

# **Microsound Systems**

MF 424

Apartment Intercom System

Instruction Manual

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14 November 2005

## 1. General Description

### 1.1. Features

1. Two door station.
2. 24 handsets.
3. 4 common wires through out.
4. Two handsets on one number.
5. The system is lightning protected.
6. Door station is surface mounted and weather protected.
7. Door station has a handset test socket inside.

## 2. Operating

### 2.1. Calling

1. Press number up to select 12 to 24.
2. Press down to select 12 to 1.
3. Press call to call number. Press reset if required.
4. The calling tone will be heard softly from the loud speaker.
5. When the handset is lifted there will be open communication to the handset.
6. If the person wishes to let you in they can push the "Door release button".
7. As soon as the handset is replaced the call is cancelled.

## 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 thick four core cable. The longer runs such as lift shafts a quad 1.0 mm<sup>2</sup> mains cable should be used, this cable must only be used indoor. For outdoor applications such as townhouse complexes a four core 1,5mm<sup>2</sup> surfix 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<sup>2</sup> quad telephone 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<sup>2</sup> 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<sup>2</sup> 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, and must be water proof.
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 and the MFAS2 switcher box.
7. The door station must also be wired to the door release strike and power supply. A separate 16v regulated DC power supply is required per system. The power supply must have built in lightning protection or a lightning protection plug.

### **3.1. Handset connections**

#### **Microsound handset (RJ 11)**

- |   |        |                             |
|---|--------|-----------------------------|
| 1 | +15vdc | Power from door station.    |
| 2 | Gnd    | Ground from door station.   |
| 3 | Rx     | Receive from door station.  |
| 4 | Tx     | Transmit from door station. |

### **3.2. Door Station Connections**

- |    |        |                          |
|----|--------|--------------------------|
| 1. | +15vdc | Power from power supply  |
| 2. | Gnd    | Ground from power supply |
| 3. | DS1    | Door strike              |
| 4. | DS2    | Door strike              |
| 5. | +15VDC | To handset               |
| 6. | Gnd    | To handset               |
| 7. | Rx     | Receive to handset       |
| 8. | Tx     | Transmit to handset      |
| 9. | Busy   | To switcher if required. |

### **3.3. Power Supply Connections**

- |    |         |                          |
|----|---------|--------------------------|
| 1. | +16vdc  | Connect to door stations |
| 2. | Gnd     | Connect to door stations |
| 3. | Neutral | Mains (220vac)           |
| 4. | Live    | Mains (220vac)           |

## **4. Programming**

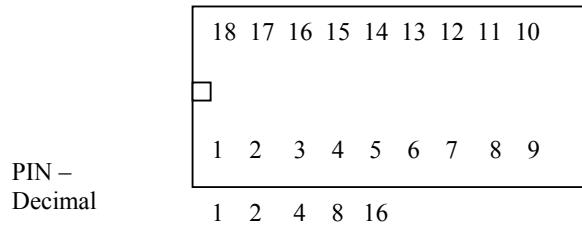
### **4.1 Door Station Programming.**

1. The factory setting numbers are 1 to 24.
2. The numbers can be changed to anywhere between 1 to 250.
3. To go into the program mode, press “call” and “reset” together and switch the power on.
4. Press “number up” button to set the first number up.
5. Press “number down” button to set the number lower.
6. Press “call” button to set the last number.
7. Press the “number up” button to set last number up
8. Press the “number down” button to set the number down.
9. Press the “reset” button to go out the program mode.

#### **Reset to Default**

1. To go back to the factory setting press the “number down”; “call” and “reset” button together and switch the power on.

## 4.2 Handset Programming



To program a number, remove the required pins on the IC. Pin 1 to Pin 5 and the common ground as shown below.

IC 3	Pin	1	=	1 (decimal)	<b>Example</b>
		2	=	2.	Handset number 5.
		3	=	4.	Pin 3 = 4
		4	=	8.	1 = 1
		5	=	16	-----
					5

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

## 4.3 Audio level adjustments

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

## 5. Technical Information

### 5.1 Cable requirements

Four common wires to each handset. Maximum accumulated length. 1000 metres on 1,5 mm square surfix.

### 5.2 Door Station

Size	:	170 mm High x 160 mm wide x 80 mm deep (55 mm minimum depth).
Mounting	:	Surface.
Finish	:	Weather proof box constructed of mild steel powder coated black. The front is constructed of aluminium and anodised natural.
Power	:	16 vdc 70 ma

### 5.3 Handset

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

## 6 First Line Service

### 6.1 Test Voltages

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

### 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.

+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 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 caused 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 caused by a cable fault or a faulty handset.
5. Quick check with no access to the handset.

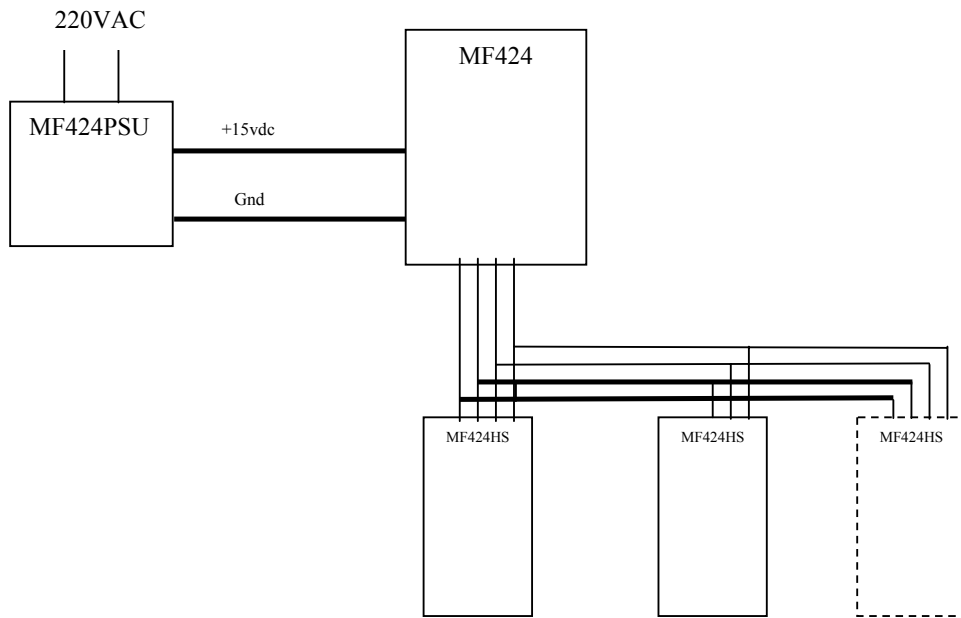
If the handset is dialled and the handset rings, this will indicate +15DC, GND, and TX lines are though and connected. The RX line can only be checked when the handset is lifted.

6. The handset buzzers continually.
  - Try replacing UM 3750.
7. Dialling wrong numbers.
  - Check handsets are programmed corectly.
8. The screened cable must be used and earthed on all exterior cables.

#### **6.4 MF 424 RECOMMENDED SERVICE KIT**

UM 3750	- Handset decoder
VN10KN	- Tx driver
Zener	- Lightning protection zena diodes

## 7 Wiring



Basic layout ( one door station )

## 8 Guarantee

The MF424 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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