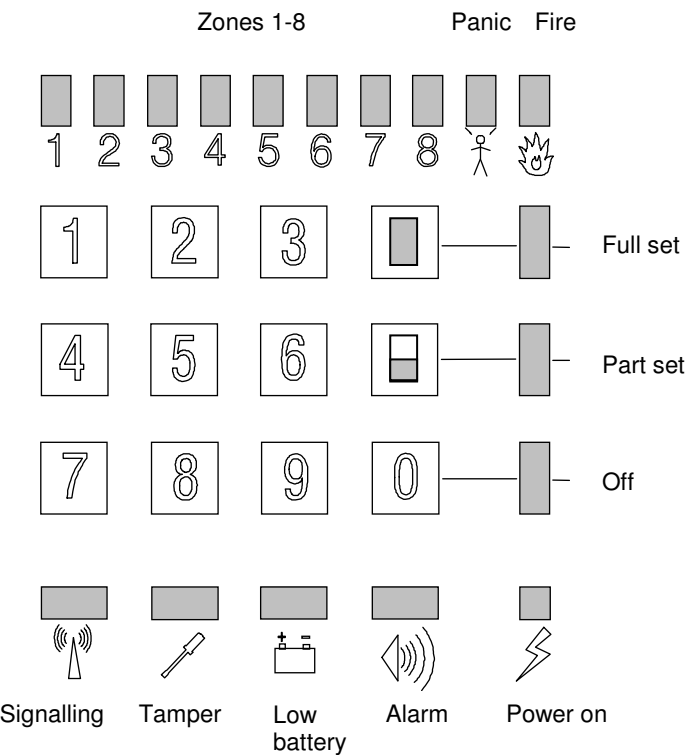




FM4040
CLASS 6 INTERFACE
INSTALLATION INSTRUCTIONS



FM Electronics Ltd.
The market leader in high security wireless alarm systems



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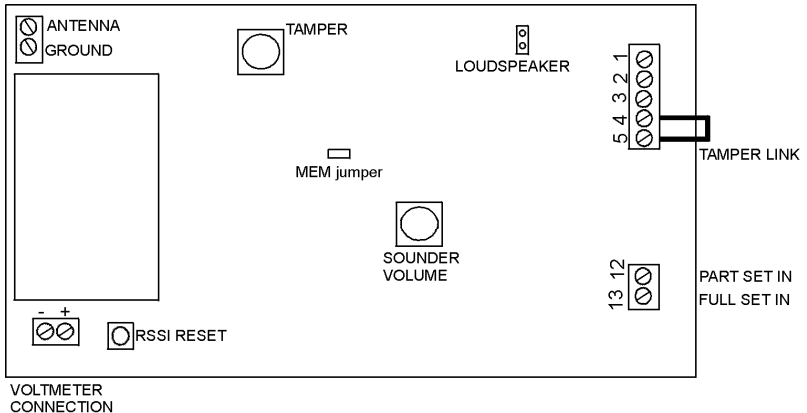
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MAIN PCB CONNECTIONS



- 4-5 Tamper -ve return. (terminal 5) must be connected to -ve Aux (Term. 4)
- 12. Part Set hard wired arming input. Apply +12v to arm. Remove to unset.
- 13. Full Set hard wired arming input. Apply +12v to arm. Remove to unset.

Currently Part or Full Set inputs both function in the same way.

