

CONTENTS

SERVICE SUPPORT NUMBER 1

SYSTEM INFORMATION 2

PANEL CONTROLS AND INDICATORS 3

PANEL OPERATION 4

GENERAL 4

NORMAL OPERATION 4

SUPERVISOR MODE 4

PANEL INTERFACE CONNECTIONS AND PANEL CONTROLS 6

INPUTS 6

OUTPUTS 6

FIRE CONDITION 6

WIRING DIAGRAMS 7

INSTALLATION INSTRUCTIONS 8

GENERAL 8

ADDITIONAL NOTES ON INSTALLATION FOR ELECTROMAGNETIC
COMPATIBILITY (EMC) 8

INSTALLING THE PANEL 9

ROUTINE TESTING 9

FAULTS 10

FUSES 10

TECHNICAL SPECIFICATION 11

FIRE ALARM SYSTEM LOG MASTER SHEET 12

Zone No	No. of Call Points	No. of Smoke Detectors	No. of Heat Detectors	Location
1				
2				
3*				
4*				
TOTAL ALARM LOAD				Current
No of Sounders, Bells				
Electronic				
Other				
Details of system expansion:				

* MF400 only

THIS SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OFSTANDARD

SIGNED DATE

FOR.....

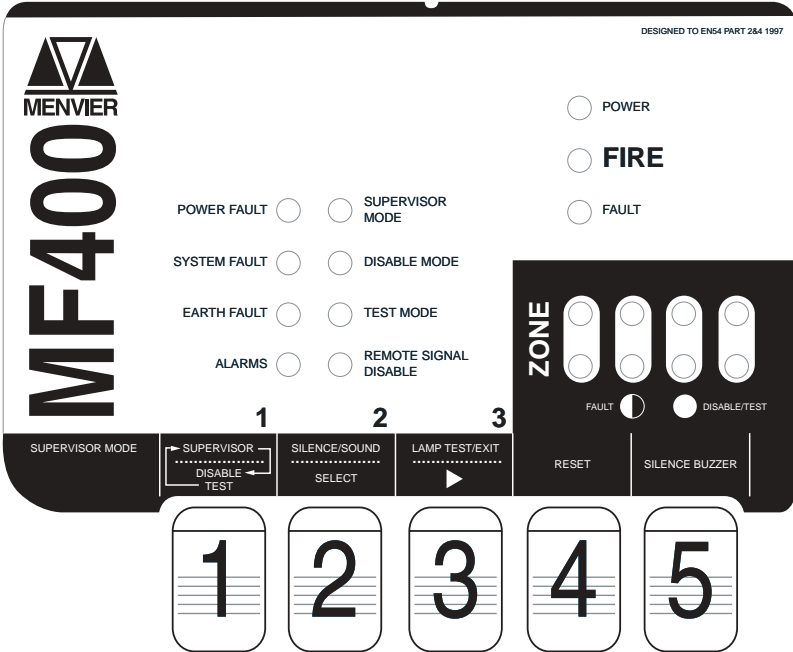
THIS SYSTEM HAS BEEN COMMISSIONED IN ACCORDANCE WITH THE REQUIREMENTS OFSTANDARD

SIGNED DATE

FOR.....

PANEL CONTROLS AND INDICATORS

Visual



Note Zones 3 & 4 are not provided on MF200

Audible

Piezo buzzer integral within panel, common to fire and fault.

Keys

The controls of the panel are via a 5 key keyboard on the front of the panel.

A key press is acknowledged by a vlip of the internal panel buzzer and in the normal mode the Supervisor Mode LED will flash.

Keys labelled 1, 2 and 3 have more than one function these are described below.

KEY	Normal Operation	Supervisor Mode	
	Primary function	Secondary function	Tertiary function
1	Code Entry	Toggle for Supervisor Mode Disable Mode and Test Mode	Toggle for Supervisor Mode Disable Mode and Test Mode
2	Code Entry	Silence/Re-Sound Alarms	Select Function-Disable or Test
3	Code Entry	Lamp Test/Exit	(Toggle through Functions) Disable or Test
4	NONE	RESET	RESET

PANEL OPERATION

General

The panel has 2 levels of operation. Normal Mode and Supervisor Mode.

Normal Operation

Silence Buzzer (key 5)

The user can silence the PANEL buzzer by pressing the 'SILENCE BUZZER' key (at any time), the buzzer will then give a beep approximately every 10 seconds.

Note:- This does not silence the alarms only the panel buzzer.

Supervisor Mode Entry (key 1, key 2, key 3)

By entering a 4 digit access code the user will enter the Supervisor Mode. The access code is 2113. By pressing the keys in the correct order the user will see the Supervisor LED flash indicating the panel is in Supervisor Mode.

