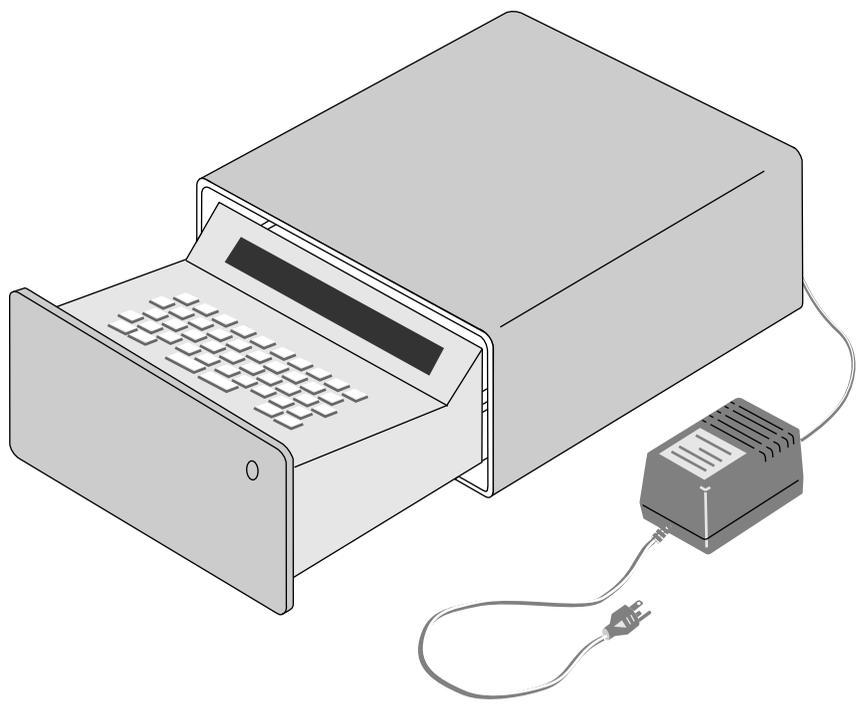


PUBLIC TTY™

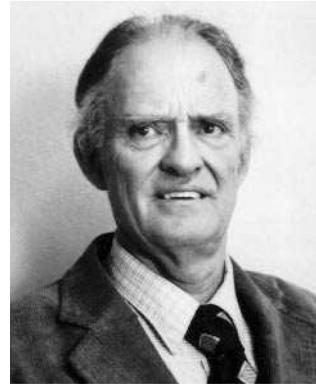
INSTALLATION GUIDE



Acknowledgement

In 1963, Dr. Robert H. Weitbrecht, an American physicist who was deaf, developed an acoustic coupler that could send and receive teletypewriter signals over the telephone lines. His invention, the Weitbrecht Modem, enabled people who are deaf to use the telephone for the first time.

While modern technology now makes it possible to build advanced microcomputer devices like your new Ultratec text telephone, the Weitbrecht modem remains the major technological breakthrough that began telecommunications for the deaf. Ultratec wishes to acknowledge the importance of Dr. Weitbrecht's contribution to the welfare of people who are deaf the world over.



Dr. Robert H. Weitbrecht, 1920-1983, inventor of the first TTY modem.

**Ultratec, Inc.
450 Science Drive
Madison, WI 53711
(608) 238-5400 (Voice/TTY)**

First printing

Fifth edition
August 1998

© 1993, 1996, 1998 Ultratec, Inc.

≡Ultratec is a registered trademark, Turbo Code is a registered trademark and Public TTY and TTY Announcer are trademarks of Ultratec, Inc.

CONTENTS

Introduction	p. 2
Parts of the Public TTY™	3
Function keys	4
Installation	p. 6
Safety instructions	6
Removing the drawer assembly	7
Mounting the shell	7
Connecting the power transformer cables	8
Handset muting (optional)	9
Connecting the telephone line	10
Installing the drawer assembly	10
Installing the handset cradle	11
Installing the user instructions	11
Plugging in the power transformer	11
Testing and statistics	p. 12
Voice call	12
TTY call	12
Opening sequence	13
Closing sequence	13
Testing the TTY Announcer™	15
Statistics	15
Maintenance	p. 17
Cleaning the Public TTY	17
Periodic testing	17
Specifications	p. 18

INTRODUCTION

The Public TTY™ text telephone* is designed to work with a standard payphone. This TTY allows public communication access for people who are deaf, hard of hearing, or speech-impaired. These people use TTYs to make and answer calls in the same way that hearing people use a telephone.

A TTY call requires two TTYs, each with a keyboard and a display. During a call, one person types a message to the other person, who reads the message on his or her TTY display. Both people take turns typing and reading during the conversation.

The Public TTY is usually mounted under the payphone enclosure where the directory shelf is located. It may also be mounted on top of or under a shelf near the payphone. The Public TTY is designed to be installed in a sheltered environment (an optional all-weather model is available for outdoor installations).

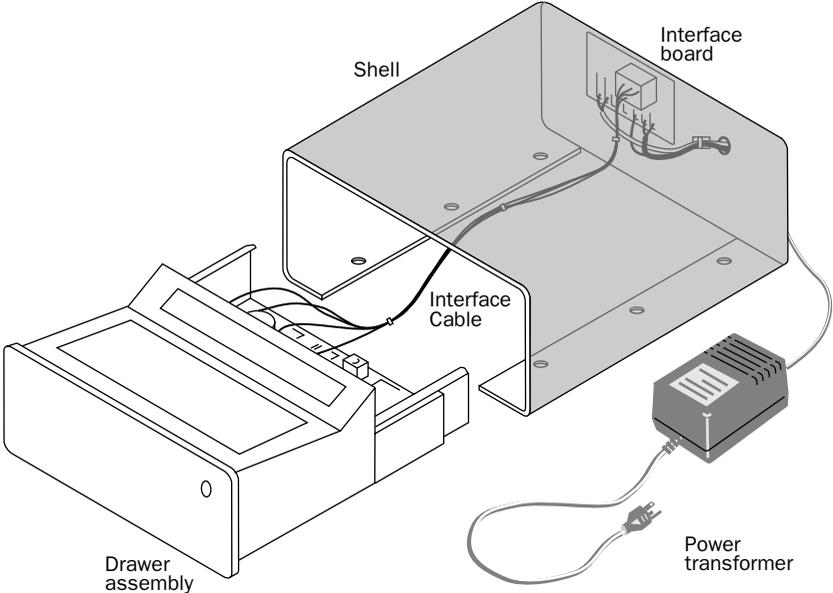
To minimize vandalism, the Public TTY is enclosed in a tamper-resistant metal shell. The drawer containing the TTY opens only after the answering party responds with another TTY. When the payphone is used for non-TTY calls, the drawer remains closed and does not affect voice calls.

Parts list

- Public TTY™
- Power transformer
- Hex security wrench
- Handset cradle with mounting screws
- Ground wire
- User instruction sticker

**TDD, TTY, and text telephone all refer to the same device.*

Parts of the Public TTY



Shell

The shell is an aluminum enclosure that houses the drawer assembly. The shell is mounted to a shelf near the payphone. It also contains the interface board.

Drawer assembly

The drawer assembly contains the TTY circuitry. The drawer slides into the shell and is attached to the bottom flanges. The drawer assembly interface cable connects the TTY hardware to the interface board.

Interface board

The interface board, mounted inside the back of the shell, contains the electrical interface between the drawer assembly and the power transformer and telephone line connector.

Power transformer

The power transformer powers the Public TTY and is normally installed near the shell, but may also be installed farther away. For example, it may be installed in a utility closet near the payphone. An optional bracket is available that lets you mount the transformer directly beneath the drawer. Contact Ultratec for more information at (608) 238-5400.

Handset cradle

The handset cradle allows the user to conveniently place the handset out of the way during a TTY call. The payphone handset must remain off-hook during a TTY call because the Public TTY cannot signal the telephone company by itself.

Function keys

Some functions that are standard in Ultratec TTYs are also available with the Public TTY. Any function that a user changes is automatically reset when the phone is hung up. Below is a list of the functions and the keys that activate and deactivate them.

TTY Announcer™

The TTY Announcer digitized voice informs hearing people that the call is originating from a TTY. If the TTY user thinks that the other person will answer by voice, he or she can use the TTY Announcer. The voice says, “TTY call, please use text telephone.” The announcer can be activated in two ways:

Before a TTY conversation—After the caller has dialed the telephone number, he or she can press the * key on the payphone keypad three times to turn on the TTY Announcer. The message repeats until either the other person begins typing a TTY message or the caller presses a key on the payphone keypad.

