MicTel

Portable Telephone Interface
With Extended Battery Life

by

CircuitWerkes

Operating & Technical Manual

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INTRODUCTION

Thank you for choosing the CircuitWerkes MicTel.

The CircuitWerkes MicTel is a portable, battery or AC adapter-operable telephone interface that may be used for a variety of applications. In its typical application, the MicTel replaces the handset of the telephone to provide high-quality audio for feeding and receiving information. It can also be used in a number of non-telephone applications. Its audio & battery specifications will provide long life and "Broadcast Quality" audio production. Along with high quality audio, the MicTel features audio limiters in both the send and receive channel. These limiters are user-defeatable and begin working at about +3dBm of output. The limiter works by automatically reducing the gain of the device during high-output, peak audio thereby preventing clipping, output distortion or overdriving the telephone line.

For phone line use, the MicTel requires the use of a telephone with modular **handset** jacks or a telephone with 2.5mm headset connector such as the ones found on most cellular/PCS phones. Single piece telephones (with non-removable handsets) or two piece phones with completely detachable bases will not work with the MicTel. Only telephones with the electronics in the base will work with the MicTel. The MicTel supports two types of telephone handset configurations and is factory set for the most common configuration. There are no industry standards for telephone handset configurations, so it is possible that the MicTel will not work with some specific telephone devices. If your MicTel does not seem to work properly using one brand of telephone, try the MicTel on a different telephone device before assuming that the MicTel is broken. All MicTels are checked twice before leaving the factory and field failures are pretty rare. ***Experience has shown that one of the most common problems during new installations is the use of an incompatible phone.***

Your new MicTel has been designed with battery life in mind. The result is that it has been tested and found to operate for up to 36+ hours on a single set of fresh 9V, alkaline batteries. These tests were made with the MicTel feeding human speech audio down a phone line at nominal phone line levels of –10dBm and a moderately loud headphone level in a pair of Sony MDR-7506, semi-professional, headphones. Although the MicTel is designed to be stingy with power internally, how you use the MicTel will determine the effective battery life, which can vary significantly. For example, driving a bridging load from the line level outputs requires much less power than driving a terminating load does because much of the power is transferred to the load. Also, driving a 10 Ohm headphone requires far more power than does driving a 75 Ohm headphone like the MDR-7506. The efficiency of the headphones can also have a bearing on battery life. If your headsets are inefficient "walkman" style headphones, you will need more output to achieve the same sound level as someone using a better set. In addition to the loading and headphone issues, the type of audio that the MicTel is handling can have an effect. Human speech is less dense than processed music, so you can expect that playing compressed music down the line will result in somewhat less battery life than would otherwise result from nominal speech. Finally, we recommend installing fresh alkaline batteries prior to every critical use and we recommend against using either rechargeable or standard dry cells.

The low battery warning should be taken seriously. Using alkaline batteries, under nominal conditions, the indicator will illuminate about 30 minutes to an hour before total battery failure. If the load is greater or the battery performance is less than nominal, the indicator may give less warning. Disregarding the low battery warning may cause your MicTel to quit at a critical moment.

We encourage you to refer to these instructions first if you have any questions or problems regarding the use of the MicTel. If you cannot find an answer, please contact: us at (352) 335-6555 or visit our online e-mail form at www.circuitwerkes.com.

CONTROLS - INPUTS AND OUTPUTS

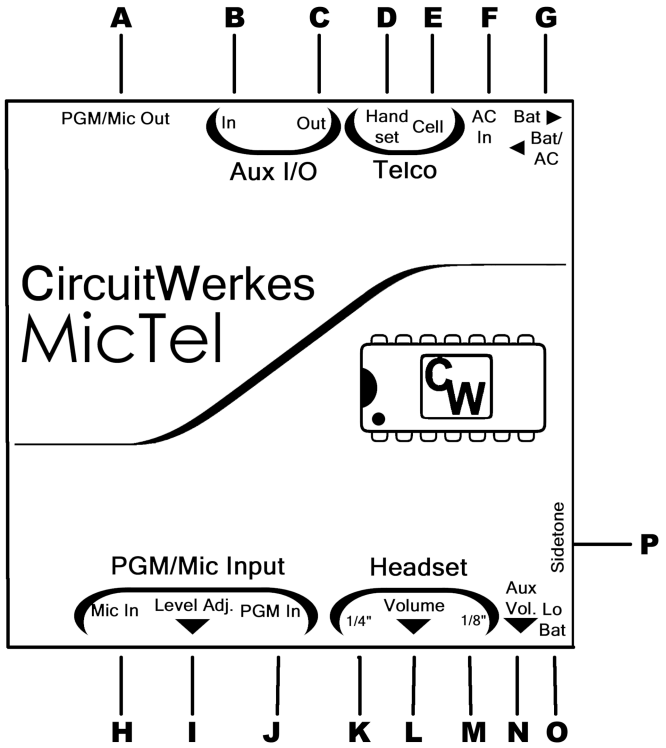


Figure 1

A PGM/MIC OUT. This is a balanced line level main output. Connect this XLR output to the input of your recording device to record information from the MicTel mixed output. Maximum output level is +10dBm.

B AUX. I/O IN. This high quality balanced or unbalanced line level ¼" jack input is used for mixing another audio source with the receive telephone audio or it can be used as a straight through amplifier/buffer/limiter without the telephone.

C AUX I/O OUT. This ¼" jack output provides a high quality, balanced line level output from the send amplifiers for feeding other audio sources as a broadcast loop.

D HAND SET. This RJ-9 modular jack connects MicTel to a standard telephone. Unplug the handset of your modular telephone and plug MicTel in its place.

E CELLPHONE. This 2.5" mini jack lets you connect the MicTel to a cellular phone headphone/mic jack.

F AC IN. This is the external power connector if using a wall transformer for power. Place the "Bat" - "Bat/AC" switch to the Bat/AC position.

G BATTERY / A.C. This power source switch selects the power mode you choose, or turns the unit off when not in use. The power switch selects between Bat / AC mode (wall transformer with battery backup), Bat mode (9 volt battery operation), and OFF (in center position). Use the Bat mode when only batteries are used.

