

Microsound Systems

MF 400

Apartment Intercom System

Instruction Manual

Contents

1. General Description.....	3
1.1. Features.....	3
2. Operating.....	3
2.1. Door access.....	3
2.2. Calling.....	3
3. Installation.....	3
3.1. Handset connections.....	4
3.2. Door Station Connections.....	4
3.3. Power Supply Connections.....	5
4. Programming.....	5
4.1. Handset Programming.....	5
4.2. Door station Programming.....	5
4.3. Audio level adjustments.....	6
4.4. Defaults.....	6
5. Technical Information.....	6
5.1. Cable requirements.....	6
5.2. Door Station.....	6
5.3. Handset.....	6
6. First Line Service.....	7
6.1. Test Voltages.....	7
6.2. Operation.....	7
6.3. Fault Conditions.....	7
6.4. MF 400 RECOMMENDED SERVICE KIT.....	9
7. Wiring.....	9
8. Guarantee.....	9

17 July 2000

1. General Description

1.1. Features

1. One or more door stations.
2. 899 handsets.
3. 4 common wires through out.
4. Private conversation.
5. Only called stations can open the door.
6. Two handsets on one number.
7. Extension bell.
8. Door access code.
9. Access code can be changed and is non - volatile.
10. Door station has four programmable zones for more reliability and easy fault finding on large systems.
11. Door strike duration programmable.
12. Handset off the hook will not affect the system.
13. The system is lightning protected.
14. Door station is surface mounted and weather protected.

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 “HI” will appear on the display.
8. If the called handset is not picked up and the call is not cancelled “#” the system will reset automatically after sixty seconds.

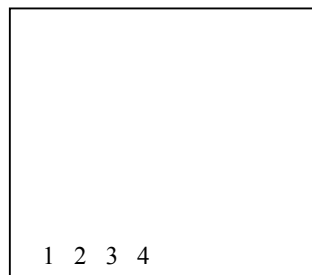
3. Installation

1. Four common wires from the door station to the handset. A core each for +15vdc, Ground, Receive (Rx) and transmit (Tx). Twisted pair cable must not be used, rather a plain four core cable. The longer runs such as lift shafts a quad 1.0 mm mains cable should be used, this cable must only be used indoor. For outdoor applications such as townhouse complexes a four core Norse cable must be used, which has an overall mylor screen.
2. The screen must be earthed at one point to protect against lightning. Where a main cable run enters a block of units it can be reduced in size to a 0,5 mm quad telephone or alarm cable, to make termination at the handsets easy.
3. 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.
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 a 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 15v regulated DC power supply is required per system. The power supply must have built in lighting protection or a lighting protection plug.
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 faultfinding quicker.
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 cut out. Only one door station in a system must have the links in.

3.1. Handset connections

Component view



Golmar handset

- | | |
|-----------|---|
| 1. +15vdc | Power from power supply. (Minimum voltage at handsets). |
| 2. Gnd | Ground from power supply. |
| 3. Rx | Receive from door station. |
| 4. Tx | Transmit from door station |

Microsound handset (RJ 11 Socket)

- | | | |
|-----------|-----------------------------|----------|
| 1. +15vdc | Power from power supply. | (Red) |
| 2. Gnd | Ground from power supply. | (Black) |
| 3. Rx | Receive from door station. | (Yellow) |
| 4. Tx | Transmit from door station. | (Green) |

3.2. Door Station Connections

- | | | | |
|-----|--------|----------------------------|----------|
| 1. | +15vdc | Power from power supply | (Red) |
| 2. | Gnd | Ground from power supply | (Black) |
| 3. | Rx | Receive zone 1 to handset | (Green) |
| 4. | TX | Transmit zone 1 to handset | (Yellow) |
| 5. | RX | Receive zone 2 to handset | (Purple) |
| 6. | TX | Transmit zone 2 to handset | (Slate) |
| 7. | RX | Receive zone 3 to handset | (White) |
| 8. | TX | Transmit zone 3 to handset | (Orange) |
| 9. | RX | Receive zone 4 to handset | (Blue) |
| 10. | TX | Transmit zone 4 to handset | (Pink) |

11.	Ds1	Door strike contact	(Light green)
12.	Ds2	Door strike contact	(Brown)
13.	Busy	Busy to other door stations	(White)

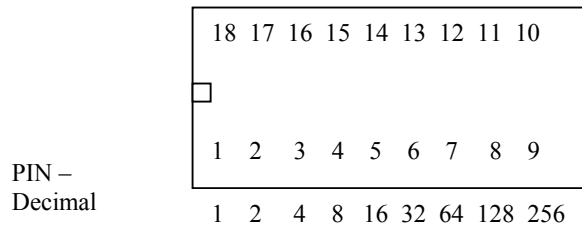
3.3. Power Supply Connections

1.	+15vdc	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. Handset Programming

512



To program a number, remove the required pins on IC3. Pin 1 to Pin 10 and the common ground as shown below.

IC 3	Pin	1	=	1 (decimal)	Example		
		2	=	2.	Handset number 50.		
		3	=	4.	Pin	6	= 32
		4	=	8.		5	= 16
		5	=	16		2	= 2
		6	=	32			-----
		7	=	64			50
		8	=	128			
		9	=	256			
		10	=	512			

Two handsets can be programmed to work on the same number for one area.

4.2. Door station Programming

Step 1. Press 1 and 4 and switch the power on . The “busy” led will flash and the door access code will be displayed.(Default = 9123). Enter the new door access code ending with enter “*”. Only three digits must be entered as the first digit will always be “9”.

