

# **fargo Maestro 100**

# **fargo Maestro 20**

**GSM GPRS Modem**  
**900 / 1800**

Application notes :  
Connecting the power  
Connecting the audio

Rev. 01

### Revision history

Rev.	Date	Details	Originated by
00	3 December, 2002	First release	Frank TANG
01	18 September, 2003	Add current consumption for MAESTRO 20 and MAESTRO 100	Frank TANG

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# Contents

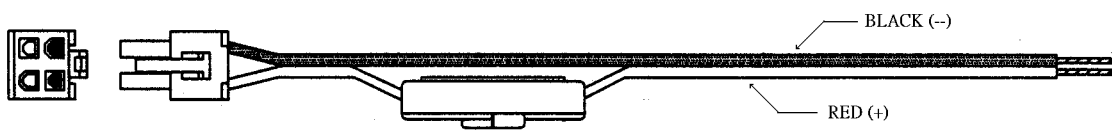
1	Introduction	4
2	Connecting the Power Supply	4
3	Connecting the audio	5
3.1	Wiring	5
3.2	TDMA noise	6
3.3	Dynamic microphone (coil type)	6

## 1. Introduction

In this document, we intend to give some guidance and useful hints for the first-time users of MAESTRO 20 and MAESTRO 100. The topics are “Connecting the Power Supply” and “Connecting the audio”

## 2. Connecting the Power supply

Power supply is through the power cable that comes together with the MAESTRO. The power cable has its supply end stripped & tinned, users can directly solder to the supply points or make wire-harness.



MAESTRO 20 and MAESTRO 100 accept power sources from 5V to 32 DC, The current consumption varies with the input voltage and the working mode as below :

	MAESTRO 20	MAESTRO 100
Input voltage range	5V to 32V DC	5V to 32V DC
Rated current	450 mA	650 mA

Typical current consumption at 5V supply

	MAESTRO 20	MAESTRO 100
GSM900 communication mode PCL=5	310 mA	310 mA
DCS1800 communication mode PCL=0	240 mA	240 mA
GPRS900 Class 10 PCL=5	Not applicable	520 mA
GPRS1800 Class 10 PCL=0	Not applicable	390 mA
Idle mode	35 mA	35 mA
Idle mode with power saving on RS232	13 mA	13 mA

Typical current consumption at 12V supply

	MAESTRO 20	MAESTRO 100
GSM900 communication mode PCL=5	130 mA	130 mA
DCS1800 communication mode PCL=0	100 mA	100 mA
GPRS900 Class 10 PCL=5	Not applicable	220 mA
GPRS1800 Class 10 PCL=0	Not applicable	160 mA
Idle mode	16 mA	16 mA
Idle mode with power saving on RS232	11 mA	11 mA

Typical current consumption at 32V supply

	MAESTRO 20	MAESTRO 100
GSM900 communication mode PCL=5	50 mA	50 mA
DCS1800 communication mode PCL=0	40 mA	40 mA
GPRS900 Class 10 PCL=5	Not applicable	80 mA
GPRS1800 Class 10 PCL=0	Not applicable	70 mA
Idle mode	8 mA	8 mA
Idle mode with power saving on RS232	5 mA	5 mA

If you use battery to supply, please check the specifications to make sure it can deliver sufficient current.

If you use AC/DC power adaptor, please make sure its rated current is sufficient.

The MAESTRO has built-in protection against over-voltage and reverse-polarity, it is safe to tap power from cars or trucks from the fuse block or through a cigarette lighter plug.

### 3. Connecting the audio

#### 3.1 Wiring

For GSM voice call, a simple way to connect the audio is to make use of the handset of an ordinary desktop telephone. If you have already bought the RS232 / audio cable from FARGO TELECOM, then it is possible to use it to connect the MAESTRO to the handset. Follow these steps :

Below is the pin assignment of the RJ11 plug on the RS232/audio cable. Open up the handset to check if the microphone and receiver are wired correctly to the required pins, if not, re-wire internal connections of the handset.



Pin number on RJ11 plug	Function description
1	Microphone (+)
2	Speaker (+)
3	Speaker(-)
4	Microphone (-)

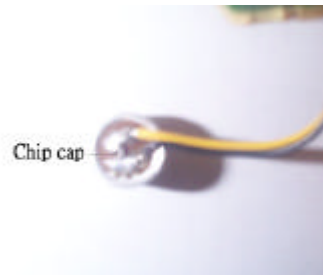
Desktop phone normally use Electret condenser microphone capsule which has polarity and the DC bias voltage required is supplied by the MAESTRO 20. Microphone (+) must be wired to the capsule's positive terminal ; Microphone (-) must be wired to the capsule's negative terminal; it does not work if reversed.

Speaker (+) and Speaker (-) are wired to the handset's receiver. There is no requirement on polarity.

Connect the RS232/audio cable, antenna and power supply to the MAESTRO. Load SIM card. Plug the RJ11 into the handset's module jack. Plug the 9-pin D-SUD to PC's Serial port. Make GSM voice call by sending the dial up AT command from the PC. After connection, you should hear voice of the called party from the earpiece and the called party can hear your voice

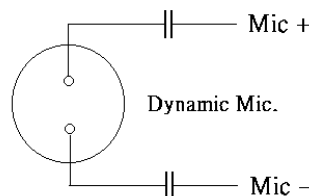
### 3.2 TDMA noise

You might hear TDMA noise from the earpiece during a GSM phone call, this is because the Electret microphone picks up the RF energy radiated from the antenna. TDMA noise can be suppressed by soldering a 33pF chip capacitor across the terminals of the Electret microphone. For better suppression of TDMA noise on 1800MHz band, one more capacitor (value= 12 to 15pF) can be added across the terminals of the Electret microphone.



### 3.3 Dynamic microphone (coil type)

In case the microphone you would use is dynamic type, then it is necessary to add capacitors to block the DC bias voltage generated by the MAESTRO from entering the microphone.



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