

G-TEL
Enterprises, Inc.

payphone.com

G-TEL 1000



Instruction Manual

Version 4.6 Firmware DA2002

Includes Instructions on Installation, Programming, & Troubleshooting

2002 G-TEL Enterprises, Inc.

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INTRODUCTION

This phone has been specifically configured for Semi-Public applications. Responsibility for the type of use of the phone, call rates, and any federal, state, or local regulations are at the sole discretion of the telephone owner. It is recommended that you contact your state PUC (Public Utilities Commission) or PSC (Public Service Commission) regarding questions about product application.

Your Payphone's Programming

Your payphone has been pre-programmed to your request by G-TEL & should be ready to work once it has been properly installed. **Please note that there is a \$25.00 fee for G-TEL to reprogram rate changes to your phone.** For instructions on how to make rate changes yourself, please see the programming section of this manual. If you were unable to provide us with your programming request at the time of your order, please see page 9.

Coin Box Overfilling Prevention

It is strongly recommended that you establish & use the Coin Box Amount Security Code feature to prevent the coin box from over-filling. The coin box amount should not exceed \$150.00. **Over-filling of the coin box can lead to the malfunction of several major components of the payphone.** Information of the Coin Box Amount Security Code can be found on page 13. You can record your Coin Box Amount Security Code below.

Coin Box Amount Security Code: * # _____

Technical Support

G-TEL Enterprises, Inc. offers technical support via telephone & Internet only. **Before trying to contact G-TEL Technical Support, we strongly advise that you read the portion of the manual related to your support needs so that a technician will be able to better assist you.**

G-TEL Technical Support via e-mail: support@payphone.com

G-TEL Technical Support via phone: 1-800-884-4835

Repair Department

Most problems that may occur with your payphone can be resolved by contacting the G-TEL Technical Support department as described above. However, in cases where you are asked to send in a part or an entire phone to our repair facility, please note the shipping address for the G-TEL Repair Department.

**G-TEL Repair Dept.
16840 Clay Rd. #118
Houston, TX 77084**

MOUNTING INSTRUCTIONS

Mounting the Backboard or Enclosure

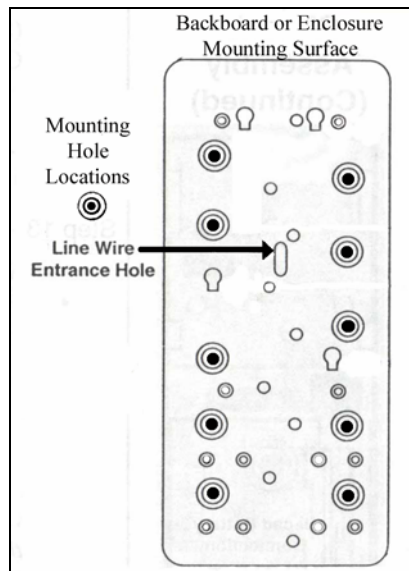
OUTDOOR INSTALLATION

If the payphone is to be installed outdoors, you must use an outdoor pedestal / enclosure to mount the payphone and to prevent weather deterioration. Outdoor pedestals can be mounted using concrete anchors. Outdoor wall-peds can be mounted using toggle bolts. The telephone cable should be routed to the pedestal using EMT conduit. Once the pedestal & enclosure is mounted, follow the instructions starting on page 4 to mount the payphone to the pedestal & enclosure.

INDOOR INSTALLATION

λ It is recommended to use 1/4" Toggle Bolts (with washers) to secure the backboard or enclosure to the wall. The length of the toggle bolt depends on the thickness of the wall. Anchor Screws may be used as an alternative to Toggle Bolts.

1. Ensure that the wall that the backboard or enclosure is to install to is flat & level.
2. The top height of the backboard or enclosure should be determined by the following:
Standard Height = 63" from floor Wheelchair Accessible = 54" from floor
3. Place the backboard or enclosure against the wall at the desired height & mark the Line Wire Entrance Hole & Mounting Holes to be used, (the backboard or enclosure offers 10 mounting holes, although not all 10 must be used.) Use the diagram below to ensure the backboard or enclosure is not upside down or backwards.
4. Drill through the marked holes on the wall using a drill bit similar to the size of the toggles being used.



5. Route the telephone line cable through the Line Wire Entrance Hole.
6. Insert each toggle bolt & washer through the mounting holes being used on the backboard or enclosure.
7. Secure the backboard or enclosure against the wall through the pre-drilled holes & tighten each toggle bolt.

MOUNTING INSTRUCTIONS

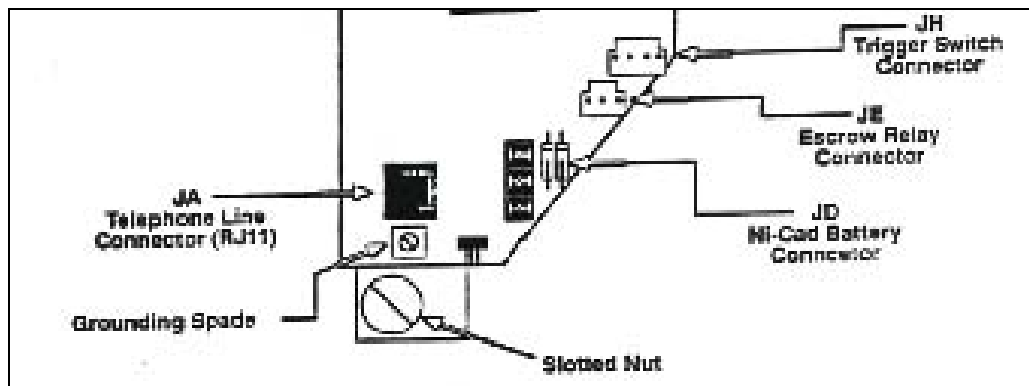
Separating the Upper & Lower Housing

1. Insert the upper housing key into the upper housing lock (located on the right side of the phone) & turn it 1/8 turn counter clockwise.
2. Insert the T-wrench key into the T-wrench insert (located approx. 6 inches above the upper housing lock) & turn it 1/8 turn clockwise, until you hear the phone 'snap' open.
3. Slide the upper housing away from the lower housing (make sure the upper housing cable is disconnected from the circuit board.)

