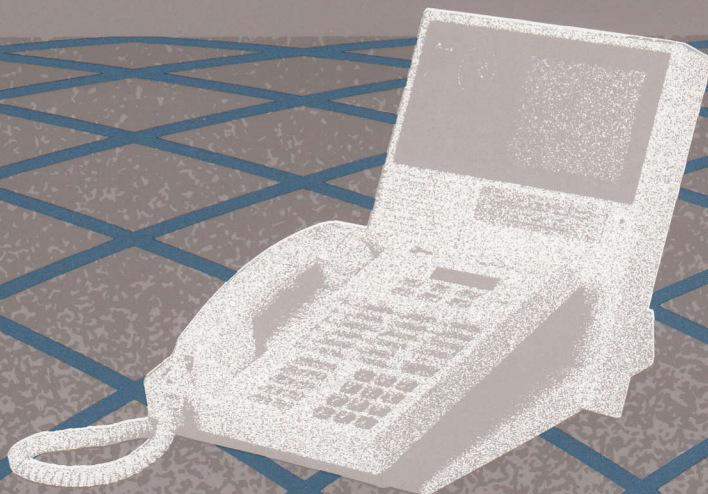




VTDU
Video Terminal Docking Unit
Model 5140T/5160T





VTDU USERS MANUAL

Video Terminal Docking Unit

for a

Model 5140T/5160T

Secure Voice/Data Terminal

Issue 1

April 30, 1993



VTDU USERS MANUAL

Video Terminal Docking Unit

for a

Model 2140T/210T

Series VideoData Terminal

Issue 1

April 30, 1983

FCC Rules, Part 15

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, can cause harmful interference to radio or televisions 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

NOTICE

For Continental United States (CONUS) installations, this equipment must be used with the shielded power cord provided. Changes or modifications not expressly approved by AT&T could void the user's authority to use the equipment.

For Outside Continental United States (OCONUS) installations, you may need to purchase a new shielded power cord to plug into the power supply that is compatible with the available electrical wall outlet.

Every effort has been made to ensure that the information in this book is complete and accurate at the time of printing. However, this information is subject to change.

FCC Rules, Part 68

Notification to the Telephone Company

This equipment complies with Part 68 of the FCC Rules. You will find the label located on the bottom of the enclosure.

This label contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed 5.0. To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company. They will tell you the maximum REN for your call area.

Incidence of Harm

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. However, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Rights of the Telephone Company

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

Malfunction of the Equipment

In the event this equipment should fail to operate properly, disconnect the unit from the telephone line. Try using another FCC approved telephone in the same telephone jack. If the trouble persists, call the telephone company repair service bureau. If the trouble does not persist and appears to be with this unit, disconnect the unit from the telephone line, and discontinue use of the unit until it is repaired. Please note that the telephone company may ask that you disconnect this equipment from the telephone network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

Coin Service or Party Line Use

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

WARRANTY

AT&T provides a limited warranty for this product. Refer to Appendix A for more warranty information.

IMPORTANT SAFETY INSTRUCTIONS

Benutzungsanleitung für die VTDU

Kapitel 1

Stromversorgungs-Schnittstelle

Der EIN/AUS-Schalter für die Stromspeisung befindet sich an der Anschlußplatte auf der Rückseite der VTDU. Eine Stromversorgungsbuchse (PWR-IN) auf der rückseitigen Anschlußplatte erhält Strom vom Niederspannungskabel, das mit Steckern versehen ist, und das von der externen Stromversorgung kommt: (Anerkanntes Modell: APS40ES-30L3, hergestellt von

Hitron Electronics Corporation for Advanced Power Solutions). Ein zweiter Stromanschluß (PWR-OUT) auf der hinteren Anschlußplatte kann dazu benutzt werden, einen Anschluß für geschützte Sprache/Daten durch ein Schnittstellenkabel mit Strom zu versorgen. (Siehe Warnung auf Seite 6). Die Nennspannungen des Stromeinganges der VTDU sind +5 V/5 A, +12 V/1,2 A und -12 V/0,25 A. Die Nennspannungen des Ausgangs sind +5 V/1,75 A, +12 V/0,4 A und -12 V/0,12 A. Die Kontakte der DIN-Buchse sind folgendermaßen angeordnet (siehe Abbildung 1-3):

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following.

- 1. Read Chapter 2 prior to installing the VTDU.** Read and understand all instructions in this manual before using this product.
- 2. Follow all warnings and instructions marked on the product.**
- 3. Unplug this product from wall outlets and telephone jacks before cleaning.** Clean exposed parts with a soft, damp cloth. Do not use aerosol cleaners.
- 4. Do not use the product near water,** for example, near a bathtub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool.
- 5. Do not place this product on an unstable cart, stand, or table.** The product may fall, causing serious damage to the product.
- 6. An opening under the cabinet and the chassis provide for cooling,** to protect the product from overheating. This opening must not be blocked, and the chassis must not be covered. This opening should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. This product should

- never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the power supply to your location, consult your dealer or local power company. The product uses a power supply; use only the power supply provided.
 8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
 9. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
 10. Do not overload wall outlets and extension cords, as this can result in the risk of fire or electric shock.
 11. Never push objects of any kind into this product through cabinet slots, as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
 12. To reduce the risk of electric shock, do not disassemble this product. Take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the product is subsequently used.

13. Unplug this product from the wall outlet, and refer servicing to qualified service personnel under the following conditions.
 - When the power supply cord or plug is damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally by following the operating instructions, adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - If the product has been dropped or the cabinet has been damaged.
 - If the product exhibits a distinct change in performance.
14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
15. Do not use the telephone to report a gas leak in the vicinity of the leak.
16. Never install telephone wiring during a lightning storm.
17. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
18. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
19. Use caution when installing or modifying telephone lines.
20. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and

maintenance (servicing) instructions in the literature accompanying the product.



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21. If this product does not operate normally, contact the AT&T Customer Service Center at the telephone number listed in the Customer Assistance section of this manual. If the product is damaged, refer to the AT&T Limited Warranty in the back of this manual. Do not open the device. Opening the device may expose you to dangerous voltages or to other risks and may void the warranty. Repairs must be performed by an authorized repair person.

SAVE THESE INSTRUCTIONS



NOTE: The video screen illustrations shown in this manual depict the function key labels. In some cases, all function key labels are shown on a screen at the same time. However, during actual use, only those functions available at any particular time are labeled on the screen.

AT&T Model _____ VTDU
Serial Number: _____
Purchase Date: _____

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Introduction

1

Overview

The AT&T secure Video Terminal Docking Unit (VTDU), in conjunction with a Secure Voice/Data Terminal (SV/DT), provides a low-cost way to transmit video images electronically, including full-motion, real-time images and still images between two sites.

Model 5140T features a 4-inch display; Model 5160T features a 6-inch display. These models are TEMPEST and meet government requirements for classified communications. All references in this manual apply to both models, unless otherwise noted.

The VTDU is a member of the AT&T secure communication products family. Its features include:

- One-on-one conferences
- Sharp video images with simultaneous voice
- Compact footprint
- Compatibility with a range of SV/DTs
- Display shutoff after period of inactivity (screen saver)
- Still image transmittals in less than 15 seconds (time varies with resolution)
- Variable still image resolution
- Handsfree speakerphone operation
- Input/Output to external video attachments (i.e., camcorders, scanners, printers, computers).

Description

The VTDU, Figure 1-1, houses two printed wiring assemblies, a 4- or 6-inch diagonal Liquid Crystal Display (LCD) screen, a Charge Coupled Device (CCD) camera, a switch assembly, a speaker, a microphone, and the audio/video connector interfaces. The base of the VTDU provides a mounting surface for a secure voice and data terminal. Overall dimensions are 10.0 inches wide, 11.5 inches high, and 14.25 inches deep.

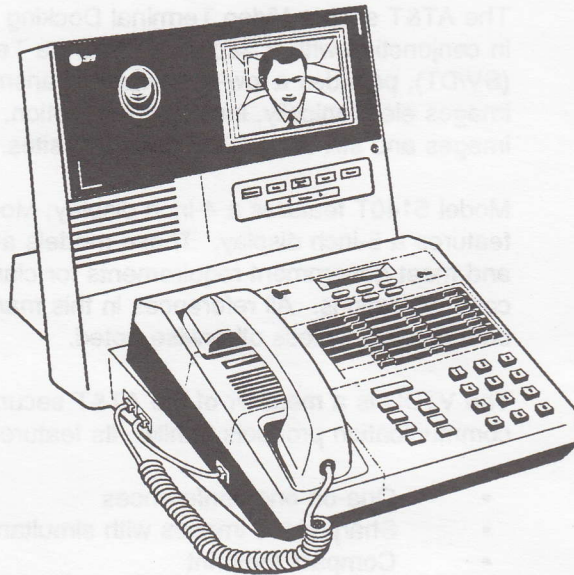


Figure 1-1 AT&T Video Terminal Docking Unit with SV/DT

Physical Interfaces

Communication Interfaces

The VTDU interfaces with the SV/DT via an RS-232 jumper cable from the lower RS-232 connector (VTDU-INTERFACE) on the rear of the VTDU to the SV/DT RS-232 data port. The upper RS-232 connector (VTDU-BYPASS) on the rear of the VTDU is for connecting Data Terminal Equipment (DTE) that would normally connect to the SV/DT. In the bypass mode, input through the BYPASS connector passes directly to the SV/DT. See Figure 1-2.

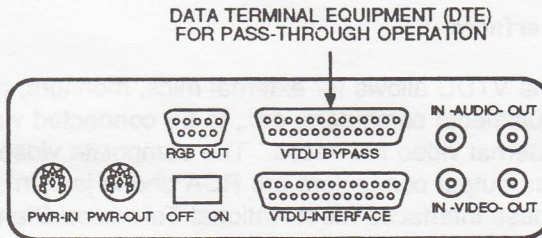


Figure 1-2 DTE Interface

Line Interface

The network interface occur between the telephone line and the SV/DT. The VTDU feeds the data into the SV/DT. The SV/DT secures the data and sends it out over the telephone line. The opening in the VTDU provides a path for the RS-232 data cable (which provides the data link between the SV/DT and the VTDU) and the SV/DT power cable.

Audio Interfaces

The SV/DT handset disconnects from the SV/DT base and connects to the left side of the VTDU. See Figure 2-2. Since the VTDU operates with the SV/DT in the secure data mode, the voice functions of the SV/DT are not operational during a video call. To enable SV/DT voice operation independent of the VTDU, a handset jumper cable interfaces audio to the SV/DT handset connector. The audio input/output connector is a RCA phono jack interface.

The rear connector panel of the VTDU contains Audio In and Audio Out jacks for an external audio system.

Video Interfaces

The VTDU allows for external mics, monitors, printers, multimedia computers, etc., to be connected via its external video interfaces. The composite video input and output connectors are RCA phono jack interfaces. These interfaces meet National Television Standard Committee (NTSC) video standards. There is also an analog RGB video output interface. See Appendix D for details.

Power Interface

The power ON-OFF switch is located on the rear connector panel of the VTDU.

A female power connector (PWR-IN), also on the rear connector panel, accepts power from the plug-ended low-voltage power cord coming from the external power supply (Recognized Component Model: APS40ES-30L3, manufactured by Hitron Electronics Corporation for Advanced Power Solutions). The AT&T part number (KS23821-L3) is on the power supply label above the APS model number. A second power connector (PWR-OUT) on the rear connector panel can be used to power a SV/DT through an interface cable. See Appendix D for details.



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WARNING NOTE: Never install a STU-III Power Supply as input power for the VTDU. The STU power supply is not rated for use as the power supply for the VTDU. Both power supplies have the same power-out connector. The power supply furnished with the VTDU is rated for the VTDU. Do not add peripherals or non-AT&T STU III units to the PWR-OUT connector of the VTDU without approval of the AT&T Secure Communications Customer Service Center.

Before connecting the power supply cable to the PWR-IN connector of the VTDU, make sure that the power OFF/ON switch of the VTDU is in the OFF position.

Internal Video Devices

Camera

The upper display housing contains a color CCD integrated custom camera and lens assembly.

Display

The upper display housing also contains a color LCD display mounted next to the camera. The display has a horizontal viewing angle of +/-45 degrees and a vertical viewing angle of +10 degrees, -30 degrees. The VTDU is available with either a 4-inch or a 6-inch diagonal color LCD display.