CONTROLS - INPUTS AND OUTPUTS

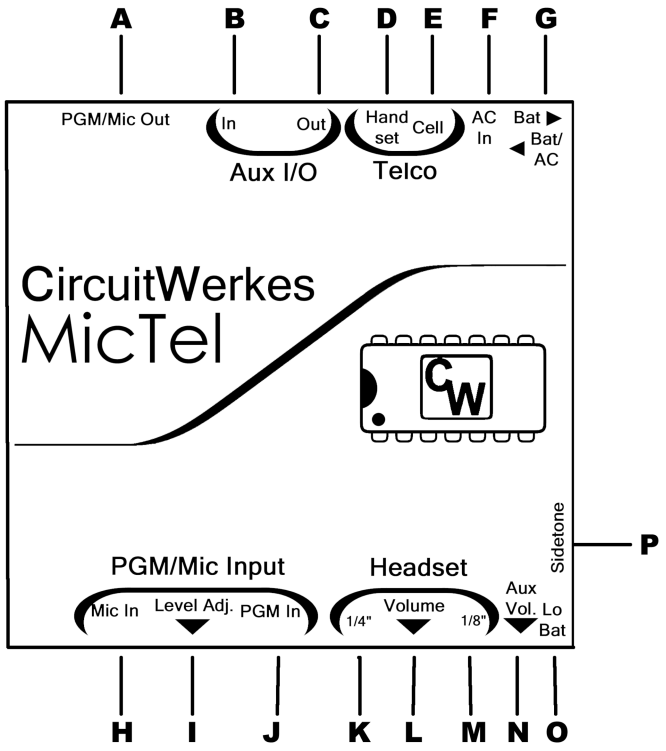


Figure 2

H MIC IN. This female XLR provides connection for your microphone.

I LEVEL ADJ. This knob controls the level of your 'Mic In' and 'PGM In' sources.

J PGM IN. This balanced ¼' input jack is provided for feeding another line-level audio source down the phone line and/or out to the PGM/Mic Out.

K HEADSET OUTPUT ¼". Your headset or speaker plugs into this ¼" jack.

L HEADSET CONTROL . This knob controls your headset volume.

M HEADSET OUTPUT 1/8". Your headset or speaker plugs into this 1/8" jack.

N AUX. VOL. This knob controls the Aux I/O audio output. May also affect headphone level depending upon setting of JP13 (see page 5)

O LO BAT. The low battery indicator will illuminate when your battery level has approximately 15 to 45 minutes of operational life remaining.

P SIDETONE. Provides an adjustment for a mix of MIC/PGM audio and telephone audio.

INSTALLING BATTERIES

BAT mode
Two 9 volt batteries are required for operating the MicTel in the BAT (battery) mode. CircuitWerkes recommends installing two alkaline (same brand) batteries. When desiring to run the MicTel specifically on batteries, please operate the MicTel in the BAT mode rather than the BAT/AC mode. This will optimize the battery life.

BAT/AC mode
The MicTel can be run from the supplied 15 VDC wall adapter with no batteries installed.

However, to ensure uninterrupted service using the MicTel in the Bat/AC mode, having batteries installed might be the way to go. You can plug your 15VDC adapter into its power source and if you should lose that power source, for whatever reason, your MicTel will sense the DC loss and the batteries will automatically pick up the load transparently.

To install the batteries, open the chassis by removing the screw on the bottom plate battery door. The battery terminals will be readily visible. Plug both batteries into the terminals and close the chassis. Replace the bottom plate and secure the screw.

OFF Mode
The MicTel is off when the Bat / Bat/AC switch is in the center position.

CONFIGURATION JUMPERS

All the MicTel's jumpers can be accessed through the battery compartment. The MicTel is designed to allow for maximum flexibility in input/output configuration and levels. This may make the task of setting the jumpers seem a bit daunting, but once the MicTel has been properly configured, you should not have to routinely change the settings.

Jumpers fall into seven main categories: 1. Input Type, 2. Input Level, 3. Limiter Mode, 4. Sidetone & Headphone modes, .5. Auxiliary Audio Output Mode, 6. Handset/telephone type, or 7. Output level setting. Each of these settings will be discussed below in the following sections. The tables below can be used as a quick reference for jumper functions.

1. Main and Aux. Input Configuration Set Jumpers (the * denotes default jumper settings)

Jumper #	**(A)** 1-2	**(B)** 2-3	On	Off
JP2 (main chan line input)	Balanced Aud In	*Unbal Stereo In (**Default)**	N/A	Unbal Mono In
JP6 (aux. Chan input)	Balanced Aud In	*Unbal Stereo In (**Default)**	N/A	Unbal Mono In
JP1 (mic input)	N/A	N/A	Unbalanced Pin 2 Grounded	*Balanced (**Default)**

Configuration Jumpers Continued

2. Main Channel Program Audio Input Level Set Jumper

Jumper #	A (1-2)	***B** (2-3 **Default**)	On	Off
JP3	0dBm input (A)	-10dBm input (B)	N/A	-20 dBm input (Off)

3. Limiter Mode Jumpers

Jumper #	ON **(Default)**	OFF
JP4 (main chan)	Limiter On *	Limiter Off
JP8 (aux. chan)	Limiter On *	Limiter Off

4a. Sidetone Mode Jumper

Jumper #	**(A)** 1-2 (***Default)**	**(B)** 2-3	On	Off
JP12	Mic/Line audio is mixed with aux chan. Audio	Mic/Line audio is ONLY heard in headphones	N/A	Sidetone Disabled

4b. Headphone Mode Jumper

Jumper #	**(A)** 1-2	**(B)** 2-3 (***Default**)	On	Off
JP13	Headphones monitor aux channel Output audio (after Aux vol. control).	Headophones monitor aux channel input (Pre-fader).	N/A	Primary Aux channel mode Disabled. Can still monitor Sidetone (see JP12)

5. Aux Output Mode Jumper

Jumper #	**(A)** (***Default**)	**(B)**	On	Off
JP9	UnBal. Stereo Audio Out	Balanced Audio Out	N/A	Unbal Mono Out

6A. Handset Type Jumper

Jumper #	**(A) (*Default)**	**(B)** 2-3	On	Off
JP10	Standard Handset	Reversed handset	N/A	N/A

6B. Handset Type Jumper

Jumper #	ON	OFF **(*Default)**
JP11	Reversed Handset	Standard Handset

Note: JP10 & JP11 must be set together.

7a. Main Output Level Set Jumper

Jumper #	ON	OFF **(*Default)**
JP5	Mic Level Out	Line Level Out

7b. Telephone Handset Output Level Set Jumper

Jumper #	ON **(*Default)**	OFF
JP7	Normal Level	High Level

Detailed Description of Jumpers and settings

Input Type:

Many types of audio equipment have different input and output connection schemes. In order to make the MicTel as versatile as possible, input configuration jumpers allow you to set the MicTel for the best match to your existing equipment. The input jumpers may be especially useful if your MicTel is replacing an existing piece of equipment such as the Gentner Microtel where the input and outputs were unbalanced.