Removing the Circuit Board Chassis

1. Disconnect the 4-wire Trigger Switch plug, (blue, red, white, & green plug.)
2. Disconnect the 3-wire Relay plug (green, red, & white plug.)
3. Disconnect the modular RJ11 Telephone Line connector.
4. Disconnect the circuit board Ground wire.
5. Loosen the Captive nut at the bottom left of the circuit board chassis.
6. Remove the circuit board chassis by carefully pulling down & away from the inside of the lower housing.

Circuit Board Lower View



MOUNTING INSTRUCTIONS

Removing the Coin Acceptor

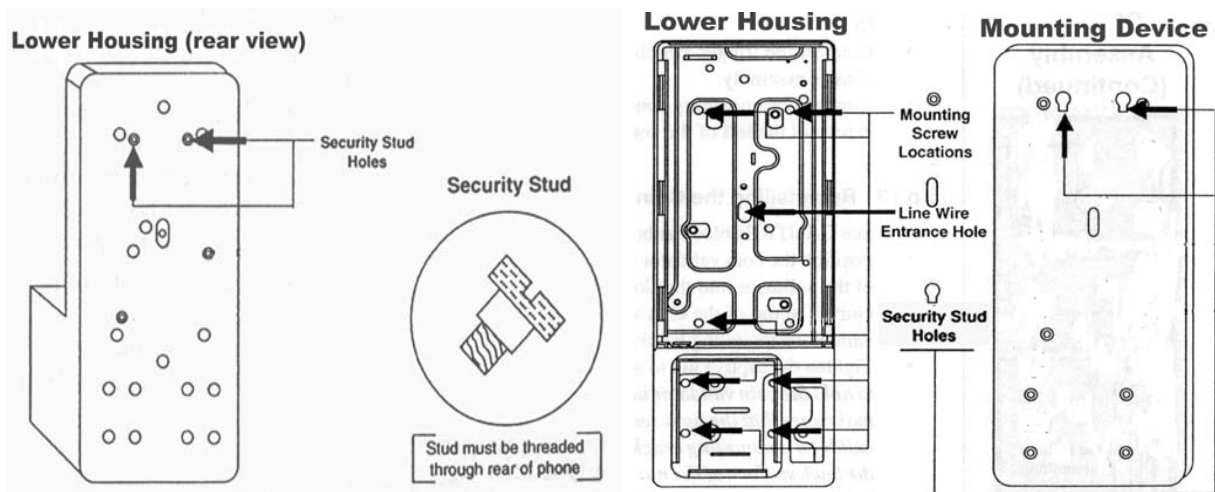
1. Remove the coin reject chute from the coin acceptor by loosening the screw that attaches the top of the reject chute to the bottom of the coin acceptor.
2. Loosen the slotted nut at the top rear of the coin acceptor.
3. Remove the coin acceptor by pulling it up & then outward, away from the inside of the lower housing.

Removing the Vault Door & Coin Box

1. Insert the lower housing key into the lock on the left side of the lower housing & turn it $\frac{1}{4}$ turn counter-clockwise.
2. Insert the T-wrench key into the vault door's vertical T-wrench key insert (located at the center of the vault door) & turn it $\frac{1}{8}$ turn clockwise.
3. Remove the vault door & the coin box from the vault area.

Securing the Lower Housing to the Mounting Device

1. Fasten two security studs to the rear of the lower housing. (If the mounting device you are installing to does not provide security stud holes, do not fasten security studs to rear of lower housing.)



2. Insert the telephone line cable through the line wire entrance hole.
3. Hold the lower housing against the mounting device and insert the security studs into the security stud holes. (If you are not using security studs, you must hold the lower housing against the mounting device while performing Step 4.)
4. Fasten four $\frac{1}{4}$ x 20 x $\frac{3}{4}$ mounting screws through the lower housing and into the mounting device.

MOUNTING INSTRUCTIONS

Reinstalling the Coin Box & Vault Door

1. Insert the coin box inside the vault area of the lower housing.
2. Make sure the lower housing key is in the unlock position.
3. Insert the T-wrench key into the vault door's vertical T-wrench key insert (located at the center of the vault door) & turn it ¼ turn clockwise.
4. Insert the vault door into the lower housing vault area & turn the T-wrench key ¼ turn counter-clockwise to secure it.
5. Turn the lower housing key clockwise to the lock position & remove the key.

Reinstalling the Coin Acceptor

READ TO INSURE PROPER COIN ALIGNMENT

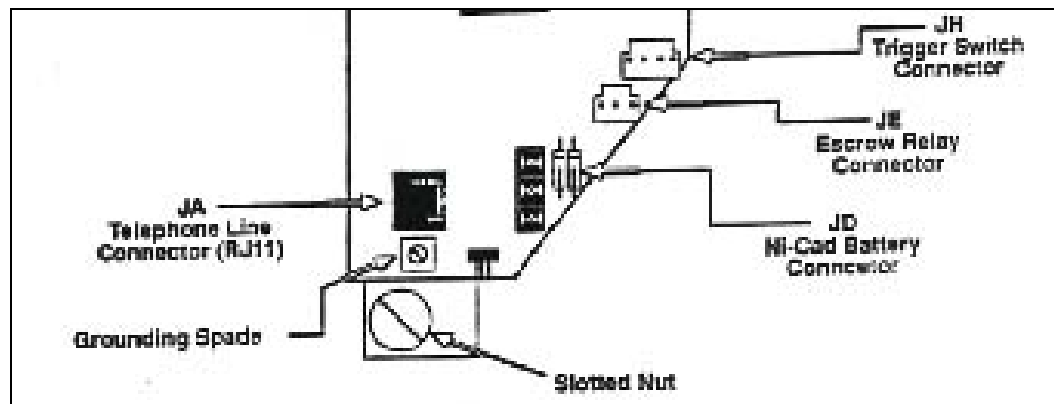
1. Before re-installing the coin acceptor, ensure that the trigger switch unit that the coin acceptor installs on top of is firmly secured into the trigger switch sleeve in the back of the lower housing, (the trigger switch should not be loose.)
2. Guide the tab at the bottom rear of the coin acceptor into the rear of the trigger switch.
3. Position the top of the coin acceptor bracket onto the rear lip of the coin acceptor slotted nut & then tighten the nut.
4. Reinstall the coin reject chute & secure the screw at the top of the reject chute to the bottom threads of the coin acceptor.

MOUNTING INSTRUCTIONS

Reinstalling the Circuit Board Chassis

1. Install the circuit board chassis by guiding the tab at the top, left of the chassis into the slot at the top, left of the lower housing. As you position tab, guide the captive nut onto the mounting stud of the lower left side of the lower housing & then tighten it.
2. Connect the 4-wire Trigger Switch plug to the 4-prong Trigger Switch connector.
3. Connect the 3-wire Relay plug to the 3-prong Relay connector.
4. Connect the RJ11 modular plug to the Telephone Line connector.
5. Connect the circuit board Ground wire to the middle right terminal of the terminal block.
6. Connect the Battery plug (black & red wire plug) to the Battery connector of the circuit board. **(The battery is not usually connected at the factory. To prevent the battery from draining, do not connect the battery until the telephone line is ready to be connected.)**

Circuit Board Lower View



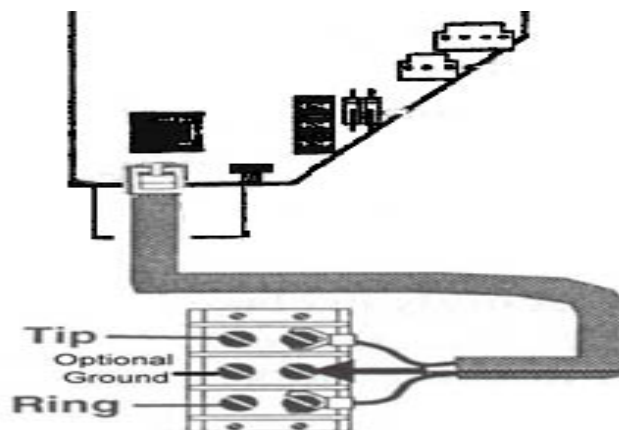
MOUNTING INSTRUCTIONS

Connecting the Telephone Line

A minimum of 22ma (& 44 VDC) loop current must be provided to the payphone from the Telephone Company's Central Office. In certain situations, due to the distance between the Central Office and the phone site, the loop current may not meet the required level of 22ma. If the loop current is below 22ma, dial tone may not occur or the phone may experience only momentary burst of dial tone. It is recommended that the loop current level at the phone be tested at this time to ensure that the required loop current level is present. Information on testing the loop current can be found on page 17.

1. It is recommended that standard telephone / communication cable (No. 22 gauge, 2 pair or greater) be used to connect the telephone line with the payphone. Telephone / Communication cable usually consists of 2 or more pairs of color-coded wire.
 2. Connect one pair of communication cable wire to the two points of the Telco interface box (D Marc location) that the telephone line originates from.
 3. Connect the opposite end of the same pair of wire to the top left & bottom left terminal screws, (terminal block is located on the base of the payphone's lower housing.)
 4. Connect a proper earth ground wire to the left middle terminal to ensure safety.
- λ If using a line cord with a modular RJ11 plug instead of telephone / communication cable, unplug the RJ11 pigtail connector from the Surge Protector & plug in your modular line-cord in place of it.*

Lower Circuit Board & Terminal Block View



Re-Connecting the Upper & Lower Housing

1. Connect the upper housing dial / hookswitch ribbon cable to the circuit board upper housing connector.
2. Make sure the upper housing key is in the unlock position & the "T" wrench key is in the open position, (all the way forward.)
3. Slide the bottom-lining of the upper housing along the lining of the lower housing until the two housings meet.
4. Turn the T-wrench key 1/8 turn counter-clockwise until it 'snaps' close & then remove both keys.

PROGRAMMING INSTRUCTIONS

Your Payphone's Programming

Your payphone has been pre-programmed to your request by G-TEL & should be ready to work once it is properly installed. The owner can make most programming changes by following the directions in this section. G-TEL provides programming downloads for a fee of \$25.00 per phone.

λ **If you were unable to provide us with your programming request at the time of your order**, please test the payphone to see if it charging acceptable amounts for local, toll, long distance, & other types of calls. By simply dialing any number, the payphone will give voice prompts of the required amount of money of the call if there is a charge. Below is a list of typical programming the payphone will usually contain if the customer was unable to provide us with programming request at the time of their order. Available programming changes that can be done by the owner can be found on pages 10 through 13. If you are experiencing problems with the current program settings or have questions on how to change the current programming, please contact G-TEL Technical Support by phone at 1-800-884-4835 or by e-mail at support@payphone.com .

Typical Pre-Sets for Payphones Not Pre-programmed to Customers Request

Local Calls	\$.35 every 15 minutes
Toll Calls (if applicable)	\$.50 every 3 minutes
Long Distance Calls within the U.S.	\$1.00 every 2 minutes
Information Calls	\$.75
1-800 Type Calls	Free
Incoming Calls	Free

λ **If you would like to edit the factory pre-set programming**, please see pages 10 through 13 for available programming changes.