Step 2. The first number of the second zone will then be displayed. (Default = 250). Enter the new number for zone two ending with enter “*”. If you want the first zone to end with number 50 enter 51 for the beginning of zone two.

Step 3. The first number to the third zone will then be displayed. (Default = 251). Enter the new number for zone three ending with enter “*”. If you want the second zone to end with number 150 enter 151 for the beginning of zone three.

Step 4. The first number to the forth zone will then be displayed. (Default = 252). Enter the new number for zone four ending with enter “*”. If you want the third zone to end with number 150 enter 151 for the beginning of zone four.

Step 5. The door access delay code will be displayed. (Default = 100). Enter the new door access delay ending with enter “*”. e.g. 1 = 25 milliseconds. 400 = 10 seconds.

Step 6. “HI” will then be displayed and the “Busy” led will stop flash. The system is now ready for use.

4.3. 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.

4.4. Defaults

Door access code: 9123
Zone 1 all handsets up to: 249
Door strike timer: 100 (2.5 seconds)

To reset the system to the original factory defaults. Switch the power off, press 3 and 6 simultaneously and switch the power on. The 'Busy' led will flash a few times and then go off. Release the buttons, 'HI' will be displayed and the system is ready to operate in the default mode.

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. (400 metres).

5.2. Door Station

Size: 255 mm x 155 mm wide x 100 mm deep (65 mm minimum depth).
Mounting: Surface.
Finish: 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: 15 vdc 150 ma

5.3. Handset

Size: 215 mm x 96 mm wide x 65 mm high.
Power: 15 vdc 10 ma (idle).
15 ma (enabled)
25 ma (ringing)

6. First Line Service

6.1. Test Voltages

	RX	TX
--	----	----

	Green	Yellow
Idle	0	0
Dialling	0	0-12
Handset up	5	No dialling
Speech	5	4
Door release	5	10
Reset	12	0

6.2. Operation

TX line

1. Dials the required handset.
2. Detects when the door release button is being pressed.

RX line

1. Detects when the handset is lifted or replaced.
2. Sends a reset to all the handsets after the handset has been replaced.

+15v DC

1. Minimum voltage at the furthest handset must be 14v.

GND

1. Ground to all handsets.

6.3. Fault Conditions

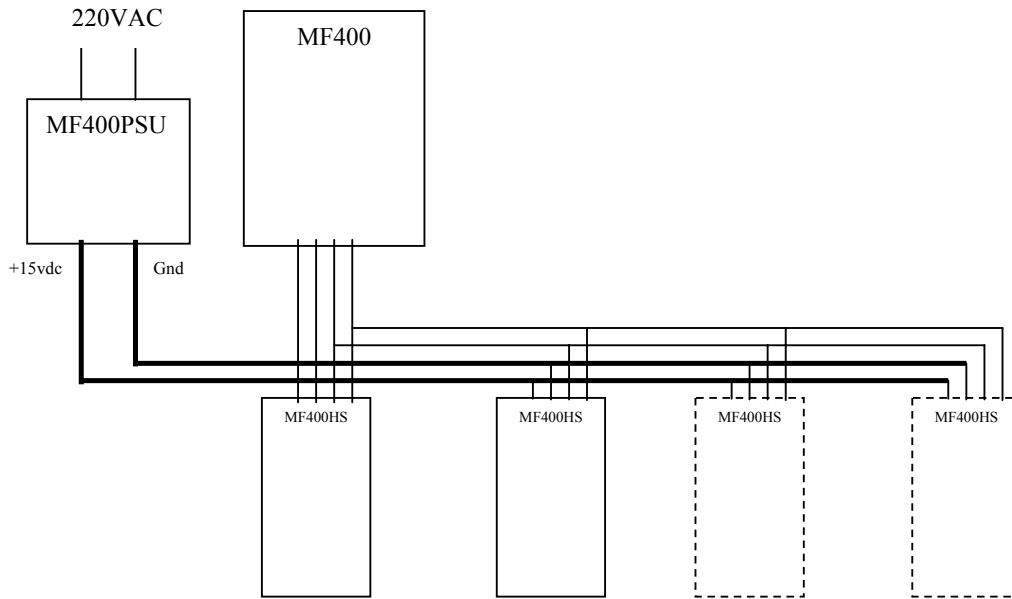
1. If the handset is not ringing when dialled, but ringing can be heard at the door station.
 - Check if the handset is programmed for the correct number.
 - Check if the number dialled is on the correct zone.
 - Check if the TX line is connected to the handset.
 - Check if the TX line is not shorted 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 no where.
 - 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 though and connected. The RX line can only be checked when the handset is lifted.
6. The handset buzzers continually.
 - Try replacing UM 3750.
7. Dialling wrong numbers.
 - Check keypad.

- Check ULN2803.
8. All out door cable must be screened and earthed.

6.4. MF 400 RECOMMENDED SERVICE KIT

UM-3750	- Handset decoder
P8751	- CPU
VN10KN	- Tx driver
Keypad	- Door station
Zener	- Lightning protection zener diodes

7. Wiring



Basic layout (one door station)

8. Guarantee

The MF400 is guaranteed by the manufacture for a period of six months from the date of delivery against faulty components and faulty workmanship (ex factory).

Manufactured by:

Microsound Systems cc
P.O. Box 38220
Boysens
2016
Phone 011 493-2424 Fax 011 493-0347

Distributed by:

Installed by: