

CONNECT SYSTEMS INCORPORATED

1802 Eastman Ave., Suite 116
Ventura, Ca. 93003

Phone (805) 642-7184
Fax (805) 642-7271

FLEX SERIES UNIVERSAL CONTROLLER

MULTI-MODE PHONE PATCH AND PAGING TERMINAL

User's Instruction Manual

Made in U.S.A.

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GENERAL DESCRIPTION

The FLEX SERIES MULTI-MODE PHONE PATCH AND PAGING TERMINAL by Connect Systems Inc. is a fully automatic simplex and duplex radiotelephone interconnect terminal and paging terminal. A built-in LCD digital display allows the user to obtain the maximum power from the on-board microprocessor. All features are user programmable and/or selectable.

SETTING EVERYTHING BACK TO FACTORY DEFAULT

If for some reason it is necessary to set the system back to factory default, plug a telephone into the programming jack in the back of the unit and enter the command ****123456****. You cannot disable the factory reset from working over the local programming jack.

GETTING INTO PROGRAMMING MODE

This product allows the user to unconditionally get into programming mode by pressing **##123456#** from the telephone attached to the programming jack in the back of the unit. Because the user has physical access to the unit at this time, security codes is not an issue. Remote access requires the use of a security code programmed in the unit.

DIFFERENT PROGRAMMING AREAS USED

This product uses the following programming areas:

- Global Parameters
- Speed Dialing
- Speed Calling
- Voice Prompts

GETTING ADDITIONAL INFORMATION

The web site at www.connectsystems.com has the user programming manual and the hardware reference manual. These manuals should be used in conjunction with this manual.

DIAGNOSTIC MODE

COS, SENSE, SQUELCH

By putting a jumper into JP9, the system will allow the user to determine the value to set the SENSE and COS inputs as well as adjust the squelch pot if COS is not used. When in this mode, the display will look as follows:

```
-----  
|S|Q|U|E| | |C|O|S| | |S|E|N|S|E|  
-----  
|O|F|F| | | |1|3|7| | | |2|3|5| |  
-----
```

To generate the inactive value, the user releases the PTT on the mobile radio used for testing and observes the display. To generate the active value, the user presses the PTT on the mobile radio used for testing and observes the display. The value for the trigger voltage for the appropriate parameter is a value between the two values observed on the display.

The squelch pot is used for proper adjustment of the "SQUE". The results will be either on or off.

DTMF

By putting a jumper into JP7, the system will allow the user to determine if the system is decoding DTMF properly. The bottom line of the display will be used for decoding DTMF tones from the radio and the top line will be used for decoding DTMF tones from the programming jack in the rear of the unit.

FACTORY TEST

By putting a jumper into JP8, the factory test is performed. This allows Connect Systems Incorporated to do a complete test of the hardware with just a minimal amount of test equipment. The details will not be released until a later version of the manual.

GLOBAL PARAMETERS

TO PROGRAM

|
V

TO DISPLAY

|
V

Programming Parameters

TELCO PROGRAMMING

*0000#01#J#

0000#01

J = 0 = Disabled J = 1 = Enabled

Default = 1

When enabled, the controller will allow a person to call in via the telephone and program the various parameters. If disabled, the controller will ignore any attempt to program the parameters via the phone line.

RADIO PROGRAMMING

*0000#02#J#

0000#02

J = 0 = Disabled J = 1 = Enabled

Default = 1

When enabled, the controller will allow the parameters to be programmed by radio. If disabled, the controller will ignore any attempt to program the parameters via radio.

PHONE PROGRAMMING

*0000#03#J#

0000#03

J = 0 = Disabled J = 1 = Enabled

Default = 1

When enabled, the controller will allow the parameters to be programmed by a telephone plugged into the programming port in the back of the controller. If disabled, the controller will ignore any attempt to program the parameters via a telephone plugged into the back of the controller.

COMPUTER PROGRAMMING

*0000#04#J#

0000#04

J = 0 = Disabled J = 1 = Enabled

Default = 1

When enabled, the controller will allow the parameters to be programmed by a RS232 connection from a computer. If disabled, the controller will ignore any attempt to program the parameters via a RS232 connection from a computer.

PROGRAMMING MODE ACCESS CODE *0000#05#MMMMM#

0000#05

MMMMM = 000000 - 999999

Default = 123456

Code must be precisely six digits. This code is used to enter the programming mode from all sources.