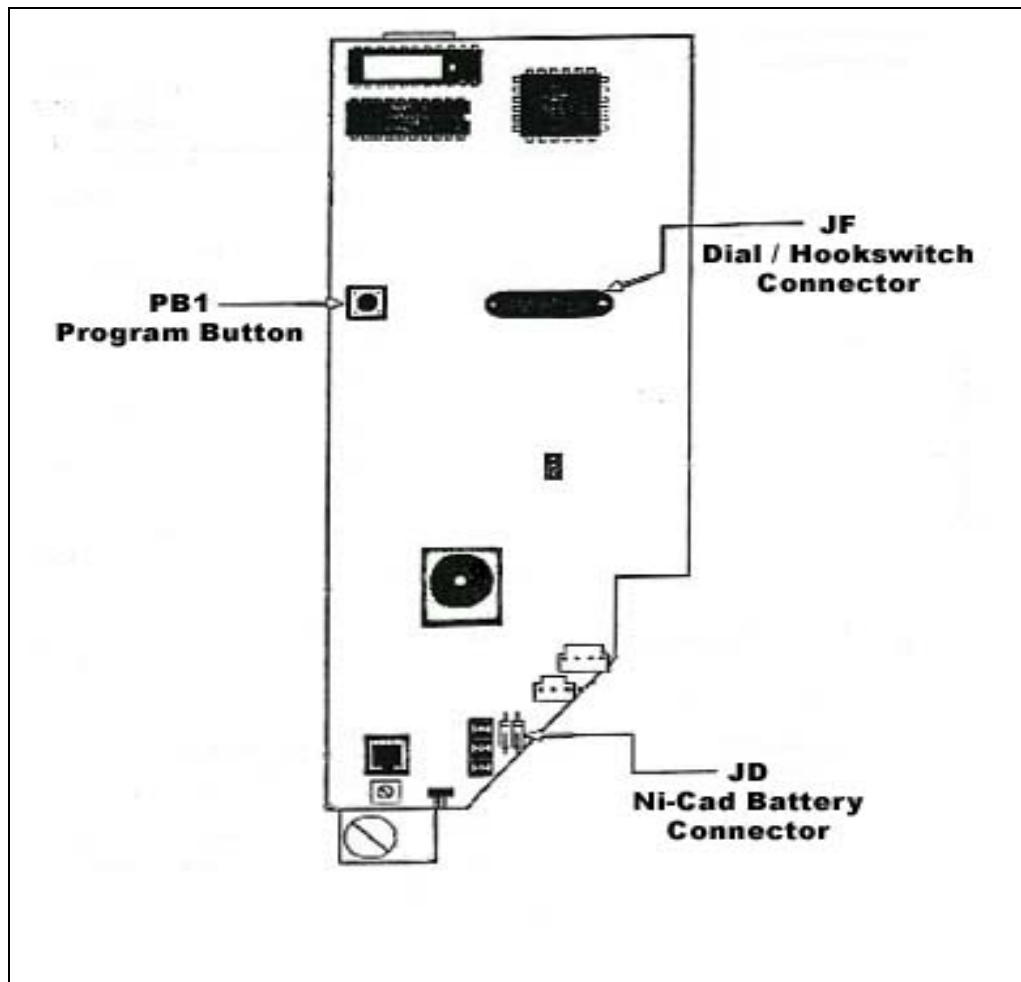
λ **If you are a customer using Protel ExpressNet Payphone Management software**, please refer to your Protel Pocket Reference Guide & your ExpressNet Manual for instructions on Initializing & Programming the Payphone.

PROGRAMMING INSTRUCTIONS

Entering the Program Mode

All program entries must be done in the program mode, using the keypad of the payphone. When programming, one 'beep' represents a completed entry. Three 'beeps' represents an error. To start an entry over, press the # key & wait for three 'beeps' & then re-try the entry. All program entries can be done in one session in no specific order.

1. Open the upper housing of the payphone, (see Separating the Upper & Lower Housing on page 4.)
2. Ensure that the dial / hookswitch connector (JF) & the Ni-Cad battery (JD) are both connected.
3. Push & hold the black program button (PB1) on the circuit board.
4. Take the handset off-hook, (while program button is held down.)
5. Listen for a single 'beep'.
6. Release the program button, (after the single 'beep' is heard.)



PROGRAMMING INSTRUCTIONS

Changing the Rate, Time Limit, & Keypad Allowance

λ The rate, time limit, and keypad allowance features all must be edited in the same program entry for each type of call. Before you begin programming, locate the Rate Band (4-digit code) that represents the type of call you are programming for, (see the Call Type Band Description Table below.)

1. Make sure the phone is in the program mode.
2. Enter the following information in this order for the call being programmed:

4-digit Rate Band, (see Call Type Description Table for list of Rate Bands)

4-digit Initial Charge, (if the call is free, enter 0000)

4-digit Additional Charge, (if the call is free or unlimited, enter 0000)

3-digit Initial Time Limit, (if the call is free or unlimited, enter 255)

2-digit Additional Time Limit, (if the call is free or unlimited, enter 01)

4-digit Keypad Allowance, (if the keypad is allowed during the call, enter 0008; if the keypad is not allowed during the call, enter 0001)

Press the * (star) key to complete the entry; listen for one confirmation 'beep'.

6XXX	XXXX	XXXX	XXX	XX	0008	*
↑	↑	↑	↑	↑	↑	↑
Call Type Rate Band	Initial Charge	Additional Charge	Initial Time Limit	Additional Time Limit	Keypad Allowance	Completes Entry

*Example: 6000 0035 0035 015 15 0008 **

The above example would set Rate Band 6000 to \$.35 every 15 minutes with open keypad.

Call Type Band Description Table

***Rate Bands for local, toll, & long distance calls may vary due to different Rate Files used for each customer. If you experience problems with changing rates, please contact G-TEL Technical Support for information on Rate Bands pertaining to your phone.**

Call Type	Rate Band
Local Calls	6000
Long Distance Calls	6001
Toll Calls (if applicable)	6003
411 & 1411 Information Calls	6082
Incoming Calls	6088
1+ 555-1212 Information Calls	6101
1+ Area Code + 555-1212 Information Calls	6102
1-800 Type Calls	6104

PROGRAMMING INSTRUCTIONS

Changing the Receiver Volume Level

1. Make sure the phone is in the program mode.
2. Enter 27
3. Enter the receiver volume level. (**1=Lowest 2=Medium 3=Highest**)
4. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.

To Disable Certain Types of Calls

1. Make sure the phone is in the program mode.
2. Enter the 4-digit rate band of the call type being disabled (*see Call Type Description Table on pg. 10*)
3. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.

To Program Certain Types of Calls to be Free

1. Make sure the phone is in the program mode.
2. Enter the 4-digit rate band of the call type being made free (*see Call Type Description Table on pg. 10*)
3. Enter 0000 0000 255 01 0008 *
4. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.

Programming an Access Code for PBX Phone Systems

The following procedure shows the steps necessary to allow the CTR-201 to work on a PBX phone system. The CTR-201 will automatically dial the PBX access code before the users destination number.

1. Make sure the phone is in the program mode.
2. Enter 24
3. Enter the PBX access code.
4. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.

Programming a Free Number for Direct-Dial Use

1. Make sure the phone is in the program mode.
 2. Enter 23
 3. Enter the free destination number exactly as it would normally be dialed from the payphone.
 4. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.
- λ *Only one destination number can be programmed for free direct-dial use.*
- λ *To delete a free number that has been programmed, enter 23 **

COIN BOX AMOUNT SECURITY CODE

Overfilling of the coin box can cause several major components of the payphone to malfunction. To prevent the coin box from overfilling, the owner should use the coin box amount security code to check the status of the coin box. The coin box amount should not exceed 150.00.