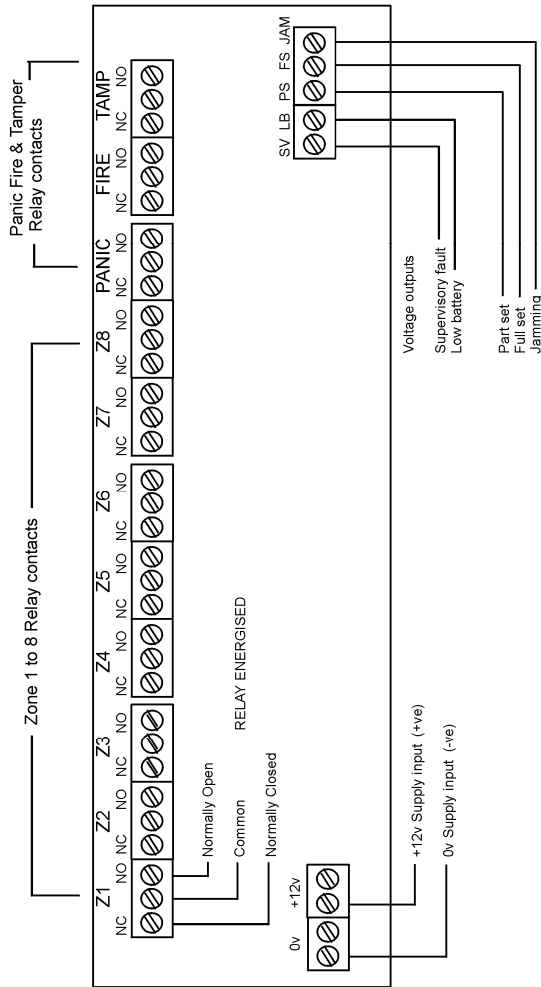
When an Armed voltage from the main control panel is connected to one of these terminals, the FM4040 knows when the main control is armed. Once armed any activation from a wireless detector will be stored in the engineers log.

RECEIVED SIGNAL STRENGTH INDICATION (RSSI)

For connection to a digital voltmeter to indicate the Signal Strength of a transmission received from a detector. (Refer to section on using the RSSI output).



INTERFACE CONNECTIONS





INTERFACE CONNECTIONS

Relay outputs

Are clean change over contacts. The designations show the relay when energised.

(The default state is de-energised and may be inverted with program option 64)

Arming Outputs

These voltage outputs can be used to arm the main control panel using a wireless 4173 remote control or 4180 wireless keypad.

The polarity is +12v going to 0v when armed.

They can be inverted with Program option 65

Fault outputs

These voltage outputs are for connection to a communicator.

Supervisory operates if a wireless detector supervisory signal fails to be received.

Low battery operates if a low battery transmission is received from a wireless detector

Jamming operates if an interfering radio transmission is present which may interfere with the correct operation of the wireless system.

The polarity is +12v going to 0v when jammed.

The output can be inverted with Program option 65



INSTALLATION

The factory defaults for the user and engineer codes are:-

USER CODE = 1 2 3 4

ENG CODE = 4 6 7 9

The recommended installation procedure is as follows:

1. Label detectors.

Each detector has a label inside for you to write the zone number onto for reference during installation and for later service reference.

3. Complete a system record sheet

A system record sheet should be completed before commencing programming. This acts as a reference when programming and can form part of the installation records.

4. Locate the control panel

For best radio coverage the receiver is best located at a central point in the building.

The higher it is the better for radio reception.

(Do not mount at floor level on a ground floor)

Metal objects cause radio reflections which oppose the signal being received from the detector with a resultant reduction in the received signal strength. Metalwork close by can result in complete cancellation, therefore do not site the control panel or detectors near to large metal objects, metal piping, girders, concentrations of mains cabling, fuse boxes etc.

Consider the ease of wiring when making your choice.

The Panel may be temporarily sited whilst a test is carried out to verify the reception from distant detectors.

When satisfied the panel must be fixed using the three fixing points provided.

5. Program detectors onto the panel

Each detector has an internal "Learn" jumper.

To add a detector to the system:

Go into the engineer program. Select the zone number. Short out the learn jumper on the detector. Remove the learn jumper after programming

The detector transmits its identity together with a learn bit. The panel stores the detectors identity code and adds it to the chosen zone.

(Refer to the programming section)

INSTALLATION cont..

6. Carry out range test

If you keep a 4173 remote control for testing, you can program this onto the system and then go to each detector location in turn and

verify that the control can be armed and disarmed from all detector locations.

7. Mount the detectors

Refer to the detector instructions for recommended mounting positions.

As reflections from metalwork act to cancel the transmission, avoid siting near to any metalwork.

Reflections like this can often be overcome by a small movement in position of 15 to 20cm.

8. Making program changes.

Complete a system record sheet before making any changes.

Once programmed the program is stored in non-volatile memory, so will remain stored even in the event of complete power failure.

9. Radio test using the RSSI output

To measure the signal strength received from a detector.

- i) Connect a Voltmeter to the RSSI output terminals.
 - ii) Press the reset button next to the RSSI terminals. The voltmeter should now read zero volts.
 - iii) Go to the detector and operate the learn jumper.
 - iv) Return to the panel. The voltmeter now displays a voltage representing the strength of the transmission received.
- It will ignore any other transmissions and only respond to the learn message or a Panic or Off message from a remote control or panic button.