The main microphone input mode is selected by jumper JP1. You can use the mic input either balanced (JP1 off) or unbalanced with JP1 on. When JP1 is on, Mic Input pin 2 is grounded. **Default is JP1 off**.

The line level inputs for both the main channel and aux input channel give you a choice of three input modes. They are: Standard Balanced audio, Unbalanced Stereo audio or Unbalanced Mono audio. Jumper JP2 sets the main channel, line level, input audio mode. When JP2 is jumpered to A, it is the balanced audio mode. When jumpered to "B" (default) the input is set for unbalanced stereo inputs and when the jumper is removed, the MicTel is configured for unbalanced, mono input audio. *Jumper JP6 configures the auxiliary channel's input in the same way as JP2 does for the main channel.*

Main Line Level & Aux. Input Connections

Figure 1a

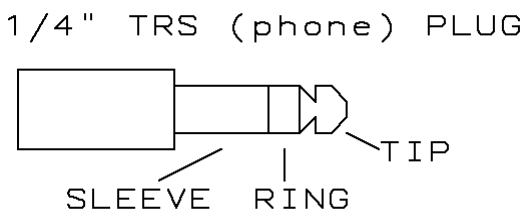
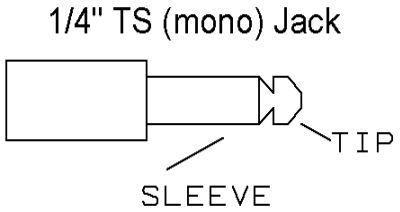
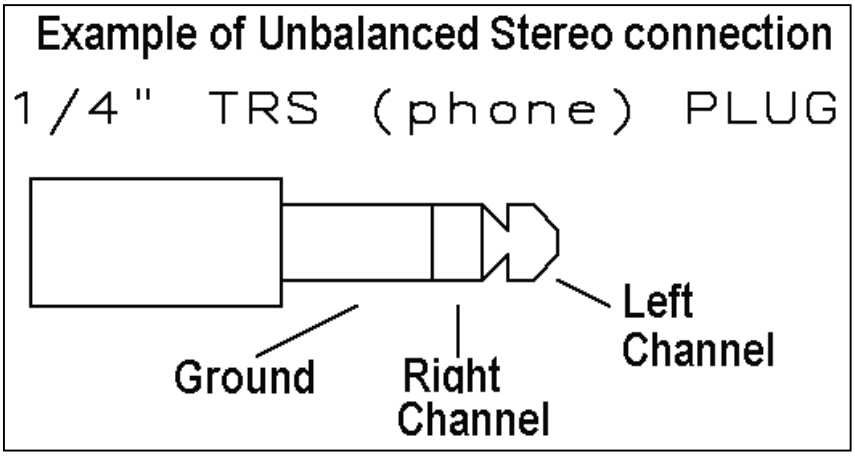


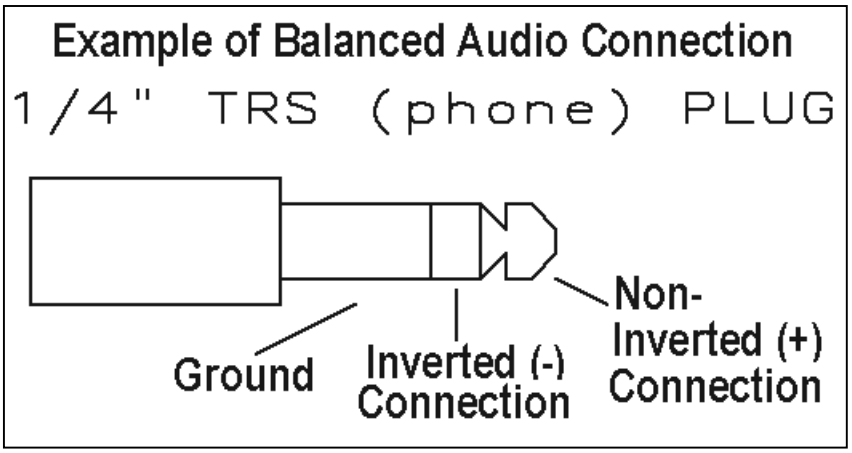
Figure 1b



¼" jacks come in two varieties: Tip, Ring & Sleeve (TRS) or Tip & Sleeve (TS or Mono). TRS jacks are preferred for both input and output connections to the MicTel, however TS jacks can be used for both if the MicTel input jumpers are configured for unbalanced, mono operation. TS jacks should not be used for the MicTel's aux output without removing JP9 as this will short out one of the balanced output drivers resulting in increased battery drain and possible overheating of the driver circuit at high output levels.



When connecting up external equipment to the MicTel, it is important to know if your equipment is balanced or unbalanced and if it is stereo or mono. In most cases of field or home studio use, the equipment will be unbalanced stereo or mono. If you are using a headphone output to drive the MicTel, it will almost always be unbalanced. Referring to the ***"Main and Aux. Input Configuration Set Jumpers"*** chart, you would set either JP2 and/or JP6 to position "B" (pins 2-3 jumpered) for unbalanced stereo operation.



If you are connecting commercial broadcast equipment to the MicTel, the audio may be mono, balanced requiring you to change the jumper settings for the MicTel. Note that if your audio source is unbalanced stereo but the jumpers are set for balanced audio, you will probably hear almost nothing or very low audio with an echo effect. This is the result of phase cancellation when similar audio is fed to both leads of a balanced input. If your audio level seems low or sounds peculiar, try changing the associated input jumper to unbalanced stereo to see if that makes a difference. If the problem seems to clear up, then you have found the solution, but if the problem seems worse, then you will need to change the jumper back to the 1-2 position or you can try removing the jumper completely.

JP9 is used to drive your recording equipment with the correct type of signal. Since most home and semi-professional equipment has an unbalanced, stereo input, JP9 is default configured to the "A" (Pins 1-2 shorted) configuration. This will give good results using a straight through cable when driving stereo inputs. If your equipment features a balanced input, you will need to change the jumper setting to the "B" position (2-3). If you try to drive a balanced input with the jumpers set to 1-2, you will probably hear nothing on your recording. If you are using a TS style jack or your equipment is unbalanced, mono, you should remove JP9 completely.

Input Level

Jumper JP3 lets you set the main channel's line-level input to match the output level of whatever device will be driving it. If your source audio is 0dBm (typical broadcast audio level), set the jumper for mode "B" (pins 1-2 shorted). If the input audio is in the –10dBm range which is typical of consumer & semi-pro audio, set the jumper to the "A" (2-3) position. If the input audio will be –20 or less, remove J3. The factory default is set for a -10dBm input (Mode "A" jumpered).

Limiter Mode:

The MicTel is equipped with fast acting audio limiters in both the main and auxiliary audio channels. The limiters' job is prevent distortion that can happen when a loud audio passage occurs while the MicTel is outputting at near its maximum level. This is common during live sporting events or even during telephone interviews. Whenever the MicTel is overdriven, the limiter instantly reduces the output gain, preventing clipping distortion in the MicTel's output. The limiter is designed to be transparent to low amplitude signals and only effects audio whose peak amplitude exceeds +6dBm as measured at the MicTel's outputs. Jumper JP4 controls the main channel's limiter. When the jumper is "on", the limiter is engaged. When the jumper is removed, the limiter function is bypassed. JP8 controls the auxiliary channel limiter. When the jumper is "on", the limiter is engaged. When the jumper is removed, the limiter function is bypassed. The MicTel is shipped with both limiters enabled.

SideTone & Headphone Modes:

When audio from the main input such as the microphone is mixed with the incoming telephone audio, this is called sidetone. Sidetone can be useful because it gives the MicTel user control over the relative mix levels of the incoming telco audio and their own microphone. For example, if you are doing an interview with a caller, that caller might sound louder in the output than your own microphone does. This is because some phone systems employ something called a hybrid. The hybrid's job is to separate your send audio from that caller's receive audio. In a regular telephone, this prevents feedback from the transmitter to the receiver of your phone handset. As a result of the hybrid, the level of your own audio that you receive back from the phone system can be substantially less than the incoming caller's audio. The sidetone function lets you compensate for this by increasing the amount of send audio that is heard at the aux audio output port or the headphones. A second benefit of the sidetone is that the send audio that is mixed with the receive audio is not frequency limited by the phone system, making the send audio sound more natural as the sidetone level is increased. Jumper JP12 controls the sidetone and works in conjunction with the sidetone trimmer control. When Jumper JP12 is removed, sidetone audio is disabled. When JP12 is on the (A) position, the sidetone is mixed with the aux channel audio and its level is adjustable from all the way off to fully on by the use of the sidetone trimmer control. Sidetone audio will be present at ***both*** the Aux. audio output and the headphones. When JP12 is on the (B) position, the sidetone is mixed only with the headphone audio & does not appear in the Aux audio output. This allows the talent to hear more natural sounding audio without it being present in the mix. The factory default is "A" jumpered.

JP13 lets you hear Auxiliary channel audio in either pre-fader mode (position "B"), post fader mode (Position "A") or not at all (JP13=off). In pre-fader mode, audio present at the Aux inputs, cell phone output or telephone output is routed directly to the headphones. This gives you a single control to conveniently monitor the incoming audio on your headphones. When JP13 is set to the post fader mode, audio from the MicTel's Auxiliary output amplifier is fed to the headphone amp. This position lets you hear the actual audio that is being sent out of the Aux. output jack. Post-fader audio is controlled by both the headphone control and by the Aux. Volume control. Because the

output audio is amplified and controlled by the Aux. Vol. fader as well as the regular headphone control, the audio level can often be much louder than the Pre-fader source or, depending upon the setting of the Aux. Vol. control, can be the same or less than the pre-fader mode. When using the post-fader mode, care must be taken to set the correct levels for driving your recorder by using the Aux. Volume control first. Once the correct output level to drive your recorder has been set, you can then adjust the headphone volume control for a comfortable level in your headsets. Do not set the Aux. Vol. control based upon the loudness or distortion (if any) as heard in the headphones because the headphone level control also has an effect upon the level reaching the headphones. Unless necessary to directly monitor the Aux output, it is suggested that JP13 be left in the (B) pre-fader position. Factory default is "B".

If you do not want to monitor the audio on the Aux channel, remove jumper JP13 completely. This can be useful when you are doing a one-way feed using the balanced main audio output and where no IFB or other feedback is present. Setting the sidetone jumper, JP12, to "B" and adjusting the Sidetone control fully clockwise will give a good level to the headphone amplifier without the coloring associated with driving telephone circuits.

Handset/Telephone Type Selector:

Telephones come in a variety of configurations. Some telephone sets will not work with the MicTel. For instance, telephones that are one-piece or that have the keypad on the handset do not have separated send and receive audio lines that the MicTel needs. Because there are no standards governing how manufacturers configure the internal workings of their phones, there are some telephone devices that will not work properly with the MicTel even if the keypad is on the telephone's base. Fortunately, while there are no standards, there is a most commonly used configuration which accounts for about 70% of all two-piece telephones in the USA. A second configuration is also common, accounting for about 15% of the phones in service. The MicTel is designed to work with either of the two most commonly found configurations.

JP10 and JP11 are used together to set the type of telephone instrument that you have. When JP10, two shorting jumpers are set to the A positions and JP11 is "OFF", the MicTel is configured for the most common type of telephone circuit. When JP10's jumpers are moved to the "B" position AND JP-11 is "ON", the MicTel will drive the alternate phone configuration. JP10 and JP11 must be used *together* to insure proper operation of the MicTel.

Output Level selectors:

When "ON" JP-5 sets the MicTel's main channel output level to a mic level. This mode is intended to allow the MicTel to drive a microphone level input from its balanced XLR output.

JP7 sets the level used to drive the phone line. When the MicTel is driving standard handsets, JP7 should be on. If more output level is needed, you can remove JP7. Usually, JP-7 needs to be off when JP10 & JP11 are set for the "B" (alternate) position.

CONFIGURATION JUMPER LOCATOR

(as viewed from the bottom side of the PCB through the battery door)