Programming the Coin Box Amount Security Code

1. Make sure the phone is in the program mode.
 2. Enter 293
 3. Enter any 4-digit code except 0000, (*you should record your 4-digit code on page 2*)
 4. Press the * (star) key to complete the entry; listen for one confirmation 'beep'.
- λ Exit the program mode & reset the coin box amount to 0 zero, (see Re-Setting the Coin Box Amount to Zero below)*

Re-Setting the Coin Box Amount to Zero

1. Lift the handset off-hook & listen for dial tone.
 2. Dial * (star) # (pound) 5 (five) + your 4-digit coin box amount security code.
- λ Verify that the voice prompt in the handset repeats "0".*

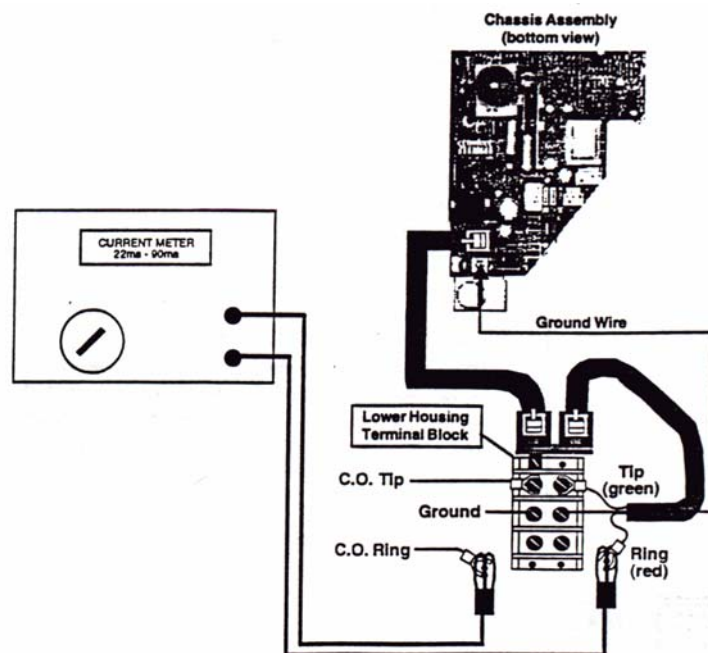
Determining the Coin Box Amount

1. Lift the handset off-hook & listen for dial tone.
 2. Dial * (star) # (pound) 4 (four) + your 4-digit coin box amount security code.
- λ The voice prompt in the handset should then prompt the current coin box amount.*

TESTING THE LOOP CURRENT LEVEL

A minimum of 22ma (mili-amps) (or 44VDC) loop current must be provided to the payphone from the Telephone Company's Central Office. In certain situations, due to the distance between the Central Office and the phone site, the loop current may not meet the required level of 22ma. If the loop current is below 22ma, dial tone may not occur or the phone may experience only momentary burst of dial tone. If the loop current level is below 22ma, you should contact your Local Telephone Co.

1. Locate a test meter (multi-meter) for this task.
2. Set the meter to Amps DC.
3. Make sure the incoming Telco **tip** wire is connected to the terminal block (*located at the base of the lower housing.*)
4. Make sure the incoming Telco **ring** wire is disconnected from the terminal block.
5. Connect one lead of the meter to the disconnected Telco **ring** wire.
6. Disconnect the pigtail cable ring wire (**red wire**) from the terminal block
7. Connect the other lead of the meter to the disconnected pigtail cable ring wire.
8. Lift the handset off-hook and record the loop current level shown on the meter. Verify that the reading is greater than **22ma (mili-amps)**.



TROUBLESHOOTING GUIDE

Problem – No Dial Tone

Before You Begin	Test the telephone line to determine if the problem is with the telephone line or with the payphone.
Possible Cause 1:	Telephone line dead or improperly connected
Solution:	Check line for dial tone & check terminal block for proper connections
Possible Cause 2:	Battery not plugged in or battery below 6 Volts DC
Solution:	Plug in battery or test with meter for proper voltage (6 VDC)
Possible Cause 3:	Stuck coin in trigger switch assembly (coin validator)
Solution:	Unplug 4-prong trigger switch & listen for dial tone; If dial tone is present while trigger switch is unplugged, but not when plugged in, remove coin acceptor & trigger switch to find & remove stuck coins or to separate shorted contacts.
Possible Cause 4:	Handset is defective or improperly connected
Solution:	Try replacing handset. Because some handsets are different from others, check for the following patterns with the handset wires
<u>Handset Type 1</u>	<i>Receiver = black / yellow Xmit/Mic = green / red</i>
<u>Handset Type 2</u>	<i>Receiver = green / yellow Xmit/Mic = black / red</i>
<u>Handset Type 3</u>	<i>Receiver = white / white Xmit/Mic = black / red</i>
Possible Cause 5:	Hook-switch contacts are shorted
Solution:	Disconnect one hookswitch wire. Test hookswitch with a multi-meter by setting the meter to ohms & placing one lead of the meter on the disconnected hookswitch wire & the other lead on the connected hookswitch wire. When hookswitch lever goes on & off-hook, the meter should show signs of resistance. If the meter reads the same when hookswitch lever goes on & off-hook, replace the hook-switch.
Possible Cause 6:	Surge Protector is blown
Solution:	Unplug incoming telephone line from Surge Protector & plug it in directly to the JA circuit board connector instead. If dial tone is present while not using the Surge Protector as opposed to using the Surge Protector, replace the Surge Protector.

TROUBLESHOOTING GUIDE

Problem – Constant Beeping or Relay Clicks 3 Times

Before You Begin Constant beeping and/or the relay clicking 3 times is an indication that the coin trigger flag of the relay was not able to reset. This occurs due to one of the below probable causes. First, try resetting the phone by entering the program mode, pressing the 2 key, & then hanging up. If dial tone reappears, then the problem has most likely been corrected. If the relay clicks 3 times and/or the constant beeping reappears, then continue with the troubleshooting below.

Possible Cause 1: Stuck coin in trigger switch

Solution: Remove coin acceptor & trigger switch to find & remove stuck coins.