Level Control

DTMF TELCO LEVEL

*0000#06#MMM#

0000#06

MMM = 0 - 255

Default = 255

This is the level the DTMF will be transmitted over the telephone line.

RADIO VOX RELEASE TIME ***0000#37#MM#** ***0000#37***
MM = 0 - 99 in 100 millisecond increments Default = 10
This parameter is the time Radio VOX must be invalid before the system will consider the signal no longer valid. This is to prevent temporary lapses in conversation from changing the mode. The default Radio Vox Release Time is 1 second.

Telephone Vox Parameters

TELEPHONE VOX ACQUISITION TIME ***0000#38#MM#** ***0000#38***
MM = 0 - 99 in 1 millisecond increments Default = 0
This parameter is the time Telephone VOX must be valid before the system will consider the signal is valid. This is to prevent noise from trigger the system.

TELEPHONE VOX RELEASE TIME ***0000#39#MM#** ***0000#39***
MM = 0 - 99 in 100 millisecond increments Default = 10
This parameter is the time Telephone VOX must be invalid before the system will consider the signal no longer valid. This is to prevent temporary lapses in conversation from changing the mode. The default Telephone Vox Release time is 1 second.

OPERATING MODE SELECTION

OPERATING MODE ***0000#40#M#** ***0000#40***
M = 0 - 2 Default = 0
This parameter determines the mode the interconnect is in as follows:

- 0 = VOX
- 1 = Half Duplex
- 2 = Full Duplex

VOX MODE PARAMETERS

RxVOX OR CARRIER CONTROL ***0000#41#J#** ***0000#41***
J = 0 = Carrier, J = 1 = RxVOX Default = 1
Select RxVOX (Radio Vox) for operation through remotely located repeaters. Select CARRIER for simplex phone patch operation only. In CARRIER, the telephone party cannot key the base transmitter while the mobile is talking.

VOX ACTIVITY ***0000#42#MM#** ***0000#42***
MM = 0 - 99 in 1 minute Increments Default = 0
This feature determines how long the system will stay connected if there is no vox from either the telephone or the radio. If set for 0, the function is disabled.

ACCESS DELAY *0000#57#MM# *0000#57*
MM = 1 - 99 in 100 millisecond increments Default = 30
Access delay is a user selectable delay to compensate for PTT hang after pressing a DTMF key on mobile and portable radios. Select a value that allows you to hear all of the DTMF from the programming mode without losing any characters. The Access Delay default is 3 seconds.

ACTIVITY TIMER *0000#58#MM# *0000#58*
MM = 0, 10-99 in second increments Default = 30
If the phone activity on the patch exceeds the time specified, then the patch will turn off. A value of 0 disables the feature. The Activity Timer default is 30 seconds

TIMEOUT TIMER *0000#59#MM# *0000#59*
MM = 0 - 99 in minute increments Default = 3
Selects the maximum call limit time. A value of 0 disables the feature. The Timeout Timer default is 3 minutes.

PTT AUTO DIAL *0000#60#N# *0000#60*
N = 0,3 - 9 (3 - 9 Clicks) Default = disable
If enabled, 3 - 9 clicks of the mobile mike button (at about one per second) will automatically send the phone number stored in speed dial memory location 1. Three to nine subsequent presses will cause a disconnect.

PTT AUTODIAL MINIMUM TIME *0000#61#MM# *0000#61*
MM = 5 - 99 in 100 mS increments Default = 5
This is minimum time between clicks for the system to recognize the clicks as valid. The PTT Autodial Minimum Time default is 500 milliseconds.

PTT AUTODIAL MAXIMUM TIME *0000#62#MM# *0000#62*
MM = 5 - 99 in 100 mS increments Default = 15
This is maximum time between clicks for the system to recognize the clicks as valid. The PTT Autodial Maximum Time default is 1.5 seconds.

STATION IDENTIFICATION *0000#63#N# *0000#63*
N = 0 - 7 Default = 0
If station identification is enabled, this parameter defines what voice message number to use.

STATION IDENTIFICATION MODE *0000#64#N# *0000#64*
N = 0 - 3 Default = 1
If 0, no station identification. If 1, then station identification on disconnect only. If 2 station identification on connect only, if three, station identification on both connect and disconnect.

BUSY SIGNAL DISCONNECT *0000#65#J# *0000#65*
J = 1 = Enable, J = 0 = Disable Default = 1
If enabled, a busy signal will disconnect the phone patch. If disabled, busy signal is ignored.