JP7 Telco Output Level:
On = Normal; Off = Boost

JP8 Aux Channel **Limiter**
On = Limiter Active

JP10 & JP11
Handset Select
A = Standard Handset
B = Alternate Handset

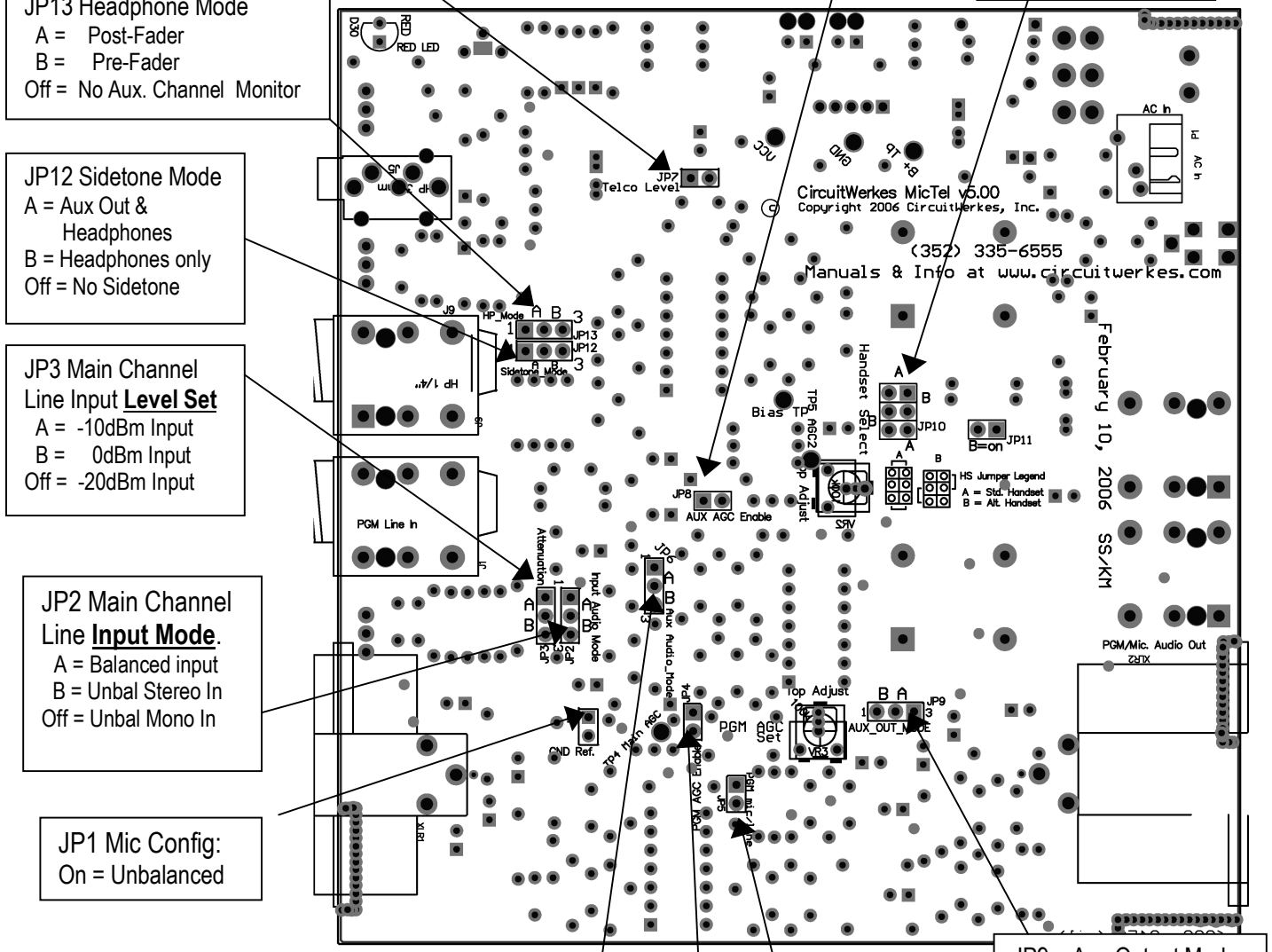
JP13 Headphone Mode
A = Post-Fader
B = Pre-Fader
Off = No Aux. Channel Monitor

JP12 Sidetone Mode
A = Aux Out & Headphones
B = Headphones only
Off = No Sidetone

JP3 Main Channel Line Input **Level Set**
A = -10dBm Input
B = 0dBm Input
Off = -20dBm Input

JP2 Main Channel Line **Input Mode**.
A = Balanced input
B = Unbal Stereo In
Off = Unbal Mono In

JP1 Mic Config:
On = Unbalanced



JP6 Aux. Channel **Input Mode**.
A = Balanced input
B = Unbal Stereo In
Off = Unbal Mono In

JP5 – Main Channel **Output Level**:
On = Mic; Off = Line

JP9 – Aux Output Mode
A = Unbal Stereo Out
B= Balanced Mono
Off = Unbal mono

JP4 – Main Channel **Limiter Mode**:
On = Limiter Active

OPERATION - GENERAL USE

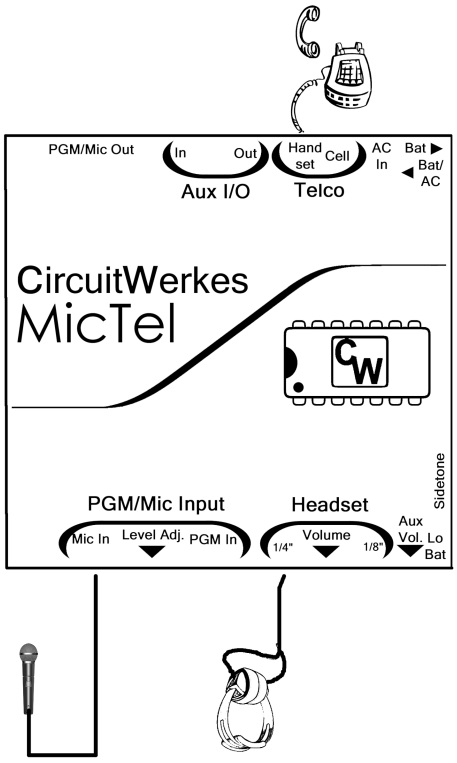


Figure 3

This diagram illustrates the basic use of the MicTel for feeding your voice to a remote location. The headset allows you to hear your own voice as well as any feedback from the other end of the call. This setup can be used for feeding audio to a remote location like doing a live remote broadcast. It can also be used when you are being interviewed via telephone. You will have better sounding audio by using your studio quality mic. You can also feed recorded audio to the interviewer via the PGM In jack (figure 4) and you can make your own recording of the interview (figure 8).

Before making connections, see “Installing Batteries” on page 4.

1. Unplug your telephone handset cord at the handset and plug the modular jack into the Hand set jack on the back of the MicTel using Figure 3 for reference.

2. Plug your microphone into the Mic In XLR connector.

3. Plug your headphones into the Headset jack.

4. Select BAT/AC or BAT operation to turn the unit on.

5. Adjust the microphone level using PGM/Mic Input Level Adjust knob.

6. Adjust the Headset level by using Volume Level Adjust knob.

You now have the equivalent of a telephone handset and may use your phone for normal calls, including dialing out. In this configuration, you have the added advantage of a good microphone and headset.

OPERATION - AUDIO FEEDING

This figure shows a simplified hookup for sending both live mic and pre-recorded audio down the phone line. The illustration uses a tape player, but the source audio can be anything with a line out or headphone out jack. To set the right volume level, first adjust the Mic level control for your voice when talking into the microphone. Then, using the headphone volume control of the tape player, adjust the playback level of the recording to match your mic level. Do not adjust the MicTel's Level Adj control when playing back recordings or you will affect your mic level, too.

