Microsound Systems

MF 440

Apartment Intercom System with Call Back

Instruction Manual

Contents

1. General Description

1.1. Features

1. One or more door stations.
2. 400 handsets with or without call back.
3. 4 common wires through out.
4. Handset has "Busy" LED.
5. Private conversation.
6. Only called stations can open the door.
7. Two handsets on one number.
8. Door access code.
9. Access code can be changed and is non - volatile.
10. Door station has four programmable zones for more reliability & easy fault finding on large systems.
11. Door strike duration programmable.
12. Handset numbers can be programmed by manufacturer.
13. Handset off the hook will not affect the system.
14. The system is lightning protected.
15. Door station is surface mounted and weather protected.
16. Call Back Display for guard house.
17. A 24v PSU with battery backup is available.
18. Guard Wake-up Alarm available.

2. Operating

2.1. Door access

Press the required four digit access code then "*" and the door will release. The "busy" led will light for the duration of the door strike operation.

2.2. Calling

1. Enter the required number then "*".
2. The "busy" led will flash.
3. The calling tone will be heard softly from the loud speaker.
4. When the handset is lifted there will be open communication to the handset and the "Led" will go steady.
5. If the person wishes to let you in they can push the "Door release button".
6. As soon as the handset is replaced the call is cancelled and the "Busy" led will go off.
7. At any time during the above operation the "#" button can be pressed and the system will reset.
8. If the called handset is not picked up and the call is not cancelled "#" the system will reset automatically after sixty seconds.

2.3. Call Back to Guard

If the Busy led is not flashing press the white button without lifting the handset, for 3 seconds. The Busy led will flash indicating the Call Back has been transmitted. The Call Back Number will be displayed on the guard's display and a buzzer will sound. The guard can press the Accept button to stop the buzzer and then dial that number on the door station. When the guard is finished, he must press the Reset Button to clear the Call Back.

3. Installation

1. Four common wires from the door station to the handset per zone. A core each for +24vdc, Ground, Receive (Rx) and transmit (Tx). Twisted pair cable must not be used, rather a thick four core cable. The longer runs such as lift shafts a quad 1,0 mm² mains cabtyre should be used, this cable must only be used indoor. For outdoor applications such as townhouse complexes a four core 1,0mm Fire Alarm cable must be used, which has an overall mylor screen. On small compact systems a 0,8mm Fire Alarm cable can be used. The screen must be earthed at one point to protect against lightning.
2. Where a main cable run enters a block of units it can be reduced in size to a 0,5 mm cable, to make termination at the handsets easy. A maximum of 5 handsets can be connected to a 100 m length of 0,5 mm quad cable. Do not connect too many handsets on one cable run as this will make isolation of a fault difficult. If you have a block of 20 units, rather wire it into four 0,5 mm cable runs with 5 handsets per run, than all the handsets on one cable.
3. A maximum of 100 handsets can be connected to a zone.
4. All junction boxes must have isolation points to allow for easy disconnection of cable runs.
5. All cables must be marked.
6. If more than one door station is used, in addition to the four cores mentioned above an extra "Busy" wire is required between the door stations.
7. The door station must also be wired to the door release strike and power supply. A separate 24v regulated DC power supply is required per system. The power supply must have built in lighting protection or a lighting protection plug. Connect the power supply in the centre of the cable run.
8. The door station has four output zone relays which should be used in larger installations. This allows the installations to be divided and cabled into 2, 3 or 4 zones. The handset numbers are programmed into zones on the door station keypad. The relays therefore isolate the different zones. Tx and Rx lines and a fault on one zone will not affect the other zones. This also makes fault finding quicker. The handset numbers in the zones must run in sequential numbers.
9. There are four links A, B, C & D on the door station's PCB. If there is more than one door station the links on the subsequent door stations must be removed. Only one door station in a system must have the links in. The links must also be removed if the zone has call back.
10. If Call Back is required on the system a Call Back Display, one display per zone being used, must be installed in the guard house and connected to the guard's door station.
11. The call back display requires four connections to the door station, +24vdc, GND, Busy and the Call Back Line.
12. A LPM04 lightning protection pcb can be installed in some distribution boards. The Earth of the LPM04 must be earthed at one point to a good electrical earth.
13. If the system operates an electric strike, it must have a separate 12v dc power supply for the strike as the 24v dc voltage will burn out the strike.
14. A second power supply can be added to a cable run further down if the volt drop is too much. The ground wire must be common and the positive wire from the first power supply unit must be disconnected where the second power supply is fed in.

3.1. Handset connections (RJ 11 Socket)

1. +24vdc Power from power supply.
2. Gnd Ground from power supply.
3. Rx Receive from door station.
4. Tx Transmit from door station.