BUSY DISCONNECT CYCLES ***0000#66#N#** ***0000#66***
N = 2 - 9 in 100 mS increments Default = 7
This is the number of busy cycles for the system to disconnect if
the busy signal disconnect parameter is enabled.

DIAL TONE DISCONNECT ***0000#67#J#** ***0000#67***
J = 1 = Enable, J = 0 = Disable Default = 1
If enabled, a dial tone will disconnect the phone patch. If
disabled, dial tone is ignored.

DIAL DISCONNECT TIME ***0000#68#MM#** ***0000#68***
MM = 20 - 99 in 100 mS increments Default = 70
This is the time the dial tone must be active for the system to
disconnect if the dial tone disconnect parameter is enabled.

LINE CURRENT DISCONNECT ***0000#69#N#** ***0000#69***
N = 0 - 2 Default = 1
Most phone systems will give a loss of loop current or line
reversal when the phone at the far end hangs up. This is more
reliable than waiting for dial tone or busy signal to generate a
disconnect.

0 = Disable
1 = Disconnect on loss of loop current
2 = Disconnect on line reversal

LINE DELAY ***0000#70#MM#** ***0000#70***
MM = 0 - 99 in 10 millisecond increment Default = 99
This parameter is the time after the line relay has been pulled in
to the line is steady as indicated by a constant current in the
line sense detectors. The Line Delay default is 990 milliseconds.

LINE DISCONNECT TIME ***0000#71#MM#** ***0000#71***
MM = 0 - 99 in 1 millisecond increment Default = 5
This parameter is the time the loss of loop current must be stable
to indicate it's a real disconnect and not just a momentary
glitch. The Line Disconnect Time default is 5 milliseconds.

TELCO COURTESY BEEP ***0000#72#J#** ***0000#72***
J = 1 = Enable, J = 0 = Disable Default = 0
If enabled, the system will generate a momentary beep when the
radio side stops transmitting and its time for the telephone side
to start speaking.

INCOMING CALLS

BUSY CHANNEL MONITOR ***0000#73#J#** ***0000#73***
J = 1 = Enable, J = 0 = Disable Default = 0
If enabled, the system will not ring out or auto-answer until the
channel is clear for three seconds.

REPEATER ENABLE***0000#104#MMM#*****0000#104***

MMM

Default=123

Allows enabling and disabling of the repeater function. #MMM
enables the repeater and ##MMM disabled the repeater.

PHONE LINE DETECT***0000#105#J#*****0000#105***

J = 0 - 1

Default= 1

Enables or Disabled the phone line detect logic. Might have to be
disabled on VOiP phone lines.

SPEED DIAL PARAMETERS

TO PROGRAM

|
V

TO DISPLAY

|
V

Programming Parameters

SPEED DIAL NUMBER

***40NN#01#TTT..T#**

40NN#01

TTT..T is the 1-16 digit speed dial number

default = blank

This area is used for programming the speed dial numbers. Up to 100 different speed dial numbers can be programmed. Each speed dial number can be from 1 to 16 digits long.

SPEED CALLING PARAMETERS

TO PROGRAM

|
V

TO DISPLAY

|
V

Programming Parameters

SPEED CALLING NUMBER

***50NN#01#PPP..P#**

50NN#01

PPP..P is the paging sequence

default = blank

This area is used for programming the paging parameters. Up to 100 different page numbers can be programmed. A page can consist of a CTCSS page, DCS page, DTMF page, Two Tone page, Selcall page, etc. See programming manual available on the web site for details.

VOICE PROMPT PARAMETERS

TO PROGRAM

|
V

TO LISTEN

|
V

Programming Parameters

VOICE PROMPT

***7000#N#**

7000#N

N = 0 - 7

This area is used for programming the voice prompts. Up to 8 different voice prompts can be programmed. Playback is always over the radio connection (Audio Out, Pin 4 of terminal block). If programming was initiated from the telephone line, the playback is also over the telephone line. If N is between 0 and 4, the record time is up to 9 seconds. If N is between 5 and 7, the record time is up to 25 seconds.

OPERATION

PLACING OUTGOING CALLS

DIALING A CALL MANUALLY: From the mobile press *, then enter the access code (if any) that was selected. If the access delay is properly set, you will hear a dial tone without clipping or delay. In VOX mode wait until the dial tone drops off before you start to dial. In duplex mode you may begin dialing as soon as you hear the dial tone. After dialing, the next thing heard will either be ringing or a busy signal. If busy signal disconnect is enabled, the interconnect will automatically disconnect if the number that was called is busy.

MANUAL DIALING WHEN SECOND DIALTONE IS REQUIRED:

Tone dial: Dial the first portion plus a * after the first dial tone drops. Wait until the second dial tone is heard and drops and then dial the remaining portion. Example; You need to call 555 3456 after dialing an 8 for long distance. Simply dial 8* after the first dial tone drops and 555 3456 after the second dial tone drops. A beep is heard about every six seconds while waiting for the second dial tone.

Note: Third or more dial tones can also be accommodated by simply adding a * after each group requiring a wait for another dial tone. Do not append a * on the final group or you will be forever waiting for another dial tone.

CALL WAITING: If line in use detection has been enabled, the interconnect checks to see if the line is in use when a mobile attempts access. If the line is free the mobile will hear dial tone and can proceed with his call. If the line is in use, the interconnect will send a special busy signal to the mobile and revert to the stand-by condition. At the same time, Call Waiting beeps let those using the line know that a mobile unit would like to use the line. When the telephone users hang-up, beeps let the mobile know that the line is now free to use.

PLACING A CALL WITH THE SPEED DIALER: Once a phone number has been stored, calling back is a snap! Simply precede the access code with the appropriate memory location number. Soon, your intended number will be ringing. Example: Your access code has been set as * only. You wish to call a friend whose phone number has been previously stored in location 24. Simply enter 24 * on your mobile keypad. Another example: Your access code is *391, and you wish to speed dial the number in memory location No. 7. Enter 7*391, that's all there is to it!

Note: An error message consisting of eight beeps will be heard if you attempt to speed dial an unused memory location.

LAST NUMBER REDIAL: The last phone number called is always automatically stored at speed dial memory location NO. 0. To

redial the last number called, simply precede the access code with 0. Similar to using the speed dialer. e.g. 0*, 0*391 etc.

HOOK FLASH: The interconnect has built-in hook flash logic to operate certain phone company provided features. To flash, simply press * three times (***). **WARNING:** The 570 ms. (on-hook) flash can cause a disconnect on some phone lines.

ACTIVITY TIMER: Once your number has been dialed, the activity timer starts operating.

Duplex Modes: The activity timer is constantly reset while the mobile is transmitting, and starts timing when the mobile stops transmitting. Upon hearing timeout warning beeps, a brief press of the mobile Mic button (must be long enough for acquisition in sampling mode) resets the activity timer. Failure to reset will result in a disconnect.

Vox Mode: The activity timer measures phone line audio activity. Phone line activity causing a single transmission exceeding the time set will cause the interconnect to disconnect and the call in progress will be lost.

TIMEOUT TIMER: Calls will automatically disconnect at the end of the time you selected. The timeout timer can be reset by the mobile by pressing *.

DISCONNECTING WHEN THROUGH: If a blank was entered in parameter 56 simply press # to disconnect. For any other number, press # plus the disconnect code.

PTT PRESS AUTO DIAL: If a number other than "0" was entered in parameter 60, the phone number residing in speed dial memory location No. 1 can be automatically dialed by pressing the mobile Mic button the specified times in succession. When the call is finished, the same amount of presses will cause disconnect. **WARNING:** If you press too fast or too slow the interconnect will not respond. The correct rate is about one press per second. This timing is required to keep rapid mobile fading and normal on channel Mic button pressing from falsing the patch on and/or off. The ring cutoff time if enabled is used to automatically disconnect the system if the user can't disconnect manually because the system is always transmitting.

INCOMING CALLS

RINGOUT: Parameters 73 through 76 allow you to customize ring out for your application. Ring out is how the interconnect alerts you to the presence of an incoming call.

When a call comes in, the interconnect first checks to see if the channel is in use. The incoming rings are counted before a mobile alert is sent. The alert can consist of a Ring Tone that sounds like a telephone ringing or a paging sequence. The user

programmable DTMF sequence can be used to operate attention getters such as a horn honker. The type of alert selected can be set to occur only once, every ring, or on alternate rings of the incoming call.

To answer your call from the mobile, simply enter your access code. When you complete your call, send the disconnect code.

AUTO ANSWER: The interconnect must be set to automatically answer incoming calls if you wish to use manual paging.