Be sure to set jumper JP2 to match your equipment's output. The default is set for position "B" which is unbalanced stereo operation like you might get from a PC sound card or a stereo Walkman. If your source audio is unbalanced mono, remove JP2. If your source has a professional balanced output, move JP2 to the "A" position.

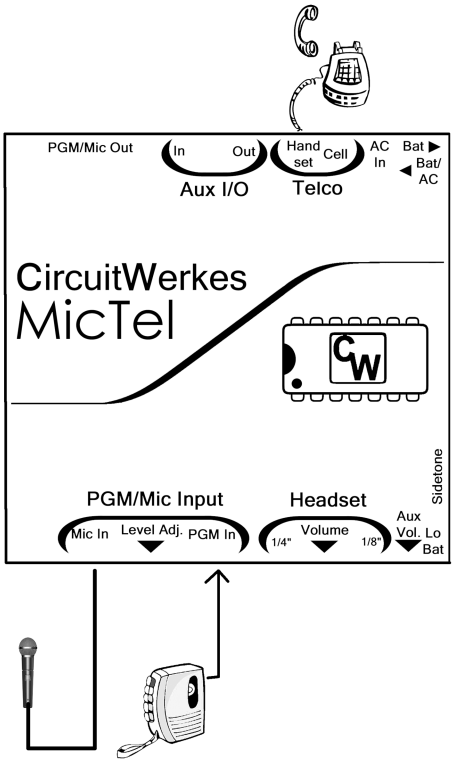


Figure 4

Before making connections, see "Installing Batteries" on page 4.

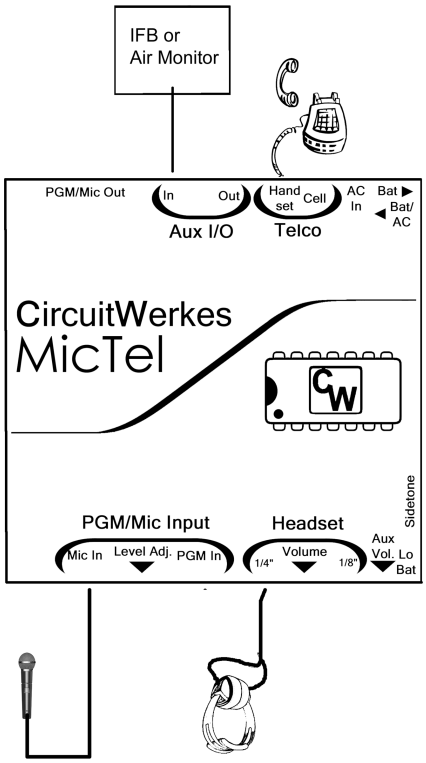
1. Set up MicTel as described in "General Usage" (page 9) and shown in Figure 4.

2. Patch the output of your cassette recorder to the PGM In plug on the MicTel.

3. Select BAT / AC or BAT operation to turn the unit on.

In this configuration, your mic audio may be mixed with tape audio, if desired. Output tape level will be controlled at your tape recorder. Other playback devices besides a tape recorder can be substituted including CD player, MP-3 player, etc.

OPERATION - SIMULTANEOUS OFF-AIR MONITORING AND PROGRAM INTERRUPT (IFB)



When doing a live telephone remote, it is often necessary to hear IFB or the over-the-air signal so that you can get your cues. This configuration feeds your voice down the phone line, but lets you hear incoming audio from an air monitor or from an IFB. The IFB or monitor audio will be heard in your headphones, if jumper JP13 is in either the A or B position. JP13-B is default.

To get proper audio from your IFB input you should set jumper JP6 to match your equipment's output type. The default is set for position "B" which is unbalanced stereo operation like you might get from a PC sound card or a stereo Walkman. If your source audio is unbalanced mono, remove JP6. If your source has a professional balanced output, move JP6 to the "A" position.

Figure 5

Before making connections, see "Installing Batteries" on page 4.

1. Set up your MicTel as described in "General Use" (page 9) and shown in Figure 5.

2. Plug the output of a transistor radio, two-way radio, etc., to the MicTel's Aux I/O "In" connector.

3. Select BAT/AC or BAT operation to turn the unit on.

In this configuration you will be able to hear both the telephone audio and the audio coming from your auxiliary source.

OPERATION – VOICEOVER WORK WITH DIRECTIONS

This figure shows a typical voiceover setup where the talent's voice & production can be fed to the phone call and the talent can hear directions from the other side in his/her headphones. In most cases, the talent will have an existing mixer and recorder. The best approach is to have the customer's mic continue feeding the mixer and then use the mixer to feed the MicTel. The MicTel then sends the mixer audio to the caller while the talent listens to the directions using the MicTel's headphone ouptut. The ouptut of the recorder/PC can be fed into one of the mixer's inputs and used to play the finished production to the other side for final approval. If the mixer has only one output, then:

1. either a splitter cable can be used to divert the mixer's ouptut to both the recorder and the MicTel, or:
2. The MicTel's MIC/PGM out can be used to feed the recorder. This is easy, but may suffer from slightly reduced noise performance.

Be sure to set all input and output jumpers to match your equipment's output. Most consumer mixers are mono-unbalanced. Be sure to consult your mixer's documentation for specifics.

The *caller audio will not appear on the recording* but the caller can hear your voice as it is being recorded and you can hear directions provided by the caller

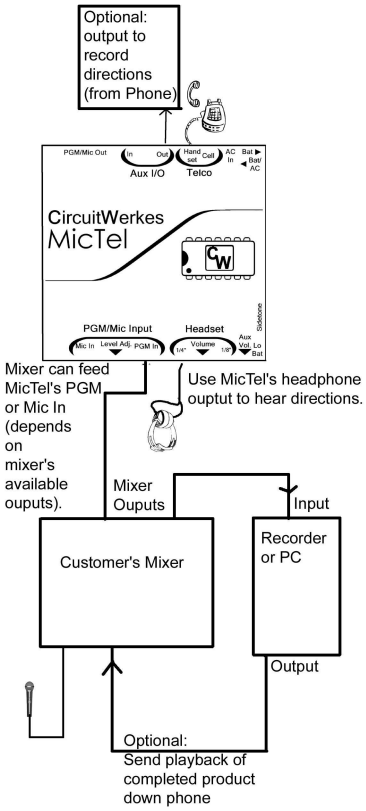


Figure 6

Before making connections, see "Installing Batteries" on page 4.