Handset connections	FR20 0.8mm Fire Alarm Cable 200 metres	1mm² Fire Alarm Cable 500 meters	0,5 mm² Cabtyre 200 metres
+24vdc	Red	Red	Brown
GND	Slate	Slate	Black
RX	Yellow	Yellow	Yellow
TX	Blue	Blue	Blue
	Outdoor Cable	Outdoor Cable	Indoor Cable
Number of handsets	60 per Zone Max	100 per Zone Max	60 per Zone Max

3.2. Door Station Connections

1.	+24vdc	Power from power supply
2.	Gnd	Ground from power supply
3.	No connection	
4.	Rx	Receive zone 1 to handset
5.	TX	Transmit zone 1 to handset
6.	RX	Receive zone 2 to handset
7.	TX	Transmit zone 2 to handset
8.	RX	Receive zone 3 to handset
9.	TX	Transmit zone 3 to handset
10.	RX	Receive zone 4 to handset
11.	TX	Transmit zone 4 to handset
12.	Pulse	No connection
13.	Door	Door strike contact can be normal open or close by moving link.
14.	Door	Door strike contact
15.	Busy	Busy to other door stations and display

3.3. Call Back Connector J6

Pin 1 Call Back Zone 1

Pin 2 Call Back Zone 2

Pin 3 Call Back Zone 3

Pin 4 Call Back Zone 3

3.4. Power Supply Connections

1.	+24vdc	Connect to door stations and handsets
2.	Gnd	Connect to door stations and handsets
3.	Earth	Mains
4.	Neutral	Mains (220vac)
5.	Live	Mains (220vac)

4. Programming

4.1. Call Back Handset Programming

The handset is programmed by plugging it into the RJ11 socket (J7) on the door station. Before the handset is plugged in, the cradle switch must be down and the white Call Back Button pushed in and held in. The Led on the handset will flash fast - dial the number on the door station that you want the handset to be and press "*".

The handset Led will go steady, indicating it is programmed. Release the Call Back button and the handset will beep. The handset is now programmed.

To change the handset number or program another number, repeat the above procedure.

4.2. No Call Back Handset Programming

The handset is programmed by plugging it into the RJ11 socket (J7) on the door station. Before the handset is plugged in, the cradle switch must be down and the black link moved to C7 side. The Led on the handset will flash fast - dial the number on the door station that you want the handset to be and press "*".

The handset Led will go steady, indicating it is programmed. Move the link back and the handset will beep. The handset is now programmed.

To change the handset number or program another number, repeat the above procedure.

4.3. Door Station Programming

Dial 0000
Enter Pin number - press 0347 & then * - Display shows MF440 setup
Dial 9999
Show Zone 1 - enter first number of Zone 1 & press *
Show Zone 2 - enter first number of Zone 2 & press *
Show Zone 3 - enter first number of Zone 3 & press *
Show Zone 4 - enter first number of Zone 4 & press *
Door delay in seconds. Max 99 sec - enter new delay & press *
Door release code, default 9123 - enter new code & press * Time
out value default 40 - enter new value & press *
Show software version - press *
Show pin number - enter new pin number & press *
Dial 0000 - display shows LOCKED - press #

Switch power OFF and then ON again to initialise the new settings.

4.4. Audio level adjustments

1. P1 adjusts the TX level from the door station to the handsets.
2. P2 adjusts the RX level from the handsets to the door station.
3. These adjustments are best set when the complex system is installed.

4.5. Defaults

Zone 1 number 1 - 99
Zone 2 number 100 - 199
Zone 3 number 200 - 299
Zone 4 number 300 - on
Door Delay 02
Door release code 9123
Time out value 40
Software version
Pin number: 0347

To reset the system to the original factory default:

Dial “0000”	
Enter Pin - press “0347” and then “*”	Display shows MF440 SETUP
Dial “9982”	Display shows RESTORING TO DEFAULT
	Display shows VERSION NUMBER
System Automatically locks	Display shows MICROSOUND MF440 ENTER NUMBER

It is important that only the service technician and the client know this information. Keep the installation manual supplied with the system as the codes will be changed from time to time and will only be contained in the particular installation manual.

5. Technical Information

5.1. Cable requirements

Four common wires to each handset. Maximum accumulated length 500 metres - use 1,0mm Fire Alarm cable, Earth Screen at one point.

5.2. Door Station

Size: 255mm x 155mm wide x 100mm deep (65mm minimum depth).
Mounting: Surface.
Finnish: Weatherproof box constructed of mild steel and powder coated chocolate brown. The front is constructed of natural anodised aluminium mounted with four allen cap screws.
Power: 24vdc
42ma (idle)

5.2.a Call Back Display

Size: 180mm x 140mm wide x 70mm high
Mounting: Surface box
Finnish: Indoor Aluminium Box
Power: 24vdc
30ma (idle)

5.3. Handset

Size: 215mm x 96mm wide x 65mm high.
Power: 12 to 24vdc
7ma (idle).
20ma (enabled)
30ma (ringing)

6. First Line Service

6.1. Test Voltages

	NO CALL BACK		WITH CALL BACK	
	RX	TX	RX	TX
Idle	0	0	20	0
Call back	0	0	Code 0-20	0
Dialling	0	Code 0-12	0	Code 0-12
Handset up	5	No dialling	5	No dialling
Speech	5	4	5	4
Door release	5	10	5	10
Handset down	0	4	0	4
Reset	0	Code 0-12	12	Code 0-12

6.2. Operation

TX line
1. Dials the required handset.
2. Detects when the door release button is being pressed.
3. Sends reset code to all handsets.