Supervisor Mode Operation -Enter supervisor mode using access code 2113 prior to carrying out any of the following operations.

Auto time-out of supervisor mode will occur 2 minutes after last action.

RESET (key 4)

Pressing 'RESET' at any time while in Supervisor Mode will reset the panel, clearing any fire, fault or Test Mode information. If a fire or fault exists the panel will re-enter the fire condition.

Note:- Operating RESET will not clear disable information.

Lamp Test/Exit supervisor Mode (key 3)

While the supervisor LED is flashing the user can perform a lamp and buzzer test. All LED's will light and the buzzer will sound. This also exits the Supervisor Mode.

Silence/Sound Alarms (key 2)

While the Supervisor LED is flashing pressing 'SOUND/SILENCE' will silence or sound the alarms. If a fire is detected on another zone the alarms will re-sound.

Note:- If the alarms are silenced and fire condition exists the panel buzzer will sound continuously.

Disable Mode (key 1, key 2, key 3)

The panel allows the supervisor to disable individual zones, both alarm lines together or the remote signal output. When any of these functions are disabled the buzzer will beep.

Zones, when disabled will not be monitored for fires or faults.

Alarms, when disabled will not be monitored for faults, or be activated by a fire condition.

Remote signal, when disabled will not be activated by a fire condition.

To disable/re-enable any of the above functions the following procedure should be followed:-

1. Press 'key 1' to toggle the flashing LED from 'Supervisor Mode' to 'Disable Mode'.

PANEL OPERATION - continued

2. Release and repress (key 3) to toggle through LED's representing each function.
3. When you highlight the LED representing each function to be enabled/disabled press 'key select' to enable/disable this function.
4. To exit Disable Mode and leave the panel in the disable state press 'key 1' to toggle to Supervisor Mode LED and press 'key 3' or 'key 4'
5. When a function is disabled the LED corresponding to that function will remain lit even when you exit the Disable Mode.
6. To reset from Disable Mode to Normal operation, press 'keys 2-1-1-3', repress 'key 3' to toggle through LEDs to required Zone, press 'key 2' Disable Mode LED flashing. This will extinguish in 2 minutes.

Test Mode (key 1, key 2, key 3)

The panel allows the supervisor to test each zone individually or any combination of zones.

When a zone is put into Test Mode the buzzer will beep.

Remote signal will not operate when a fire signal is received from a zone in the test mode.

The operation of zones which are not in the test mode will function as normal.

A fire signal from a zone in test will cause the alarms to operate for a few seconds only.

To put a zone into Test Mode, the following procedure should be used:-

1. Press 'key 1' to toggle the flashing LED from 'Supervisor Mode' to 'Disable Mode' to 'Test Mode'.
2. Release and repress 'key 3' to toggle through LED's representing each zone.
3. When you highlight the LED corresponding to the zone to be put into Test / taken out of Test press 'SELECT' (key 2) to select that zone. (Zone LED lit, Test LED flashing)
4. Each manual call point and detector on the zone in test can now be tested.
5. When a manual call point or detector is put into a fire condition on the zone in test, the alarms will activate for approximately 2 seconds and the zone will remain in the fire condition for approximately 10 seconds. The panel will then automatically reset the zones, which will take approximately 10 seconds. The panel will indicate a fire signal from a zone in test by turning on the corresponding zone fire LED.
6. To clear all zone fire LED's press 'key 3'.
7. To exit Test Mode and leave the panel in the test state press 'key 1' to toggle to Supervisor Mode LED and press 'Lamp Test/EXIT (key 3) or press 'RESET' (key4). Zone LED lit, Test LED lit.
8. To reset from Test Mode to Normal operation, press 'keys 2-1-1-3', 'key 1-1' (i.e. twice). Repress 'key 3' to toggle through LEDs to required zone, press 'key 2' Test Mode LED flashing. This will extinguish in 2 minutes.

Note:- Alarms cannot be put into test mode

If a manual call point or detector is left in a fire condition on a zone in test, the panel will carry out step 5 until the fire signal is cleared.

Operating 'RESET' will not clear test information. Test information is only lost when the mains supply and battery are disconnected or the function is re-enabled.

PANEL INTERFACE CONNECTIONS AND INTERFACE CONTROLS

Inputs

Class Change

A pair of terminals are provided for class change. By shorting these terminals together (e.g. switch, time clock) the alarms will sound. The panel will not indicate a fire. The alarms will cancel when the short circuit is removed. If the short circuit is not removed the Alarms will NOT cancel.