Press the reset button before testing the next detector.

The voltage reading should be a minimum of 1.0v.

The readings for each detector can be recorded on the system record sheet for future reference.

10. Full system test

A walk test facility is provided in the Operating instructions. This may be used to do a test of the detectors only.

Once the Sounders and dialler have been connected and the installation completed a full test with remote signalling should be carried out.

HOW TO MAKE A PROGRAMMING CHANGE

The following sequence shows how to change a program option:

1. Enter the engineers code 4 6 7 9

The Alarm led will flash slowly to indicate that you are in the program mode.

2. Key in the two digit program number.

(The zone led's indicate which option is set.)

3. Key in the option required

(The zone led's indicate your choice)

4. Press the Full Set key to exit that program step.

5. When finished with programming key in 48 to exit engineer mode.

ERROR CORRECTION VIA THE PART SET KEY

If you accidentally enter an engineer program number and change an option value, you can undo the change by pressing the Part Set key before exiting the program step via the Full Set key.

EXAMPLE: To make supervision active.

Key in 4 6 7 9 To enter engineer program mode

Key in 40 To select supervision

Key in 1 To make supervisory active.
Zone 1 LED indicates your choice

Press the Full Set button to exit the program step.

Note: The Full set button must be pressed to complete each program step.

Until the Full Set button is pressed any key press just changes your choice of option.

When all programming is complete Key in 48 to exit engineer mode

ADDING WIRELESS DEVICES

When installing the system you may find it easier to label each detector with its zone number and learn them into the panel before installation. Once programmed into the panel's memory, the information will not be lost even when power is removed from the panel.

01 PROGRAM DEVICES ONTO ZONE 1

Select program number 01. The numbered LED's will indicate how many detectors are already on that zone. eg. if LED's 1, 2 and 3 are lit then there are 3 devices on that zone.

To delete all detectors from that zone press Part set & O keys together.

To add a detector to a zone, briefly short out the learn jumper on the detector and ensure that the learn pins are not left permanently shorted. (The PIR sends a learn by pressing the walk test button)

The panel will emit 2 short blips to indicate that it has learnt the detector and the new total of devices on that zone will be displayed on the numeric LED's. Press the Full Set key to exit.

02	PROGRAM DEVICES ONTO	ZONE 2
03	PROGRAM DEVICES ONTO	ZONE 3
04	PROGRAM DEVICES ONTO	ZONE 4
05	PROGRAM DEVICES ONTO	ZONE 5
06	PROGRAM DEVICES ONTO	ZONE 6
07	PROGRAM DEVICES ONTO	ZONE 7
08	PROGRAM DEVICES ONTO	ZONE 8

09 ADD PANIC BUTTONS

To delete all Panic button already on the system press Part & 0 keys together.

To add a new device press the panic button. The panel will emit 2 short blips to indicate that it has read the panic button and LED 1 will indicate that one PA has been programmed in.



You can add up to 8 PA's to the panic zone by simply pressing each one in turn.
Press the Full Set key to exit.

10 FIRE ALARM SENSORS

To delete all Fire sensors press Part & 0 keys together.

To add a fire sensor, short out the learn jumper.

The panel will emit 2 short blips to indicate that it has read the sensor and zone 1 LED will indicate that one sensor has been programmed in.

Up to eight sensors can be programmed onto the fire zone by simply shorting out the learn jumper of each one in turn.

Press the Full Set key to exit

11 REMOTE CONTROLS

To delete all Remote Controls press Part & 0 keys together.

To add a remote control transmit a Panic. The panel will emit 2 short blips to indicate that it has read the remote control and LED 1 will indicate that one remote has been programmed in.

You can add up to 8 remote controls by simply pressing each one in turn.

Press the Full Set key to exit.



PROGRAMMING – SYSTEM OPTIONS

27 P.A. SILENT / AUDIBLE

The factory default is silent.

1 = Silent*

0 = Audible

Press the full set key to exit.

40 SUPERVISORY

Do not select supervisory unless all your detectors are 4600 series.

Do not select supervisory if using zoned Panic buttons.

