

# **Microsound Systems**

MF 450

Apartment Intercom System

Instruction Manual

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## **1. General Description**

### **1.1. Features**

1. Two door station.
2. 50 handsets.
3. Two handsets on one number.
4. 4 common wires through out.
5. Maximum 500m on 0,5mm<sup>2</sup> square cable.
6. The system is lightning protected.
7. Door station is surface mounted and weather protected.
8. Door station has a handset test socket inside.
9. Door station display is backlit.
10. 2 Minute auto time out.

## **2. Operating**

### **2.1. Calling**

1. Press number up to select 25 to 50.
2. Press down to select 25 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 +24vdc, Ground, Receive (RX) and transmit (TX). Twisted pair cable must not be used, rather a four core cable. The longer runs such as lift shafts and for outdoor applications such as townhouse complexes a four core 0,8mm fire alarm cable can 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 0,22 mm<sup>2</sup> quad cable, to make termination at the handsets easy.
3. All junction boxes must have isolation points to allow for easy disconnection of cable runs, and must be water proof.
4. All cables must be marked.
5. 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 and the MFAS2 switcher box.
6. The door station must also be wired to the gate motor and power supply. The power supply must have built in lightning protection or a lightning protection plug. If the door station drives an electric strike, a separate suitable power supply must be used
7. Remote power supplies can be added to the system if required.

### **3.1. Handset connections**

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

1	+24vdc	Power from door station. (+12vdc minimum)
2	Gnd	Ground from door station.
3	RX	Receive from door station.
4	TX	Transmit from door station.

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

#### J2 Connector:

1.	+24v	To handsets
2.	-	To handsets
3.	TX	Transmit to handsets
4.	RX	Receive from handsets
5.	B	To switcher if required.

#### J4 Connector:

1.	+16v	16/24v from psu
2.	-	GND from psu
3.	Door	N/O contact to gate
4.	Door	N/O contact to gate

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

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

### **3.4 Handset Test Socket**

The test socket inside the door station has a 5way plug which can be plugged into J2 to test handsets at the door station.

## **4. Programming**

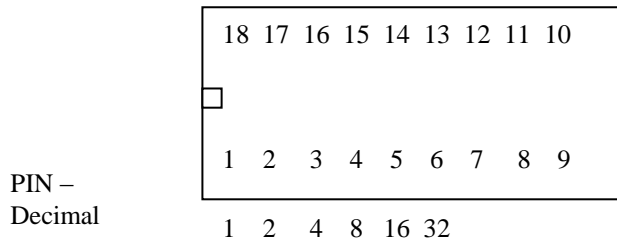
### **4.1 Door Station Programming.**

1. The factory setting numbers are 1 to 50.
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

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> Handset number 5.
		2	=	2.	
		3	=	4.	
		4	=	8.	
		5	=	16	
					Pin 3 = 4
					1 = 1
					-----
					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. 500 metres on 0,5mm<sup>2</sup> square.

### 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 : 24 vdc 50 ma

### 5.3 Handset

Size : 215 mm x 96 mm wide x 65 mm high.

Power : 24 vdc 3,5 ma (idle).

: 20 ma (ringing)

## 6 First Line Service

### 6.1 Test Voltages

	RX	TX
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.

+24v DC

1. Minimum voltage at the furthest handset must be 12v.

GND

1. Ground to all handsets.

### 6.3 Fault Conditions

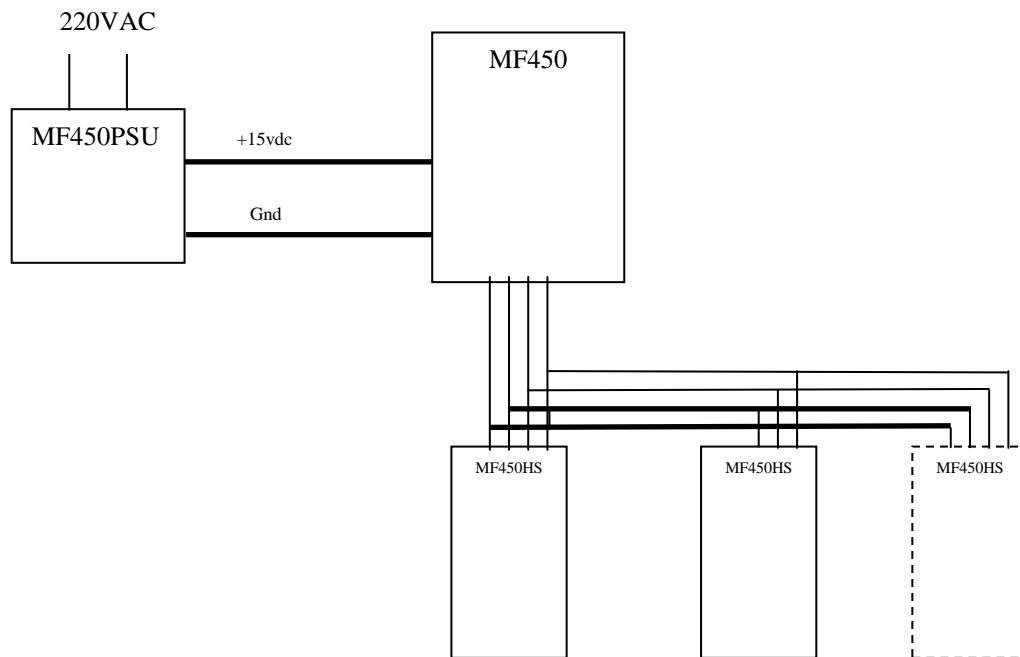
1. If the handset is not ringing when dialled, but ringing can be heard at the door station.
  - Check if the handset is programmed for the correct number.
  - Check if the TX line is connected to the handset.
  - Check if the TX line is not shorted to any other lines.
2. The handset rings when dialled 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 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 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 +24DC, GND, and TX lines are though and connected. The RX line can only be checked when the handset is lifted.
6. The handset buzzes continually.
- Try replacing UM 3750.
7. Dialling wrong numbers.
- Check handsets are programmed correctly.
8. The screened cable must be used and earthed on all exterior cables.

#### **6.4 MF 450 RECOMMENDED SERVICE KIT**

UM 3750	- Handset decoder
2N7000	- TX driver
24v Zener Diode	- Lightning protection zena diodes

## 7 Wiring



Basic layout ( one door station )

## 8 Guarantee

The MF450 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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