WARNING:- NO VOLTAGE SHOULD BE APPLIED TO THIS INPUT.

Zones

MF400 provides 4 zones & MF200 provides 2 zones. The maximum number of detectors per zone line is 20 and end of line resistors must be fitted for correct operation.

Manual call points used in the system are polarised. Use the connection details accompanying the call points to ensure the correct polarity is used, using the terminal marked '9300'.

Detectors used in the system are polarised 24V Menvier detectors. They must be wired in accordance with instructions accompanying the detector. Use the terminal marked '9300'.

Outputs

Auxiliary DC Output

A 24Vdc output is provided. This output is protected by a fuse which is monitored for rupture. This output can be used to power fire or fault auxiliary equipment. Equipment must be connected to this output so that current will only be drawn from this output when a fire condition exists or when no fault exists.

WARNING:- DO NOT EXCEED THE RATED OUTPUT CURRENT

Auxiliary Fault Output

This is a 'solid state' semiconductor switch which is normally operated with no fault present and deactivates when the panel detects a fault. It operates by providing 24Vdc which can be connected directly to a 24V auxiliary device (e.g. relay) and a pull down switch to 0V. It is current limited to 10mA.

Remote Signal Output (Auxiliary Fire Output)

This is a 'solid state' semiconductor switch which operates when the panel detects a fire. It operates by providing 24Vdc which can be connected directly to a 24V auxiliary device (e.g. relay) and a pull down switch to 0V. It is current limited to 10mA. 'Class Change' and 'Sound/Silence' do not operate this output.

Alarms

Alarm outputs are provided. ONLY polarised and suppressed equipment should be used.

Ensure the polarity of the connections are observed at all times and end of line resistors are fitted for correct operation.

The maximum alarm load is specified in the Technical Specification section.

Alarm devices should be spread equally across the 2 alarm circuits.

WARNING:- DO NOT EXCEED THE RATED OUTPUT CURRENT.

Options included within this panel which are not required by EN54 are, Class Change, Remote Signal Output and Auxiliary DC output. These options cannot be used to simulate options with requirements within EN54.

FIRE CONDITION

If the panel receives a fire signal from a manual call point or detector the red fire LED will light, the panel buzzer will sound, the alarm devices will be activated and the remote signal will also activate. The red zone fire LED will light corresponding to the zone in fire. Any new zone in a fire condition will light.

INSTALLATION INSTRUCTIONS

General

All cables entering the panel must be via the cable entries provided or the aperture in the rear face. All cables must be tested for earth fault before connecting to the panel. **Do not use a High Voltage Tester (Megger) on any cable after connection to any equipment including the panel.**

The wiring of each zone, interface control or alarm line should be in a 2 core cable.

The total cable resistance for each zone must not exceed 85ohm.

Any voltage drop on alarm line cables will affect the sound level of alarm devices and should be kept to a minimum.

The Cable used for alarm devices must be of a type suitable for protection against fire for at least 30 minutes. The Extra Low voltage unscreened cables must be segregated from the mains cables.

Please refer to BS 5839 part 1 1988 for more details.

For zones and alarms the end of line resistor must be fitted to the end of the circuit. No 'spurs' shall be used.

If a zone is not to be used the end of line resistor should be fitted in the corresponding zone terminal block between '+' and '-'.

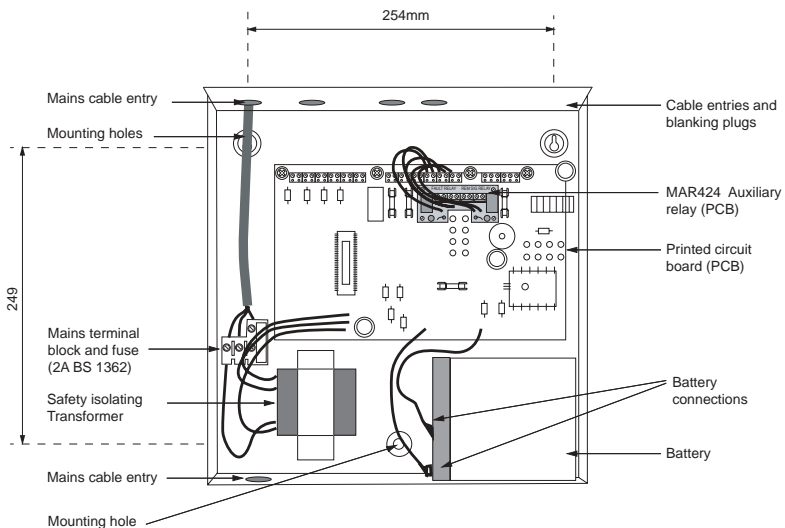
A cable screen termination for each panel interface is provided. The cable screen of any zone, interface control or alarm line should be connected directly to the corresponding terminal marked 'E'.