1. Set up MicTel as described in "General Usage" (page 9) and shown in Figure 6.

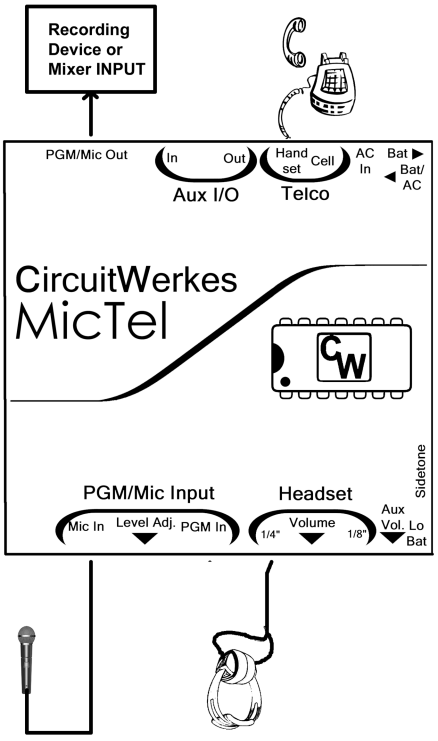
2. Patch the output of your mixer to the PGM In plug (or Mic in) on the MicTel.

3. Select BAT / AC or BAT operation to turn the unit on.

In this configuration, you can feed your mixer's output, including your mic to the other end of the call. You can hear the other side via the MicTel headphones. There are variations on this that may work better, depending upon your mixer's configuration. For example, if your mixer has a monitor input or a second audio buss, you can feed the MicTel's headphones or AUX Output to the console and use the console's headphone amp to monitor the directions. This is not available on many low-end mixers, however.

Another variation uses the mixer's line output to feed the MicTel's PGM Input. The MicTel's PGM ouptut then feeds the PC/recorder's audio input. This can be done when only one output is available from your mixer.

OPERATION - FEED A RECORDER (PC, DAR, TAPE, ETC.)



This configuration is used for voicing a recording while receiving direction via the telephone only when you **do not** have a main mixer. The *caller audio will not appear on the recording* but the caller can hear your voice as it is being recorded and you can hear directions provided by the caller.

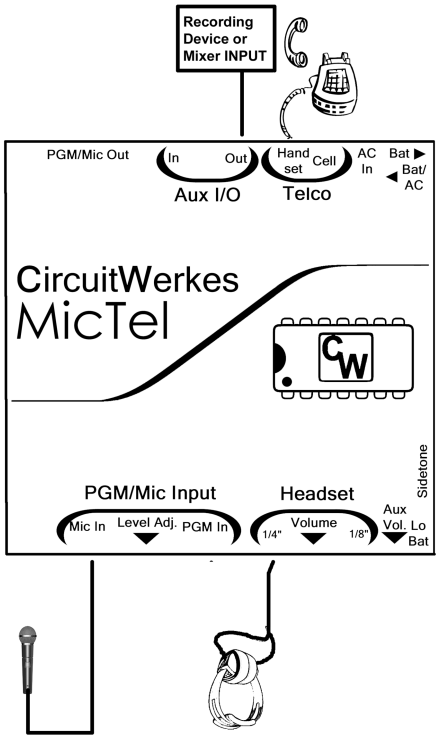
Figure 7

Before making connections, see “Installing Batteries” on page 4.

1. Set up your MicTel as described in “General Use” (page 9) and shown in Figure 7.
2. Plug the Aux I/O Out on the MicTel to the input of the desired recorder (PC, VTR, Tape, etc.).
3. Select BAT/AC or BAT operation to turn the unit on.
4. Set the Level Adj. control for the desired output level.

In this configuration you will be able to feed both the telephone line and your recorder. If you have your own mixer, please refer to figure 4 which will provide superior performance and flexibility.

OPERATION - TO RECORD INTERVIEWS (BOTH SIDES OF A PHONE CONVERSATION)



This configuration is used for recording both sides of the telephone conversation such as would be done for a live interview. Note that the recording device (tape recorder, Digital Audio Recorder, PC, etc.) is connected to the **AUX Output** –not the PGM Output.

The Aux Output contains both the local mic and the caller's audio mixed together. The setting of Jumper JP12 & the sidetone control setting will affect the mix. Be sure also to set JP9 to match your recorder's input type.

JP9 should be set to match the MicTel's Aux output to your equipment's input type. If you are driving an unbalanced, stereo input like the line input of a PC's sound card, set JP9 to the "B" position. If you are driving balanced equipment like a broadcast mixer console, use the "A" position. If your recorder is unbalanced mono, like a portable cassette recorder, remove JP9 completely.

Figure 8

Before making connections, see "Installing Batteries" on page 4.

1. Set up your MicTel as described in "General Use" (page 9) and shown in Figure 8.
2. Patch the Aux I/O Out of MicTel to the input of your recorder.
3. Select BAT/AC or BAT operation to turn the unit on.
4. Adjust the Aux Vol control for the desired output level.

Note: The Headset volume level control adjusts your headset volume only and will not affect actual levels coming from the telephone line.

OPERATION - USING MICTEL AS A MIC-TO-LINE DRIVER OR HEADSET AMP

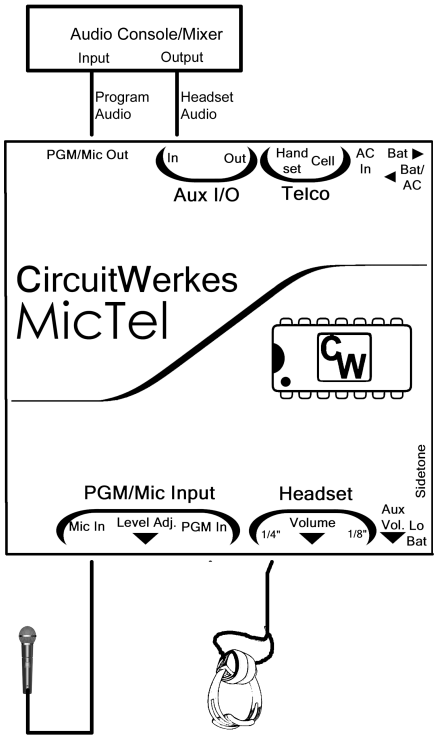


Figure 9

In this configuration, the MicTel is used as a remote amplifier and is connected to a larger console, perhaps in a press box at a stadium or in another studio or venue. The MicTel user is feeding a line level back to the master mixer and is receiving an IFB feed from the main mixer so that the MicTel talent can hear the cues from the main studio. This configuration can be varied, by using a mix-minus feed from the main studio, so that the MicTel user or guest can be asked direct questions from the main studio during an interview.