During a TTY conversation—The caller can also turn on the TTY Announcer after a TTY conversation has started by pressing the **Ctrl** + **Spacebar** keys. Pressing any key on the TTY keyboard will turn off the announcer.

Reviewing a conversation

← allows the user to review his or her conversation by scrolling backward through the memory. The user may review the conversation either during or at the end of a TTY call. Holding the **←** key down increases scrolling speed.

→ allows the user to review his or her conversation by scrolling forward through the memory. The user may review the conversation either during or at the end of a TTY call. Holding the **→** key down increases scrolling speed.

INSTALLATION

The order of installation procedures is as follows:

1. Remove the drawer assembly from the shell.
2. Mount the shell.
3. Connect the power transformer cable.
4. Connect the telephone line.
5. Install the drawer assembly.
6. Install the handset cradle.
7. Install the user instructions.
8. Plug in the power transformer.

Safety instructions

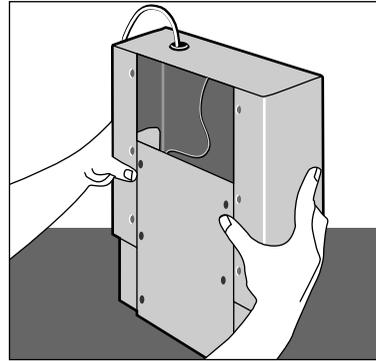
Read and follow these instructions to ensure your safety while installing the Public TTY.

CAUTION! Do not plug the power transformer in until installation is complete. If you do, the Public TTY drawer may open unexpectedly during installation, causing injury.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
- Never touch uninsulated wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Removing the drawer assembly

1. Remove the six security screws from the bottom of the shell using the security wrench. The security screws are the outermost ones on each side.
2. Slide the drawer assembly halfway out of the shell.
3. Disconnect the drawer assembly cable from the interface board by squeezing the two tabs on the white plastic connector and pulling it from the socket.
4. Remove the drawer assembly and set it aside.



Mounting the shell

1. If the shell is not pre-drilled, drill and countersink mounting holes in the top of the shell (a minimum of 4 holes is recommended). Below are special notes for drilling:
 - Use #10 or 1/4" slotted flathead countersunk screws.
 - Countersink all holes. The screw heads *must not* protrude more than .05" below the inside top of the shell.
 - Do not drill a hole closer than 1-1/2" from the front of the shell unless the screw head will be flush with the surface of the shell. If the screw head is not flush, it will impede the motion of the drawer.
2. Attach the shell to the payphone shelf.