OPERATION THROUGH REPEATERS OR TRUNKED SYSTEMS

(Only possible in the VOX mode)

Operating the interconnect through a repeater appears to the user as straight simplex operation. It makes no difference if the repeater is DPL/CTCSS or carrier activated, or if the repeater has hang time. Actually, three or four seconds of hang time will improve operation because there will be fewer noises to distract the conversation.

The voice delay board is highly recommended when using the interconnect through repeaters to eliminate word clipping or loss.

Note: See comments on setting the RX VOX control as previously discussed.

CALL PROGRESS TONE DETECTION

CALL PROGRESS TONE DETECTION: The interconnect incorporates very sophisticated software algorithms that automatically sense the presence of dialtone and/or busy signals. The method used will function with any tone frequencies. There is nothing to adjust or maintain, it's completely automatic!

You can selectively enable or disable busy signal disconnect and dialtone disconnect for special applications.

Programming allows customizing call progress tone detection to operate on most any telephone system.

TYPICAL APPLICATIONS FOR THE AUXILIARY RELAY

Remote CTCSS Enable/Disable: When using the interconnect as a Remote Base, it is desirable to monitor the channel for activity prior to dispatching. The auxiliary relay can be used to allow the remote switching of the radio's hook switch. Pressing 0 turns the

relay on. Pressing * turns the relay back off. Thus the radio can be set to carrier receive and back to DPL/CTCSS operation remotely.

Enter 1 (Monitor) in parameter 84 Connect the normally closed relay contacts (W and NC) in series with the radio's hook switch.

Disabling tone squelch: Many of the new microprocessor controlled radios will not transmit when the microphone is on hook. The auxiliary relay can be used to fool the radio into thinking the MIC is off-hook.

Enter 0 (Connect) in parameter 84 This will energize the relay whenever the interconnect is in use. Connect the normally closed contacts (W and NC) in series with the radio's hook switch.

Relay Switched PTT: If the radio's unkeyed PTT voltage exceeds 16 VDC or if inverted keying is required (closure to 12V) the auxiliary relay must be used to key the transmitter.

Enter 2 (KEY) parameter 76. Connect the radio's PTT line to one of the Aux. Relay contacts on the rear barrier strip. Connect the other Aux. Relay contact to 12 VDC for inverted keying or to GND for sink to ground keying. The PTT connection on the rear barrier strip should not be connected.

Remote Relay Function: In some installations it may be desirable to remotely control (switch) something from the mobile. e.g. change channels, change CTCSS tones, change antennas etc.

Enter 3 (REMOTE FUNCTION) in parameter 84. Then select a three digit control code. If the code selected was 789, you would turn on the Remote Relay by sending #789. To turn off the relay send ##789.

CONNECTING THE RELAY

Connect the device requiring remote control to the two terminals labelled 'AUX. RELAY' on the rear panel barrier block. The interconnect is supplied with the relay strapped for normally open operation.

LIMITED WARRANTY

Connect Systems Inc. (CSI) hereby warrants our products to be free from defective workmanship for a period of one year and defective parts for a period of one year from date of sale to the initial end user. This warranty applies only to the original consumer/end user purchaser of each FLEX SERIES CONTROLLER. During the first year of warranty, CSI will repair any of its products at no charge providing the defective unit is shipped prepaid and service is performed by CSI. Conventional prevailing labor and shipping charges will apply following the end of the first year. CSI, at its sole discretion, will replace defective parts on an exchange basis for the first year of ownership by the original purchaser. All shipping cost are the responsibility of the customer.

What is not covered by this limited warranty:

This warranty shall not apply, if, in our judgment the defects are caused by misuse, lightning strikes, customer modification, water damage, negligent use, improper installation, overloads caused by external voltage fluctuations, use of unregulated power supply, damage caused by transit or handling or an abusive treatment not in accordance with ordinary product use or the product serial number has been removed, altered, or defaced. **Specific Exclusion:** This warranty specifically excludes lightning protection devices (MOVs and phone line fuses) and transistors in the PTT (Push to Talk) circuitry. These components can only fail from external abuse.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, STATEMENTS OR REPRESENTATIONS, AND UNLESS STATED HEREIN, ALL SUCH WARRANTIES, STATEMENTS OR REPRESENTATIONS MADE BY ANY OTHER PERSON OR FIRM ARE VOID. ALL IMPLIED WARRANTIES IN CONNECTION WITH THE SALE OF THIS EQUIPMENT, INCLUDING THE WARRANTY OF MERCHANTABILITY, SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LAST, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN THE EVENT OF PRODUCT FAILURE WHICH PROVES TO BE CAUSED BY A DEFECT IN WORKMANSHIP OF MATERIALS, YOUR SOLE REMEDY SHALL BE THE REPAIR OF THE DEFECT BY CSI OR ITS APPOINTED REPAIR STATION AS STATION AS STATED IN THIS WARRANTY, AND UNDER NO CIRCUMSTANCES SHALL CSI BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE, OR INABILITY TO USE, THIS PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

