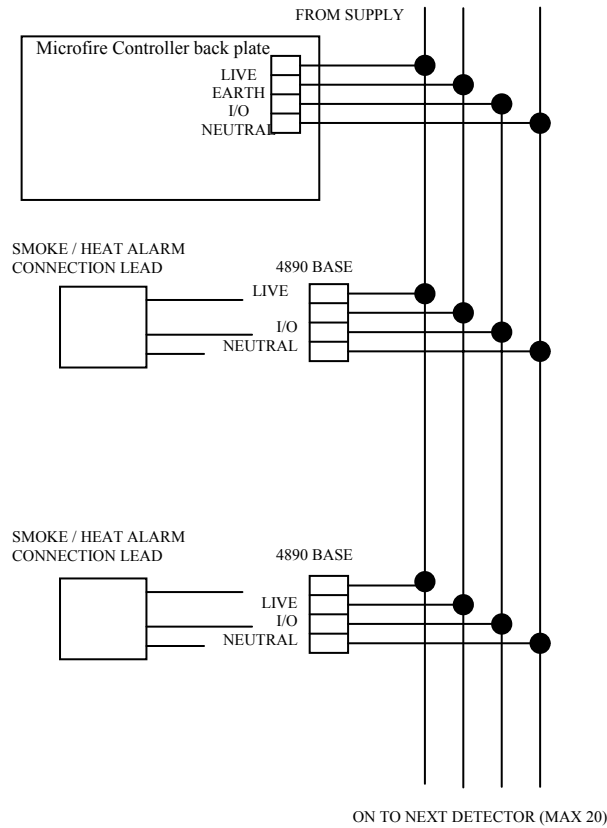
Test all call points using test key provided. Red call point operated - LED Illuminates– all interconnected smoke and heat alarm sounders operate.

To silence and reset follow steps (2) (3) (4) & (6) as in section 4 above

- 1 Simulate Call Point circuit fault by creating open circuit and removing EOL resistor. Observe that Call Point Fault LED illuminates and buzzer operates. Correct fault and observe. Fault LED extinguishes and buzzer silence.

Commissioning is now completed – instruct user in the use of the system and complete a model certificate of Installation.

MICROFIRE CONTROLLER DETECTOR WIRING DIAGRAM



MICROFIRE CONTROLLER CALL POINT WIRING DIAGRAM

TAKE RESISTOR FROM THE ORANGE CONNECTOR BLOCK IN THE MICROFIRE CONTROLLER CALL POINT CONNECTION AND FIT ACROSS THE CONNECTIONS AT THE LAST CALL POINT ON THE CIRCUIT