1= Supervision

0= No supervision*

Press the full set key to exit.

PROGRAMMING – RESTORE FACTORY DEFAULTS

44 RESTORE ENTIRE NV RAM TO FACTORY DEFAULT VALUES

Short out the MEM link while keying in 44.

All zone LED's will come on, the panel will emit a long bleep and will go out of engineering mode into the day state.

WARNING: This will delete all detectors from the system.



PROGRAMMING –ENGINEER FUNCTIONS & TESTS

45 AUDIBLE RECEIVE MODE

The output from the receiver can be heard on the panel loudspeaker.
Press the full set key to exit.

46 DISPLAY ENGINEERS LOG

Press keys 1 to 8 to view the last 8 events.
Most recent is displayed on key 1.
Key 9 shows the last "First to Alarm" (Last FTA)
Press the full set key to exit.

47 CHANGE ENGINEERS ACCESS CODE

Key in a 4 digit code twice.

48 LEAVE ENGINEER MODE

If any devices have their tampers open, the display shows which zones are tampered and will generate an error beep.
The tampers must be restored before leaving engineer mode by pressing 48 again.

66 TEST ZONES 1-8

Zone 1 to 8 relays can be operated for test purposes. When you exit from this mode the relays will always revert back to normal.

Keys 1 to 8 toggle zone relays 1 to 8

Press the full set key to exit

67 TEST THE OTHER 8 OUTPUTS

The other outputs can be tested . When you exit from this mode the outputs will always revert back to normal.

Key 1 = Tamper
Key 2 = Low battery
Key 3 = Supervisory
Key 4 = Panic
Key 5 = Fire



Key 6 = Part set
Key 7 = Full set
Key 8 = Jamming

Press the full set key to exit

PROGRAMMING – INVERTING THE INPUTS & OUTPUTS

63 INVERT ARMING INPUTS

The Part & Full armed inputs are +ve applied. This option allows you to program the inputs as +ve removed.

Key 1 – changes Part set input

Key 2 – changes Full set input

If the LED is off = +ve applied

If the LED is on = +ve removed

Press the full set key to exit

64 INVERT ZONE 1 – 8 RELAYS

The relays are normally de-energised. One or more of the relays can be set to be energised all the time.

Key 1 changes zone 1

Key 2 changes zone 2

Key 3 changes zone 3

Key 4 changes zone 4

Key 5 changes zone 5

Key 6 changes zone 6

Key 7 changes zone 7

Key 8 changes zone 8

The 8 zone LED's indicate zones 1 to 8

If LED is off relay is normally de-energised

If LED is on relay is normally energised

Press the full set key to exit

65 INVERT OTHER OUTPUTS

The voltage outputs are internally tied high going to 0v when active. Each output is programmable.

Key 1 changes Tamper relay (Z1 LED on = relay normally energised)

Key 2 changes Low Battery (Z2 LED on = -ve removed. off = -ve applied)

Key 3 changes Supervisory fault (Z3 LED on = -ve removed. Off = -ve applied)



Key 4 changes Panic relay (Z4 LED on = relay normally energised. Off =relay normally de-energised.

Key 5 changes Fire relay (Z5 LED on = relay normally energised. Off =relay normally de-energised.

Key 6 changes Part set output. (Z6 LED on = -ve removed. Off = -ve applied.

Key 7 changes Full set output. (Z7 LED on = -ve removed. Off = -ve applied.

Key 8 changes Jamming output. (Z8 LED on = -ve removed. Off = -ve applied.

Press the full set key to exit



APPENDIX A USER FACILITIES

CHANGING YOUR PIN NUMBER.

You can change your 4 digit PIN number at any time by the following sequence.

1. Enter your 4 digit pin number.
2. Press key 7.
The full set indicator on the panel will flash.
3. Key in your new 4 digit pin number twice.
The flashing indicators will now stop.

If you make a mistake when keying in a number, press the Full Set key to exit and start again. The number will not change until you have keyed in the same 4 digit PIN number twice.

If no key is pressed for 20 seconds the program mode is aborted and the panel will revert to the original pin number.

CHIME OPTION

If you require a detector to trigger a chime. i.e. To give an audible indication when someone enters via the front door, you may set the sensor on that door to operate a chime.