If your new CSI product shall ever fail, contact Connect Systems Inc. Customer Service Dept. for repair and warranty information at (805) 642-7184

Note: Connect Systems Inc. reserves the right to render a modest service charge when returned units are found to be free of parts or workmanship defect(s) (i.e. operating to factory specification) within the first year of warranty. Such units will be returned freight collect to the sender, including the appropriate service charge.

APPENDIX A

FCC NOTICE TO USERS

1. This equipment complies with part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.
2. The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive REN's on the telephone line may result in the device not ringing in response to an incoming call. In most, but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be attached to the line, as determined by the total REN's contact the telephone company to determine the maximum REN for the area.
3. If this product causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe necessary.
4. The telephone company may make changes in it's facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this should happen, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.
5. If trouble is experienced with this product, please contact Connect Systems Incorporated at (805) 642-7184 for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.
6. There are no repairs that can be accomplished by the user. In the event of operation problems, disconnect your unit by removing the modular plug from the telephone company modular jack. If your regular telephone still works correctly, your unit has a problem and should be returned for repairs (in or out of warranty). If upon disconnection of your unit there is still a problem on your line, notify the telephone company that they have a problem and request prompt repair service. The unit may be returned to Connect Systems Incorporated, 2259 Portola Rd. Ventura, CA 93003.

7. This interconnect product cannot be used on a public coin service provided by the telephone company. Connect to Party Line Service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
8. This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference which may cause undesirable operation.
9. This equipment generates and uses radio frequency energy and if not installed and used properly, i.e. in strict accordance with the service manual, may cause interference to radio or television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a residential installation.
10. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - a. Reorient the receiving antenna.
 - b. Relocate the equipment with respect to the receiver.
 - c. Move the equipment away from the receiver.
 - d. Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
 - e. Ensure that card mounting screws, attachment connector screws, and ground wires are tightly secured.
 - f. If cables not offered by this company are used with this equipment, it is suggested that you use shielded, grounded cables with in line filters, if necessary.
 - g. If necessary consult your dealer service representative for additional suggestions.
11. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

REVISION HISTORY

July 06, 2003 (Version 1.00) First Release

July 20, 2003 (Version 1.01) Added Diagnostic mode

July 30, 2003 (Version 1.02) Added DTMF decoding Diagnostic Mode

August 7, 2003 (Version 1.03) Added Parameter 96 in global parameters to allow the user to generate a courtesy tone over the radio when the user stops speaking over the telephone.

August 8, 2003 (Version 1.04) Added parameter 97 to allow the user to select a code for changing the auxiliary relay over the telephone or the radio using DTMF. Changed Parameter 84 to incorporate two additional relay modes.

September 9, 2003 (Version 1.05). Added parameter 98 to allow the system to automatically disconnection using PTT dialing in the simplex mode.

September 17, 2003 (Version 1.06). Added Parameter 99 to allow the unit to generate a voice message over the air before speed calling and PTT calling.

October 23, 2003 (Version 1.07). Added Parameter 100 for telephone vox inactivity and Parameter 101 for radio inactivity.

November 4, 2003 (Version 1.08). Added Parameter 102 for manual mode in the simplex mode.

December 9, 2003 (Version 1.09). Changed the number of paging numbers from 1000 to 100.

January 21, 2004 (Version 1.10). Fixed many typo's spotted by customers. Gave additional information on programming voice prompts. Changed parameter 92 to be in increments of 10 milliseconds instead of 1 mS. Affects software version 1.17 and later only.

June 1, 2004 (Version 1.11). Parameter 22 default should be 255. Previous version showed it as 50. Parameter 23 default should be 255. Previous version showed it as 50. Added parameter 103 to allow the busy line detect to be enabled or disabled.

July 20, 2009 (Version 1.12). Added Parameter 104 and 105. Parameter 105 might be needed for VOiP phones.