Additional Notes On Installation For Electromagnetic Compatibility (EMC)

When used as intended this product complies with EMC Directive (89/336/EEC) and the UK EMC regulations 1992 (SI 2372/1992) by meeting the limits set by the standards EN61000-3-2 1994, EN50081-1 1992 and EN50130-4 1996. The following installation guidelines must be followed:

1. External cables must be connected using the cable entries or knockouts provided.
2. When routing external cables inside the product they must be
 - a) kept as short as possible.
 - b) routed close to the metal back box.
 - c) kept as far as possible from the electronics.

Any modifications other than those in the main installation leaflet, or any other use of the product may cause interference & is the responsibility of the user, who should ensure compliance with the EMC & low Voltage directives.



INSTALLATION INSTRUCTIONS - continued

Installing the Panel

Read all the installation instructions before commencing with the installation.

Installation of this panel must be done by a suitably qualified/trained person. The installation must comply with IEE wiring regulations and with BS5839 part 1 1988.

The electronic components within the Fire Panel are Static Sensitive. Do not touch the electronic components directly.

1. Remove the front cover.
2. Fix the metal back box to the wall using the 3 fixing holes. No 8 screws (or similar size) are recommended.
3. Interface cables may be connected into the panel either via the back cable entry slot or through the top cable entries, fit the plastic blanking plugs to any unused holes.
4. The mains supply should be exclusive to the panel and double pole isolating switch should be provided and clearly labeled 'FIRE SYSTEM- DO NOT SWITCH OFF.' (See BS5839 part 1 1988) Mains cable should only enter the panel via the top or bottom left cable entries.
5. Connect the mains cable to the Mains input terminal block. Connect Earth to the terminal marked (E), Neutral to the terminal marked (N) and Live to the terminal marked (L). DO NOT TURN ON THE MAINS SUPPLY TO THE PANEL.
6. Connect the battery connectors to the battery. Connect the RED wire to the battery terminal marked RED (+). Connect the BLACK wire to the battery terminal marked BLACK (-). Ensure the wires are routed away from the switches.
7. When power is first supplied, the Panel Buzzer will sound and all the LED Indicators will light for approximately 2 seconds. Only the green power LED should be ON. After a few seconds the Fault and Power fault LED's will flash and the buzzer will beep to indicate no mains is present on the panel. (Other fault Indicators may be flashing at this stage). If the System Fault LED is lit and the buzzer is on continuously, remove the (+) battery connection and follow step (6) again.
8. Connect the front cover to the panel by locating the bottom clips in their slots and fixing the anti-tamper screw located on top of the panel. CAUTION ELECTRIC SHOCK HAZARD :- BEFORE TURNING ON THE MAINS SUPPLY THE PANEL COVER MUST BE FITTED.
9. Turn on the mains supply to the panel. The Power fault Indication should stop after a few seconds.
10. Carry out testing of the system.
11. Manual call points should be individually tested for correct operation.
12. Each detector should be tested.
13. If any Auxiliary outputs are used or the Class Change input is used these should also be tested for correct operation.
14. Check all alarm devices work correctly.
15. Details of the Fire Alarm installation should be made in this Instruction Booklet (page 2).
16. Fill in the zone Identification Label and display clearly on or next to the panel.
17. Pass all the documentation over to the end user.

ROUTINE TESTING

Maintenance should be carried out at regular intervals. Daily, Weekly, Quarterly and Yearly tests should be carried out. Detailed below is a summary of the Daily and Weekly tests. For full details of all the tests please refer to BS5839 Part 1 1988.

Daily attention by the user

- The panel indicates normal operation. If a fault is displayed it should be recorded in the log book and reported to the service organisation.
- That any faults from the previous day have received attention.

Weekly attention by the user

- At least one detector or call point per week is operated for correct operation, choosing a different zone each week. The Panel should register this fire signal and the alarms and any ancillary equipment should operate
- The Panel indication should be checked by pressing '**LampTest/Exit**' (key3) while in the supervisor mode.
- Any defects should be recorded in the log book and corrective action taken as soon as possible.