Be sure to set JP6 as described in figure 5.

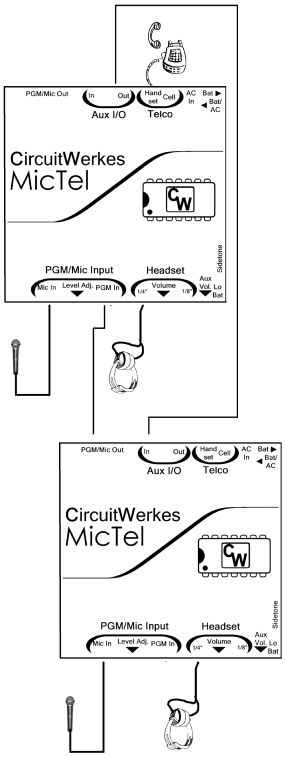
Before making connections, see “Installing Batteries” on page 4.

1. Plug the microphone into the Mic XLR jack.
2. Plug the headsets into the Headset jack.
3. Connect audio source to the Aux I/O In of the MicTel.
4. Feed the program audio by connecting the Aux I/O out (or the PGM out) to your console, speaker, etc.
5. Select BAT/AC or BAT operation to turn the unit on.

OPERATION - TWO-TALENT SPORTS OR REMOTE SETUP

Figure A

Figure B



The two-MicTel setup lets two announcers work a remote. Each talent will have their own mic level control and headphone volume control. Each talent will be able to hear the other as well as any questions or cues that are received from the phone line.

In this configuration, the MicTel in Figure A is the master and controls the send level for both MicTels. The Figure A MicTel's aux level control also determines the level received at the headphones of the Figure B MicTel.

Figure 10

NOTE: This requires two MicTel units.

Before making connections, see "Installing Batteries" on page 4.

1. Set up MicTel "A" for general use as shown in Figure 10.
2. Patch the Aux I/O Out on MicTel "A" to the Aux I/O In on the MicTel "B".
3. Patch the PGM/Mic Out on MicTel "B" to the PGM In on MicTel "A".
4. Connect mic and headsets to MicTel "B" as shown in figure 10. The two units will now talk to each other and will feed audio down one telephone line.
5. If an additional feed source such as a tape is desired, plug it into the Aux I/O In on MicTel "B".
6. Select BAT/AC or BAT operation to turn the unit on.

In this configuration you will be able to hear both the telephone audio and the audio coming from your auxiliary source.

OPERATION - CELL PHONE

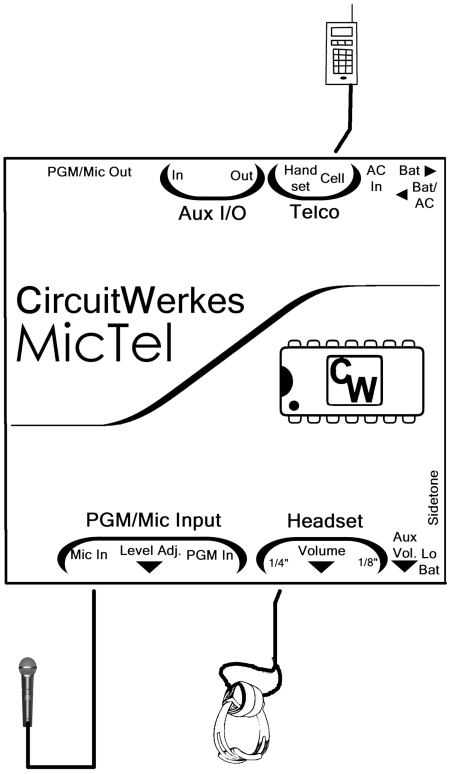


Figure 11

Before making connections, see “Installing Batteries” above on page 4.

1. Plug your Cell telephone Headset/Mic cord into the 2.5” mini cell jack on the back of the MicTel using Figure 3 for reference and the other end into the Headset/Mic jack of your cell phone.

2. Plug in your microphone into the Mic In XLR connector.

3. Plug your headphones into the Headset jack.

4. Select BAT/AC or BAT operation to turn the unit on.

5. Adjust the microphone using PGM/Mic Input Level Adjust knob.

6. Adjust the Headset level by using Volume Level Adjust knob.

You now have the equivalent of a telephone handset and may use your phone for normal calls, including dialing out. In this configuration, you have the added advantage of a good microphone and headset. Note that the cell phone volume control has an effect upon the received audio level.

SPECIFICATIONS *(SUBJECT TO CHANGE WITHOUT NOTICE)*

- Physical Dimensions: 6" L x 2-1/8" H x 5-1/16" W
- Weight: approx. 1.5 lbs without batteries.
- Power Supply Requirements: 12-16VDC or AC @ 200mA minimum. Polarity insensitive
  OR
- Two (2) 9V Alkaline Batteries, Battery life nominally 20-35 hours, depending on usage.
- Indicators: LED Low Battery Warning. Gives 15 to 45 minute battery life warning.
- Connectors:
  - Microphone — XLR – F (Balanced Input)
  - PGM/Mic Out — XLR - M (Balanced Line level)
  - PGM In — ¼' TRS (Balanced Line level)
  - Headset — ¼" and 1/8" Unbalanced
  - Aux I/O In & Out — ¼" TRS (Balanced Line level)
  - Handset — RJ-9
  - Cellular — 2.5" mini TRS (tip = send, ring = rcv)
  - Power jack — One standard 5.5mm barrel with 2.1mm id
- Audio Amplifier:

Input	Level	Impedance
Mic	-60dBm	>300 Ohms balanced
PGM	-10 dBm	>10k Ohms balanced
Aux I/O In	-10 dBm	>10k Ohms balanced
Output	**Level**	**Impedance**
Headset	+4 dBm	8 Ohms min
Mic/PGM Out	+10 dBm (50Hz - 14kHz)	600 Ohms
Aux I/O Out	+10 dBm (50Hz - 15kHz)	600 Ohms
Handset Transmit	-3 dBm Max (300Hz - 3kHz)	600 Ohms

  - Distortion Less than .5%
- Limiter:
  - Threshold Level = +3 to +5dBm at MicTel's Output
  - Slope = .2dB of output per 1dB rise at input
  - Maximum compression = 20dB
  - Maximum distortion at 10dB of limiting = less than 1%
- Power:
  - Two 9Volt Alkaline batteries or 12-16Vdc external power w/auto-switched backup
  - Nominal current consumption
    - 55mA at full output
    - 22mA at idle current