Connecting the power transformer cables

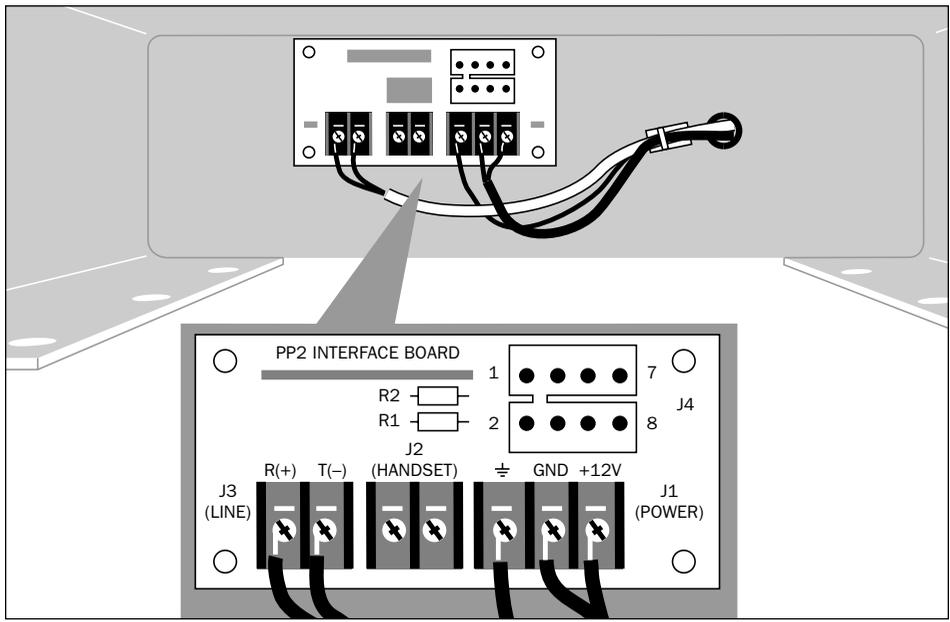
Special notes for the M240FS

CAUTION: Be sure to put the transformer in an enclosed, sheltered location.

Remove the wiring cover next to the interface board inside the shell before attempting to connect the power transformer cables. Replace the cover when all wires are connected.

General connection instructions

1. Make certain that the power transformer is unplugged.
2. Route the transformer cable through the hole in the back of the shell, through the cable Tywrap, and up to the POWER terminal block on the interface board.
3. Attach the wire with the red lug to the position marked +12V on the interface board.
4. Attach the wire with the black lug to the position marked GND on the interface board.
5. Install a separate ground wire as follows:
 - a. Attach one end to the telephone ground post.
 - b. Route the ground wire through the back of the shell and through the Tywrap.
 - c. Attach the other end to the position marked ⏏ on the interface board.



Handset muting (optional)

Muting the handset during a TTY call improves Baudot code reception and transmission. This option is especially useful if the Public TTY is installed in a noisy environment. The handset microphone may be wired in parallel with the relay contact. This contact is normally open and shorted during a TTY call and as a result mutes the handset.

1. At the position marked J2 (HANDSET) on the interface board, attach a black wire to one position and a red wire to the other position (polarity is not important).
2. Route the two wires through the hole in the back of the shell and attach them to the payphone terminal that controls the handset microphone.

Connecting the telephone line

1. Route the telephone line through the hole in the back of the shell, through the cable Tywrap, and up to the position marked J3 (LINE) on the interface board. Connect the more positive lead to the position marked R(+). Connect the more negative lead to the position marked T(-).
2. Tighten the Tywrap to secure the wires.

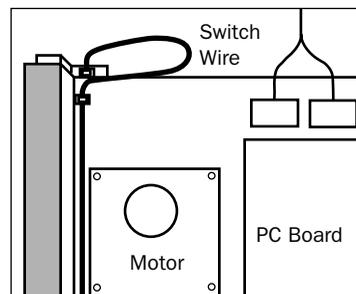
Note: After installation, if the Public TTY drawer fails to close properly, try switching the Tip (-) and the Ringer (+) wire on the interface board.

Installing the drawer assembly

1. Slide the drawer assembly halfway into the shell.
2. Re-connect the drawer assembly cable to the interface board. The cable connector will only plug into the interface socket in one way. When the plug is correctly inserted, the tabs on the plug will lock it in place.
3. Slide the drawer assembly all the way into the shell until the bottom front edge of the drawer assembly is aligned with the shell.

CAUTION! Do not pinch any of the cables between the back plate, the interface board, or the internal drawer components. Also, make certain that the switch wire loop is bent toward the center of the drawer.

4. Attach the drawer assembly to the shell using the six security screws.



Installing the handset cradle

Mount the handset cradle close enough to the payphone to allow easy access for the Public TTY user. The cradle should be positioned so that the handset will reach it without obstructing use of the Public TTY.

Installing the user instructions

Mount the user instructions in a convenient location for the TTY user.

Plugging in the power transformer

Plug the power transformer into a standard grounded, 3-position 110 VAC electrical outlet. After the power transformer is plugged in, the drawer will open briefly and then close.

The Public TTY is now fully installed.

TESTING AND STATISTICS

These tests assure that the Public TTY works properly.

Voice call

To verify that the payphone is working properly, place a voice call by following these steps:

1. Pick up the handset.
2. Insert coins or enter a calling card number.
3. Dial a telephone number.
4. Wait for a response.
5. Replace the handset when you have finished the conversation.

Note: The Public TTY signal light will flicker during a voice call but the drawer should not open.