Operation of the VTDU

The VTDU operates primary through a menu system displayed on the LCD screen that utilizes the five panel function keys below the screen. When the menu system is deactivated, the five panel function keys and a volume rocker key provide their labeled functions. When the menu system is active, these keys assume the functions displayed on the bottom of LCD screen. Chapters 3 and 4 explain the function and operation of the menu system and the panel keys.

A screen saver blanks the display after 2 minutes of inactivity. Any keystroke or incoming call immediately activates the display screen.



Internal Video Devices

Features

The upper display housing contains a color LCD integrated custom camera and lens assembly.

Display

The upper display housing also contains a color LCD display mounted flat to the camera. The display has a horizontal viewing angle of 45 degrees and a vertical viewing angle of +10 degrees -30 degrees. The VTDU is available with either a 4-inch or a 6-inch diagonal color LCD display.

Operation of the VTDU

The VTDU operates primarily through a menu system displayed on the LCD screen that utilizes the five panel function keys below the screen. When the menu system is deactivated, the five panel function keys and a volume rocker key provide their labeled functions. When the menu system is active, these keys assume the functions displayed on the bottom of LCD screen. Chapters 2 and 4 explain the function and operation of the menu system and the panel keys.

Installation

2

Introduction

This chapter provides instructions for the installation of the VTDU, which is used in conjunction with one of the SV/DTs. Please read all instructions carefully before you begin the installation.

Installing the VTDU

To install the VTDU, follow the steps in Table 2-1. Also refer to the system configuration presented in Figures 2-1 and 2-2.