To set or remove chime:

1. **Key in your pin number**
2. **Press the 8 key.** *The Full set indicator will flash.*
3. **Press the number keys** to select which zones will chime.
The zones with their indicators illuminated will chime.
The zones not illuminated will not chime.
4. **Press the Full Set key** when you have set the desired chime zone

APPENDIX A USER FACILITIES cont..

TESTING YOUR ALARM SYSTEM

If your system incorporates an automatic telephone dialler going through to a neighbour let your neighbour know you are carrying out a test .

If you have Police response via a Central Station connection, triggering the alarm will not be acceptable to the Police.

Facility exists for you to test the detectors without causing a full alarm.

To select walk test:

1. **Key in your pin number**
2. **Press the 9 key.**
3. **Walk around the building triggering each detector.**

Each time a detector is triggered a chime tone will be generated.

On return to the panel, the zone indicators will be illuminated, indicating which zones have been triggered.

Pressing the Off "0" key will clear the indicators.

PIR movement detectors have a 2 minute battery save timer. This means that once it has sensed movement and transmitted its alarm signal, the detector must see no movement for 2 minutes before it becomes active again.

Before testing PIR detectors ensure that no one has walked past them for 3 minutes.

A detector with a low battery will operate the internal audible alarm when triggered.

To return the zone indicators to normal operation:

1. **Key in your pin number**
2. **Press the 6 key.**

In normal operation the zone lights indicate when a door is open and go out again when the door is closed.



APPENDIX B PROGRAM OPTIONS (NOT CLASS 6)

These program options are for other applications.

For Class 6 alarm systems they should all be set to the Factory default.

61 ZONE 1 TO 8 RELAY OPERATION MODE

The relays either operate all the time or only when the arming input is active.

i.e. If you have Part & Full set inputs connected to your wired panel, you can then choose which zones are active in Part Set & which zones are active in Full Set.

0 = All the time

1 = Only when Part or Full set input is high

Press the full set key to exit

62 FAULT OUTPUTS ALSO OPERATE THE ZONE OUTPUT

Default is 0

If set to 1 the zone and fault outputs operate together.

Do Not set to 1 when connecting to a wired panel as the zone output will indicate that a detector has alarmed & generate a false alarm.

71 – 78 select the Zone relays 1 to 8. Options available for the zone outputs include NORMAL, LATCHING or TIMED

For use as a Class 6 Interface the default (1) is recommended.

71 Zone 1 operation time

72 Zone 2 operation time

73 Zone 3 operation time

74 Zone 4 operation time

75 Zone 5 operation time

76 Zone 6 operation time

77 Zone 7 operation time



78 Zone 8 operation time

Key 1 = NORMAL the relay follows the detector. (Default)

Key 2 = Latch whilst Armed input is present

Key 3 = Momentary 2 seconds

Key 4 = Momentary 10 seconds

Key 5 = Momentary 30 seconds

Key 6 = Momentary 60 seconds

Press the full set key to exit



APPENDIX C FAULT FINDING GUIDE

ZONE LED FLASHING

Flashing with tamper LED. (A detector has an open tamper).

Flashing with Battery LED. (The detectors battery needs replacing).

SIGNALLING LED ON The system is being blocked by a continuous transmission.

SIGNALLING LED FLASHING Flashing together with a zone indicator. The system is set as a supervised system and the detector indicated by the flashing zone LED has failed to report in. (Re-site the detector where there is good radio reception. Use the RSSI output to check.

CONTACT TRANSMITTER NOT WORKING Check the magnetic contact is operating correctly. Open lid and check what zone it should be on. Go into the panel engineer mode and check if it has been programmed onto the correct zone. Note: the panel will not allow you to program a detector onto two zones. When programmed onto a zone any previous zone allocation will be deleted.

PIR NOT WORKING The detector needs 6 minutes to settle on power up. Set the control into operator walk test mode and walk test the detector. Pressing the walk test button puts the PIR into walk test mode & overrides the 2 minute inhibit timer.

CUSTOMER HAS FORGOTTEN THEIR CODE Open the panel and short out the MEM jumper. The user and engineer codes will be restored to the factory defaults 1234 & 4679. No other programming is affected.

THE SYSTEM IS NOT FUNCTIONING AS PROGRAMMED

Check all program options & correct any errors.

If not satisfied, perform a full Factory default restore as described on page 12. & re-program everything.



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