Possible Cause 2: Coin hopper collect or refund gate stuck open

Solution: Remove the relay by unscrewing the left & right side screws & the top middle screw that attach it to the coin hopper. Once you slide the relay away from the coin hopper, inspect the two levers at the bottom of the coin hopper. Make sure both levers of the coin hopper are pointed up, (this is the reset position.)

Possible Cause 3: Bent contact “E” on relay (see diagram below)

Solution: Remove the relay by unscrewing the left & right side screws & the top middle screw that attach it to the coin hopper. Locate contact “E” & carefully straighten it with needle nose pliers. (see diagram below for location of contact “E”.)

Figure A shows a side view of the relay in normal idle position. Figure B shows contact “E” of the relay bent, preventing the coin trigger flag from resetting. Contact “E” must be made straight.

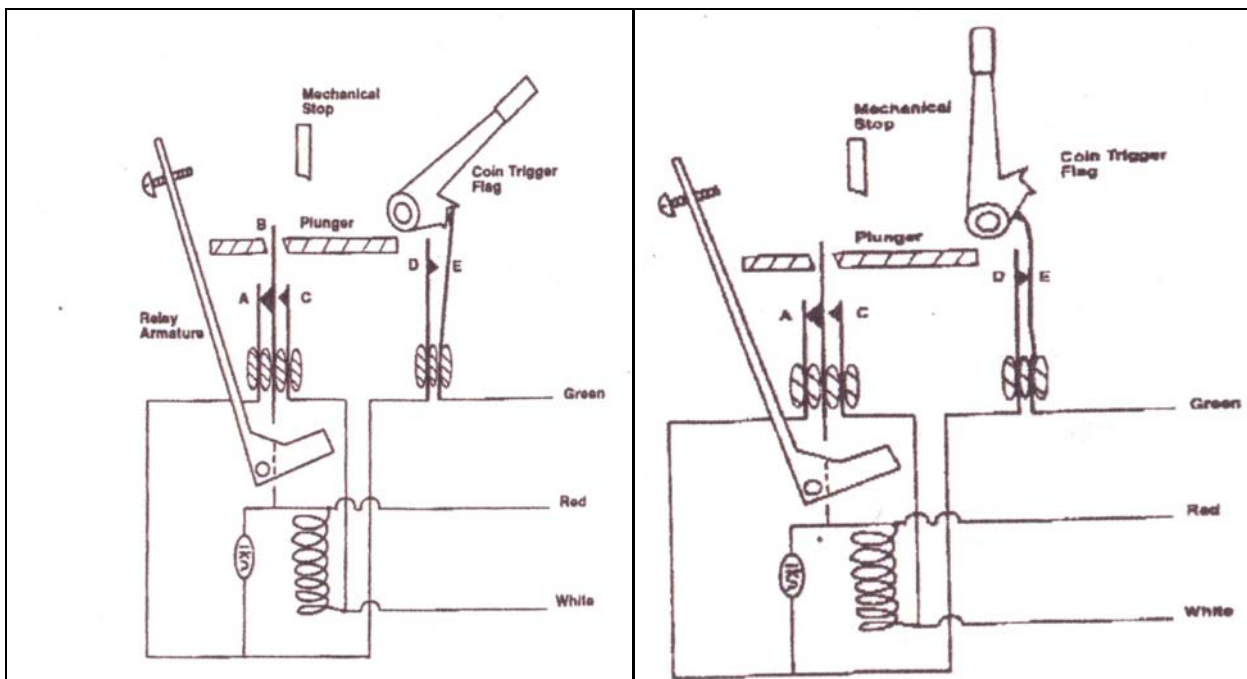


Figure A / Relay Side View, Normal Position

Figure B / Relay Side View, Jammed Position

TROUBLESHOOTING GUIDE

Problem – Will Not Accept Coins / Coins Get Stuck

Possible Cause 1: Coin acceptor not aligned with coin entrance slot

Solution: Open upper housing & locate the bracket on the inside of the upper housing two inches beneath the bottom of the coin entrance slot. Loosen the two screws of the bracket & slide the bracket either left or right, depending on what direction the coin acceptor needs to move, & then retighten the two screws. *(Some upper housings may not have screws that attach this bracket; if this is the case, then it may be necessary to bend the bracket in order to adjust it.)*

Possible Cause 2: Trigger switch & coin acceptor not aligned properly

Solution: Remove coin acceptor & locate trigger switch. Ensure that the trigger switch is mounted properly into the back of the lower housing. If the trigger switch feels loose, remove the mounting screw that secures it to the coin hopper (the screw is located on the left side of the trigger switch & screws onto the top of the coin hopper.) Locate the trigger switch-mounting sleeve in the back of the lower housing & re-insert the trigger switch into the sleeve. Then re-tighten the screw that secures it to the coin hopper.

Possible Cause 3: Coin acceptor jammed, dirty, or damaged

Solution: Remove coin acceptor from phone & check to make sure it is clean and undamaged.

Problem – Will Not Detect Coins

Possible Cause 1: Trigger switch contacts are bent too far apart

Solution: Determine which coins are not being detected (quarter, dime, or nickel.) Next, remove trigger switch & examine the pair of contacts that validate the particular coin that's not being detected. Quarter slot is to the left; Dime slot in middle; Nickel slot to the right

Possible Cause 2: Coin acceptor is rejecting the coins

Solution: *See Will not accept coins, Possible Cause 3*

Problem – Siren Tone Instead of Dial Tone

Possible Cause 1: Clock Chip is defective

Solution: Replace Clock Chip

TROUBLESHOOTING GUIDE

Problem – No Disconnect after Hanging Up

Possible Cause 1: Hookswitch contacts are shorted

Solution: See *No Dial Tone, Possible Cause 5*

Possible Cause 2: Circuit Board is defective

Solution: Circuit board should be sent to G-TEL Repair Dept.

Problem – No Keypad Response

NOTE* No Keypad Response during the call is a separate issue. The solution to this problem can be found on page 11.

Possible Cause 1: Keypad ribbon cable is improperly connected or damaged

Solution: Check connection & condition of keypad ribbon cable

Possible Cause 2: Keypad is defective

Solution: Replace keypad assy.

Possible Cause 3: Circuit Board is defective

Solution: Circuit board should be sent to G-TEL Repair Dept.

Problem – Relay Will Not Collect or Refund

Possible Cause 1: Low battery voltage on circuit board battery

Solution: Test battery with multi-meter.