TTY call

Place a TTY call to verify that the Public TTY transmits and receives characters. If you do not know a local TTY number, call Ultratec at (608) 238-5400. Follow these steps:

1. Place the handset in the handset cradle.
2. Insert coins or enter a calling card number.
3. Dial the TTY number on the payphone keyboard.
4. Watch the signal light on the front panel of the drawer to identify a dial tone (steady on), busy (quick blinking), or ringing (steady blinking) signal.

After the other person answers with a TTY, the Public TTY drawer will open. (See *Opening sequence* on page 13 for more information.)

5. Begin typing your conversation. Type back and forth between the Public TTY and the other TTY to make sure you are transmitting and receiving correctly.
6. When the conversation is finished, replace the handset onto the payphone hook. The Public TTY drawer will close automatically after a few seconds. (See *Closing sequence* below for more information.)

The Public TTY saves up to 7,000 characters of a conversation. The caller can use the and keys to read back through the memory at any time during a call or before the phone is hung up. The memory is erased when the drawer closes.

Opening sequence

The Public TTY monitors the telephone line and opens the drawer only after receiving valid TTY characters within five seconds. A conversation may begin as soon as the drawer is open.

The drawer may be opened without placing a TTY call by pressing the key sequence two times. (See *Statistics* on page 15 for more information.)

Closing sequence

The display will flash DRAWER CLOSING for five seconds and the drawer will begin to close. The closing time is approximately five seconds. The Public TTY begins its closing sequence when one of two things happens:

- **Public “on-hook” status (loss of loop current)**—This occurs when the Public TTY enters on-hook status after the TTY user replaces the handset on the payphone hook.
- **Abandoned TTY call**—This occurs when TTY characters are not received or transmitted for a three-minute span. In this case, the Public TTY assumes that the caller has ended the

conversation and left the payphone without replacing the handset back on the payphone hook.

Note: If the Public TTY drawer fails to close properly, try switching the Tip (-) wire and the Ringer (+) wire on the interface board. (See *Connecting the telephone line* on page 10 for more information.)

The closing sequence may be interrupted. If it is interrupted, the motor reverses itself and reopens the drawer. There are three ways to interrupt the closing sequence:

- **Receive a TTY character**—If the payphone is in the off-hook status, and a TTY character is received, the drawer will reopen.
- **Transmit a TTY character**—If a key on the Public TTY is pressed during the closing sequence, the drawer will reopen.
- **Mechanical interference**—If an object obstructs the closing sequence, the drawer will reopen. To test this, place a screwdriver handle between the front panel and the main housing of the Public TTY when the drawer begins to close. When the drawer meets the handle, the drawer will reopen.

The Public TTY drawer will only attempt to close six times during a closing sequence. This limit prevents unnecessary wear from a continuous open/close sequence on a unit that has been tampered with to prevent complete closure.

If the drawer fails to close after six attempts and the payphone is on-hook, the Public TTY will turn off with the drawer open. The drawer will begin its closing sequence again the next time the payphone goes off-hook.

If the drawer fails to close and the payphone is off-hook, the Public TTY will turn off until the payphone goes on-hook or another TTY call begins.

Testing the TTY Announcer

1. Pick up the payphone handset and press the * key on the payphone keypad 3 times.
2. Listen with the handset. A recorded voice will repeat the phrase, “**TTY call, please use text telephone,**” until a key is pressed on the keypad.

Note: In some cases, you may need to place a voice call to test the announcer because some payphones do not pass Dual Tone Multi-Frequency (DTMF) signals until you make a connection. Call a voice number to avoid someone answering with Baudot signals and opening the drawer prematurely.

Statistics

The Public TTY collects statistics about its operation. To read the data, follow these steps:

1. Make sure the drawer is closed.
2. Pick up the handset and place it in the handset cradle.
3. On the payphone keypad, press the key sequence * 8 * two times within 7 seconds. The Public TTY drawer will open and prompt the user for a command.
4. Enter a command by pressing one of the number keys.

Note: In some cases, you may need to place a voice call to check the statistics because some payphones do not pass DTMF signals until you make a connection. Further, you may have to wait approximately 30 seconds after the connection is made before you perform the * 8 * key sequence. Call a voice number to avoid someone answering with Baudot signals and opening the drawer prematurely.