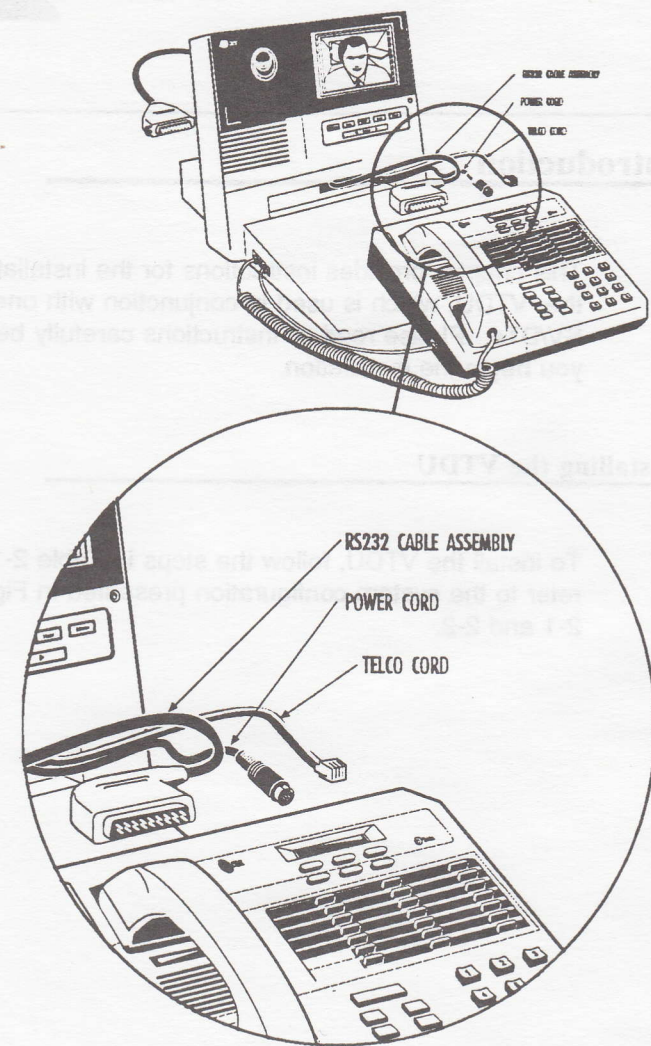


Figure 2-1 Detailed System Configuration - Front

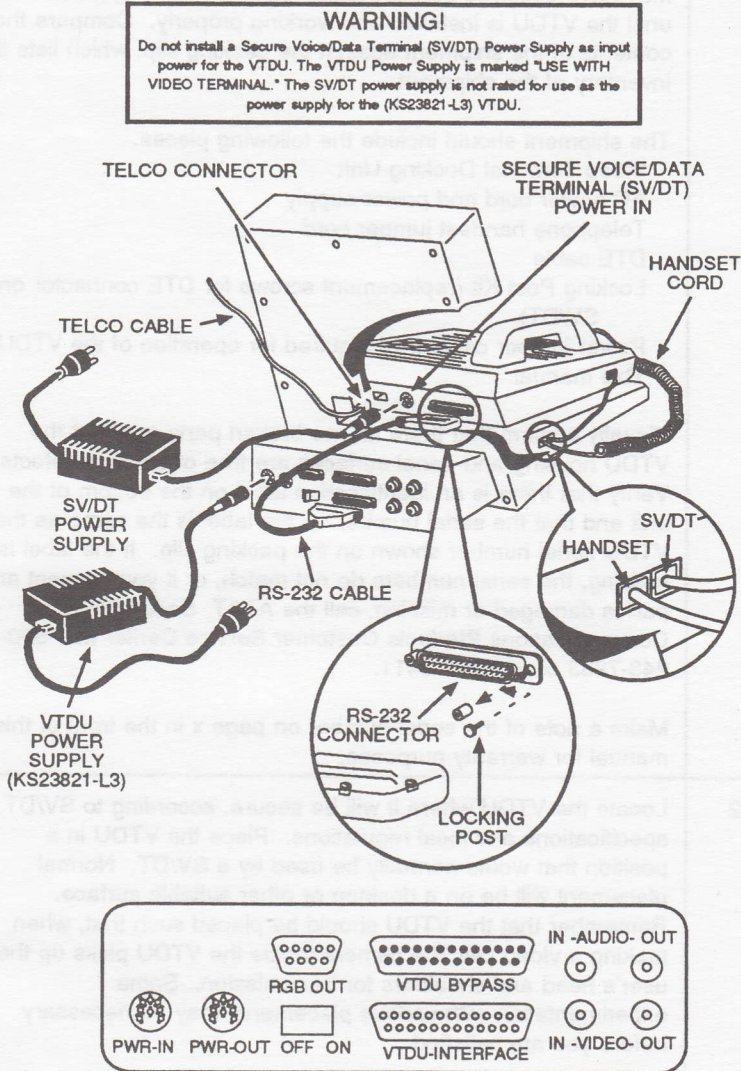


Table 2-1 Installation Procedures

STEP	ACTION
1	<p>Inspect package contents. Inspect the contents for damage that may have occurred during transit. Save all packing material until the VTDU is installed and working properly. Compare the contents of the shipment against the packing slip, which lists the inventory of the shipment.</p> <p>The shipment should include the following pieces.</p> <ul style="list-style-type: none"> Video Terminal Docking Unit AC power cord and power supply Telephone handset jumper cord DTE cable Locking Post Kit (replacement screws for DTE connector on SV/DT) Power jumper cable (not required for operation of the VTDU) This manual <p>Visually confirm that there are no broken parts and that the VTDU housing and panel surfaces are free of obvious defects. Verify that there is an identification label on the bottom of the unit and that the serial number on the label is the same as the VTDU serial number shown on the packing slip. If the label is missing, the serial numbers do not match, or if you suspect any part is damaged or missing, call the AT&T Secure Communications Products Customer Service Center at 1-800-243-7883 or 919-279-3411.</p> <p>Make a note of the serial number on page x in the front of this manual for warranty purposes.</p>
2	<p>Locate the VTDU where it will be secure, according to SV/DT specifications and local regulations. Place the VTDU in a position that would normally be used by a SV/DT. Normal placement will be on a desktop or other suitable surface. Remember that the VTDU should be placed such that, when making a video call, the camera inside the VTDU picks up the user's head and shoulders for transmission. Some experimentation with various placements may be necessary before you are satisfied.</p> <p>The device should not be exposed to extreme heat [over 100° F (37.8 °C)] or extreme cold [under 40° F (4.4° C)]. It should be protected from water and direct sunlight.</p>