Possible Cause 2: Relay is improperly connected or defective

Solution: Check for proper connection of relay to circuit board. Green wire should be to the left, red wire in middle, & white wire to the right. If relay is properly connected & problems persist, try replacing relay.

Problem – Coins Fall Straight To Coin Box or Coin Return

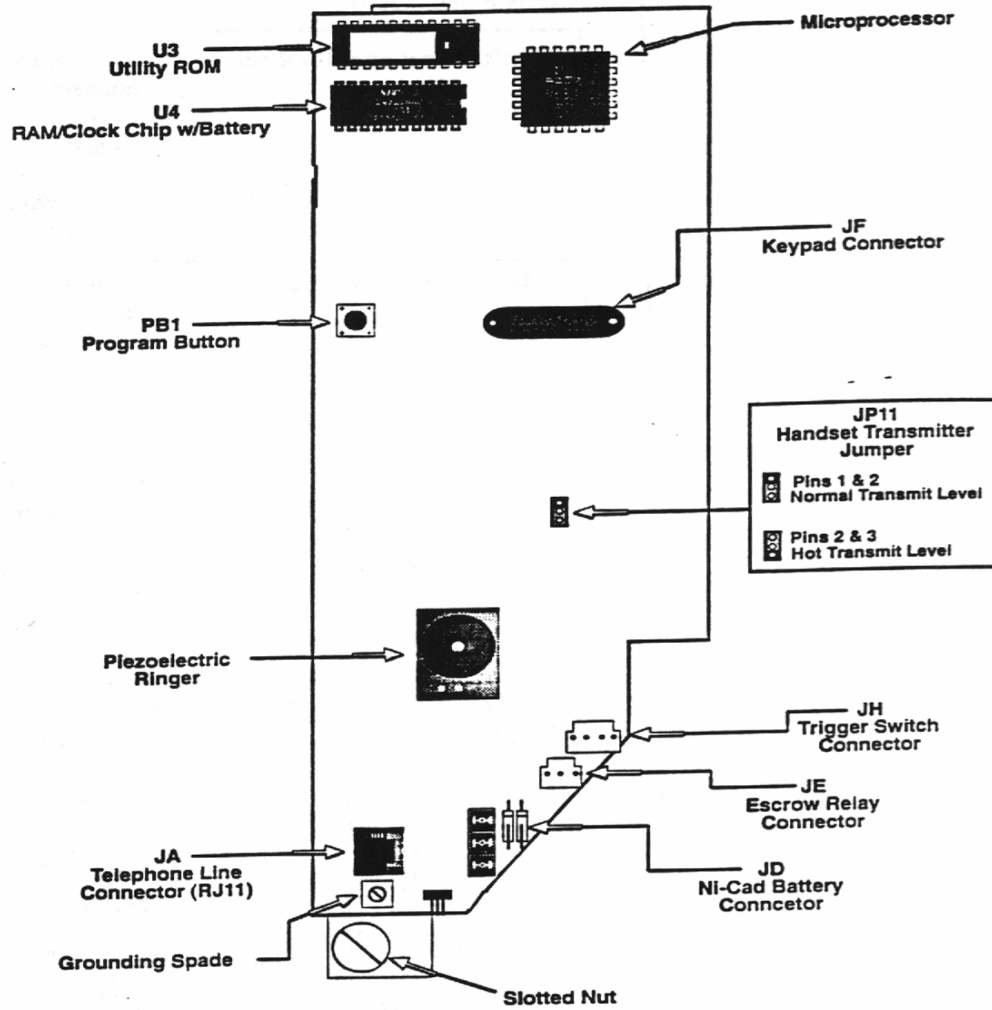
Possible Cause 1: Coin Hopper collect gate or refund gate is stuck open