RX line
1. Detects when the handset is lifted or replaced.
2. Sends call back code from the handset to display.

+24v DC
1. Minimum voltage at the furthest handset must be 20v.

GND
1. Ground to all handsets.

6.3. Fault Conditions

1. If the handset is not ringing when dialled, but ringing can be heard at the door station.
   - Check if the handset is programmed for the correct number.
   - Check if the number dialled is on the correct zone.
   - Check if the TX line is connected to the handset.
   - Check if the TX line is not shorted to any other lines.

2. The handset rings when dialled but the door station does not stop dialling when the handset is lifted.
   - Check if the RX line is connected to the door station.
   - Check if the RX line is not shorted to any other lines or ground.
   - Check if the voltage on the RX line goes to 5v to indicate to the Door station that handset has been lifted.

3. The door opens when the handset is lifted.
   - Check the voltage on the TX line is not above 6V.
   - This could be cause by a cable fault or a faulty handset.

4. Door station dials once and the audio is through to nowhere.
   - Check if the voltage on the RX line, a permanent voltage of 5v or high will be seen as a handset has been lifted. This could be cause by a cable fault or a faulty handset.

5. Quick check with no access to the handset.
   - If the handset is dialled and the handset rings, this will indicate +15DC, GND, and TX lines are through and connected. The RX line can only be checked when the handset is lifted.

6. The handset buzzers continually.
   - Change handset.

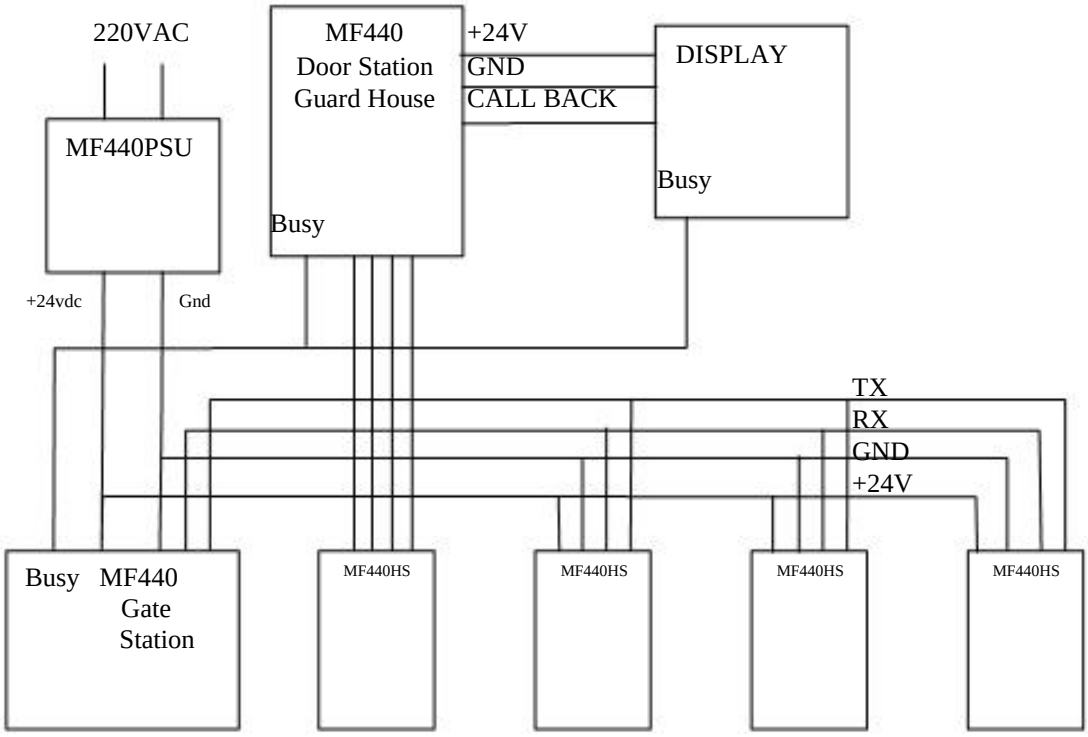
7. Dialling wrong numbers.
   - Check keypad.

8. All out door cable must be screened and earthed.

6.4. MF440 Diagnostics for Service Technician Only

9951	Relay Zone 1 on
9952	Relay Zone 2 on
9953	Relay Zone 3 on
9954	Relay Zone 4 on
9955	Digital / Audio relay on
9956	Door release relay on
9957	Busy led on
9958	Handset reset on
9961	Relay Zone 1 off
9962	Relay Zone 2 off
9963	Relay Zone 3 off
9964	Relay Zone 4 off
9965	Digital / Audio relay off
9966	Door release relay off
9967	Busy led off
9968	Handset reset off
9980	Backup eeprom
9981	Restore eeprom backed up eeprom
9982	Cold start (Restore Defaults)

7. Wiring



Basic layout (one door station)

8. Guarantee

The MF440 is guaranteed by the manufacture for a period of six months from the date of delivery against faulty components and faulty workmanship (ex factory).

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