After the drawer is open, press one of the following command keys to read the statistics:

- 1 **Power-ups**—The number of times the Public TTY was powered on. This occurs whenever the payphone goes off-hook.
- 2 **Opens count**—The number of times the Public TTY drawer was opened.
- 3 **Keypress opens**—The number of times the Public TTY drawer was reopened, either because the telephone received a TTY character, someone pressed a key, or because of mechanical interference.
- 4 **Close tries**—The number of times the drawer was closed or tried to close.
- 5 **Voice opens**—The number of times the TTY Announcer was used.
- 6 **Call count**—The number of times the Public TTY drawer was opened and received at least 25 characters.
- 7 **No activity**—The number of times someone stopped using the Public TTY without replacing the receiver on-hook.
- 8 **On-hooks**—The number of times someone replaced the handset on-hook and started the closing sequence.
- 9 **Reset counters? Y/N**—Type Y for yes, N for no. The counters will continue to increment until you reset them. If you try to use this command and the TTY asks for a password, call Ultratec at (608) 238-5400 for more information.
- 0 **Quit statistics? Y/N**—Type Y to leave statistics mode. Type N to remain in statistics mode.

When you are finished gathering statistics, replace the handset back on-hook. The drawer will close, ending statistics mode.

MAINTENANCE

Cleaning the Public TTY

Use a mild cleaner (such as 409™) and water to clean the Public TTY display and keyboard. A stronger cleaner may be used to clean the shell and front panel.

Periodic testing

Test the Public TTY periodically. We suggest once a month. Make TTY calls to see if the drawer opens and closes properly. Verify that the keyboard, display, and signal light all work properly.

If the Public TTY is not working correctly, do the tests described in the *Testing and Statistics* section beginning on page 12. If the Public TTY still malfunctions, call the Ultratec Service Department at the number below for assistance:

Ultratec Service Department
5901 Research Park Blvd.
Madison, WI 53719
(608) 238-5400 (Voice/TTY)

SPECIFICATIONS

Physical Dimensions

Size: 10.8" (275 mm) wide
 4.0" (102 mm) high
 11.3" (287 mm) deep

Open drawer extension: 7" (178 mm)

Shipping weight: 30 lbs.

Power Requirements

Transformer input: 115 VAC (max.)

Transformer output: 12 VDC (max.), 1.5A (min.)

Interface Connections

Power and telephone connections are made via a terminal block on the interface board.

Telecommunications

Turbo Code (enhanced protocol)

Baudot code at 45.5

Sensitivity: -45 dBm (min.)

Output: -12 dBm (min.), -9 dBm (max.)

Keyboard

4-row keyboard

57 keys

Computer-style layout

Character Set: A-Z, 0-9, Bksp, Rtrn/LF,
 Space - + \$ ' 0 " / : ; ? , . GA < > \ |
 = _ ! @ # % ^ & * () CTRL ESC

Display

Model M120:

20 character blue/green vacuum
 fluorescent with 0.25" (6mm)
 character height.

Model M240:

40 character, 2-line backlit liquid
 crystal display (LCD).

Environment

Model M120 and M240:

Operating temperature range: 0-40° C

Model M240FS:

Operating temperature range: -30-60° C

Water Resistant

Approvals

FCC approved

Model M240FS:

UL listed

FCC information

The Public TTY generates and uses radio frequency energy and may cause radio and television interference.

The Public TTY complies with the regulations for a Class A computing device as specified in Subpart J of Part 15 of the FCC Rules. These rules are designed to minimize radio frequency interference.

Use the Public TTY in strict adherence with these instructions. There is no guarantee that radio frequency interference will not occur during use.

The Public TTY also complies with Part 68 of the Federal Communications Commission (FCC) Rules.

The label on the bottom of the Public TTY presents the following required information. You must provide this information if your telephone company requests it:

FCC Registration Number:
 D8KUSA-74534-KX-N

Ringer Equivalence Number (REN): 1.7B

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of the Public TTY. If this happens, your telephone company will notify you in advance to give you the opportunity to maintain uninterrupted service.

If the Public TTY causes harm to the telephone network, your telephone company has the right to discontinue service temporarily. The company will notify you in advance if possible. If advance notice is not practical, they will notify you as soon as possible. You will be given the opportunity to correct the situation, and you will be informed of your right to file a complaint with the FCC.