Solution: See *Constant Beeping or Relay Clicks 3 Times, Possible Cause 3*

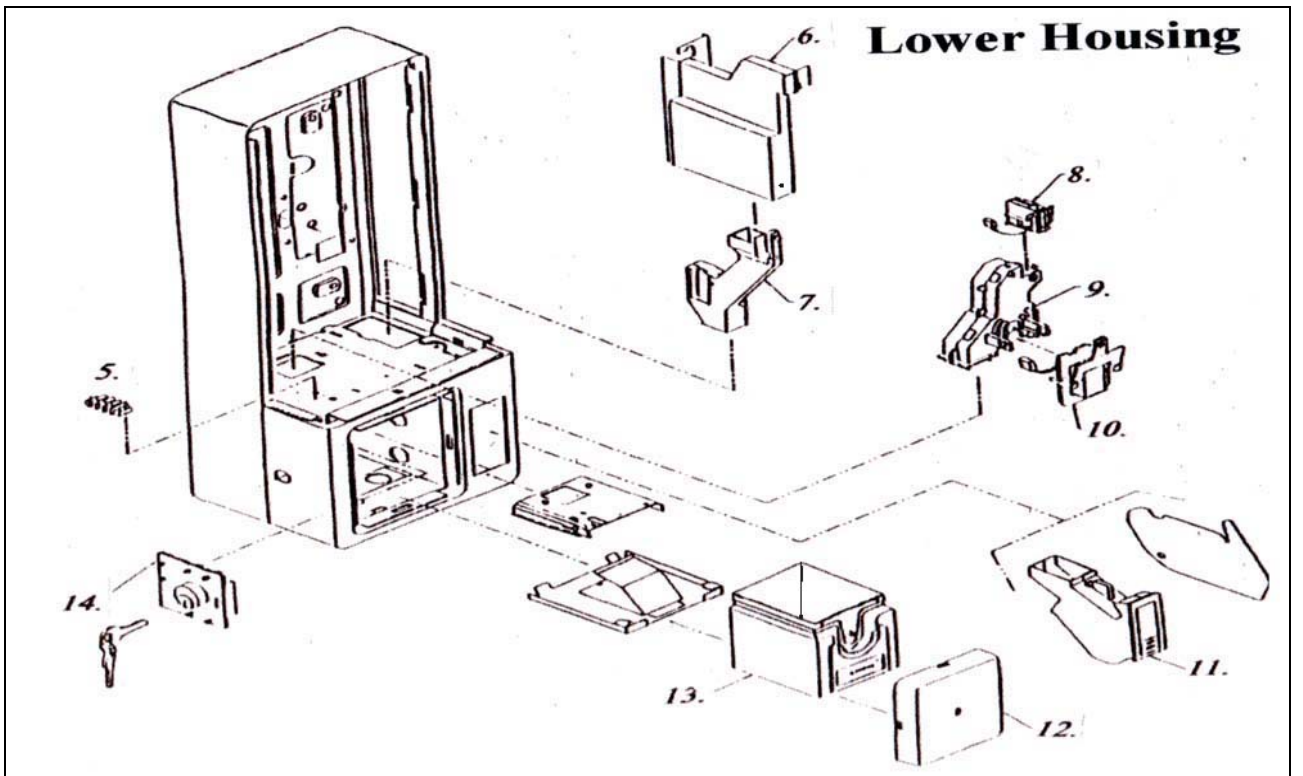
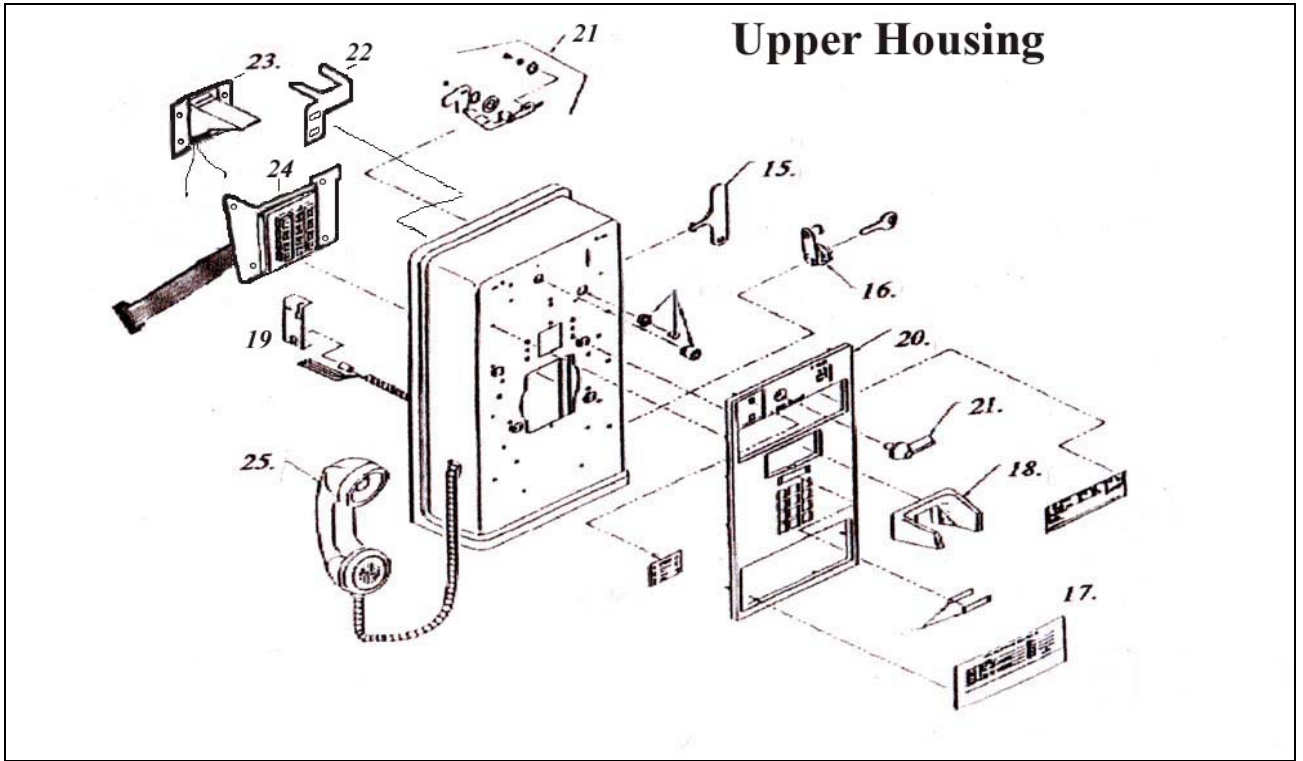
Possible Cause 2: Coin acceptor is rejecting the coins (this is only a probable cause if the coins are constantly going to the coin return, not coin box)

Solution: See *Will not accept coins, Possible Cause 3*

CIRCUIT BOARD CHASSIS DIAGRAM



PARTS DIAGRAM



FCC & EQUIPMENT SPECIFICATION

FCC Registration

FCC Registration Number: F2L4NH-19836-CX-E

Ringer Equivalency Number: 0.7B

This device complies with Part 15 of the FCC Rules

This equipment complies with Part 68 of the FCC rules. On the Chassis bracket 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.

The REN is used to determine the quantity of the devices that may be connected to the telephone line. Excessive REN's on the telephone line may result in the devices 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 connected to the line, as determined by the total REN's, contact the telephone company to determine the maximum REN for the calling area.

For compliance with state tariffs, the telephone company must be notified prior to connection of the equipment (CTR-201) to the telephone line. In some states, approval for equipment connection must be obtained from the Public Utility Commission, Public Service Commission, or Corporate Commission prior to connection.

If the terminal equipment (CTR-201) causes harm to the telephone network, the telephone co. will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. You will also be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment, (CTR-201). In this case, the telephone company will provide advance notification in order for you to make the necessary modifications to maintain uninterrupted service.

This equipment is hearing aid compatible.

ETL Listing

This equipment (S-310) is in compliance with the requirements of the **Standard for Telephone Equipment (UL-1459, Second Edition)**. This equipment is listed by the ETL Testing Laboratories in compliance with the above standard.

Electrical

Input Power-----	Line Powered, loop start
Loop Limit-----	22ma to 90ma
Dialing-----	Pulse or Touch Tone
DTMF Power Level (LOW Group)-----	-10.5 dBm (min) into 600 ohms
DTMF Power Level (HIGH Group)-----	-8.5 dBm (min) into 600 ohms
DTMF Power Level (per pair)-----	+1.0 dBm (max) into 600 ohms
DTMF Frequency Tolerance-----	± 0.5% per frequency
DTMF Twist-----	≤ 3 dB

Hardware

Housing Type----- GTE / Quadrum Style Housing)

Environmental

Temperature----- - 40° to +150° F (-40° to +65° C)

Humidity----- - 0 to 95% relative, non-condensing