FAULTS

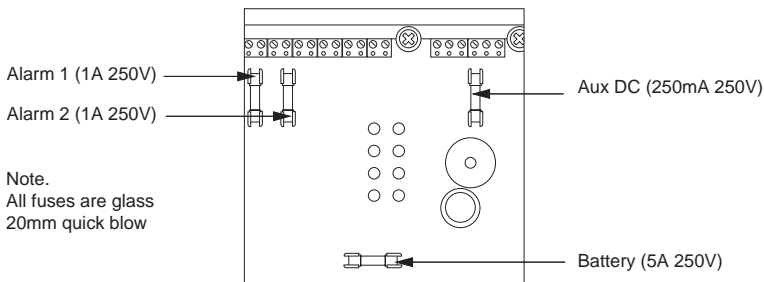
General

All fault conditions on the fire panel will be indicated by the 'FAULT' LED flashing, the panel buzzer beeping and at least one other fault specific LED flashing. The auxiliary fault output will de-activate. All faults indications will be cleared automatically if the fault is removed unless stated.
CAUTION ELECTRIC SHOCK HAZARD :- BEFORE REMOVING THE PANEL COVER THE MAINS SUPPLY MUST BE TURNED OFF.

Specific Fault Indication

Fault/Action

Power Fault LED Flashing	The 240V Mains supply, battery standby supply, battery charger and all the fuses are monitored for faults. Check the battery is connected to the charger correctly. Check the Mains supply is switched on. Check the fuses for ruptures
Power LED Flashing	The Fire Panel internal power supplies are monitored for faults. Check 240V Mains supply is turned on. Check the fuses for ruptures. If the problem persists contact your service company.
Zone(s) Fault LED Flashing	The zone lines are monitored for open circuit, short circuit and detector removed. Check the wiring for open circuits and short circuits. All detectors in the system must be correctly fitted to the detector bases. Ensure the end of line resistors are correctly connected. If all the zone fault LED's are lit pressing 'RESET' whilst in the Supervisor Mode will clear this fault Indication.
Alarm Fault LED Flashing	This fault should be investigated immediately as it should be assumed the alarms are not operational. Each alarm line is monitored for open circuit and short circuit. The alarm line fuses are also monitored for ruptures. Exceeding rated Alarm and Aux DC load may cause internal power faults. If the Alarm lines switch off shortly after operation check for alarm line over-load. Press 'RESET' whilst in Supervisor mode to clear the fault indication. Check the wiring for open circuits and short circuits Ensure the end of line resistors are correctly connected. Check the fuses for ruptures.
Earth Fault LED Flashing	The Fire Panel will indicate an earth fault if any connection to earth exists in any wiring connected to the panel, other than the Mains supply Safety Earth. This could be caused if the any wiring insulation is broken, or ancillary equipment connected to the panel has a non safety earth connection. If the fault persists contact your service company.
System Fault LED on	The Micro controller has a supervisor circuit monitoring it for correct operation and has detected either a software or hardware fault. To clear this fault indication press 'RESET' whilst in the Supervisor Mode. If this fault persists contact your service company.



TECHNICAL SPEC

Standards	Design to comply with EN54 Part 4 1996 and Part 2 1996 Electromagnetic Compatibility EN 50130-4 1996 Alarm Systems Part 4 EN50081-1 1992 EN61000-2-2-1994	
Number of Zones	4(MF400)	2(MF200)
Number of alarm Lines	2	
Mains Input Voltage	240Vac +10%-15%	
Standby Duration	24Hr	
System operating Voltage	24Vdc Nominal	
Indicators		
Fire	High intensity red Light Emitting Indicators (LED)	
Fault	High intensity yellow LED's	
Power	High intensity green LED	
Fault Indications		
Zones	Open and short circuit, detector removed	
Alarms	Open and short circuit	
Power	Mains fail, battery fault, battery charge fault. All fuses are monitored.	
Earth Fault	Any Earth connection to low voltage system	
System Fault	Micro controller fault	
End of Line Elements		
Zones	22kohm	
Alarms	22kohm	
Maximum No of detectors per zone	20 (24V-30µA each)	
Maximum Alarm Load	750mA 24Vdc	
Auxiliary DC Output	32mA 24Vdc (Up to 100mA at the expense of Alarm Load)	
Auxiliary Fault Output	24Vdc pull to 0V. Maximum 10mA	
Remote Signal Output	24Vdc pull to 0V. Maximum 10mA	
Standby Power source (Battery)	One Valve Regulated (Absorption Type) Lead Acid 12V Battery Recommended replacement period 4 years. Capacity 4AH (24Hr Standby) 7AH (72Hr standby) Max current draw is 3A resistive.	
Battery Recharge Period	48Hrs	
Terminal Connector Capacity	0.5mm ² to 2.5mm ²	
Dimensions	300mm X 300mm X 74mm	
Panel Weight (Mass)	24Hr 4.8kg, 72Hr 6.0Kg	
Panel operating temperature	-5°C to +40°C Humidity 75% (Non Condensing)	