STEP	ACTION
3	<p>Follow these steps to install the VTDU with a SV/DT.</p> <p>Unplug the SV/DT power unit from the wall outlet, and disconnect the cord between the power supply and the SV/DT. Unplug the telephone line cord from the SV/DT. Remove the DTE connection from the SV/DT, if used.</p>
4	<p>Remove the hex screws on the rear of the SV/DT DTE connector (see Figure 2-2) with a 3/16-inch hex driver or a similar tool. Replace the hex screws with the new screws (locking post kit) supplied with the VTDU.</p>
5	<p>Connect the DTE cable supplied with the VTDU to the DTE connector on the SV/DT. Make sure you connect the 90°-angled connector to the data jack on the rear of the SV/DT, and slide the latch to secure the cable.</p>
6	<p>Place the SV/DT on the base of the VTDU, allowing enough space at the rear of the SV/DT to connect and feed the cables through the opening in the VTDU. While placing the SV/DT on the platform, push the other end of the DTE connector through the opening in the VTDU, and connect it to the VTDU Interface port (lower RS-232 connector) on the back of the VTDU .</p>
7	<p>Reconnect the SV/DT power cable by feeding it through the VTDU from the rear and plugging it into the SV/DT power connector.</p>
8	<p>Reconnect the telephone line cord by feeding it through the VTDU from the rear and plugging it into the SV/DT line jack.</p>
9	<p>Center the SV/DT on the VTDU base, and slide the SV/DT back as far as it will go against the VTDU without forcing it.</p>
10	<p>Disconnect the SV/DT handset cord from the SV/DT base. Plug the handset cord into the rearmost line jack on the left side of the VTDU. (See Figure 2-2.)</p>
11	<p>Using the handset jumper cord supplied with the VTDU, connect one end of the jumper cord into the handset jack on the SV/DT base and the other end into the remaining handset jack on the left side of the VTDU. (See Figure 2-2.)</p>
12	<p>If you had a device connected to the SV/DT RS-232 port (DTE port), reconnect this device to the VTDU Bypass port. (See Figure 2-2.)</p>
13	<p>Reconnect the SV/DT to the power source. Wait for the SV/DT to complete its self test.</p>

STEP	ACTION
14	Make sure the VTDU power switch is OFF. Plug the VTDU power cable into the PWR-IN connector on the rear of the VTDU. (See Figure 2-2.) Before insertion, ensure that the metal notch of the DIN power connector is facing UP and keyed to match the mating connector on the VTDU. The Power Supply for the VTDU is marked "Use with Video Terminal."
15	Plug the VTDU power cord into the wall power outlet.
16	Turn the VTDU on, and verify that the "Diagnostics Passed" and "System Initialized" messages appear.
17	You are now ready to begin secure video transmissions.

NOTE: Under normal circumstances, you do not need to turn off power to the VTDU. The screen saver feature will blank the screen after 2 minutes of inactivity.

Setup and Initial Operation

3

The VTDU is shipped from the factory with defaults set for various options. Default settings are those conditions the terminal assumes upon power up. Once the VTDU is installed and turned on, **you can initiate video calls without doing any other setup.** The VTDU always comes up in the default modes, but these modes can be changed easily, using the UTILITY menu. You can change these settings manually during the course of a video call, but unless you save the changes using the DEFAULT menu, the changes will be lost at the end of the call. Any settings changed using the DEFAULT menu become the "new" default settings and come up whenever the VTDU is turned off and back on. You must use the UTILITY menu to set date and time referencing. If the unit loses power, you will NOT have to reset the date and time.

A power-on diagnostic executes when power is applied to the VTDU. The power-on diagnostic verifies that the feature-set controller performs correctly and can convey messages reliably to the user through the LCD screen. Upon successful completion of this test, "Power On Diagnostics Pass" displays, followed by "System Initialized" to indicate that the system is operable. The Feature Set Version (FSV), VCodec Version (Master Codec on the left and Slave Codec on the right), and ACodec Version also display. The information remains on the screen for approximately 3 seconds (see Figure 3-1); then the screen reverts to the Main Menu (see Figure 3-2).

NOTE: The attached SV/DT operates in normal mode independent of the VTDU.

NOTE: Many of the figures in this manual contain boxes with shaded highlighting to indicate selectable options available for display. For example, the setting in the upper left-hand corner of the screen can be toggled between Handset, Handsfree, and External. See Figure 3-1.

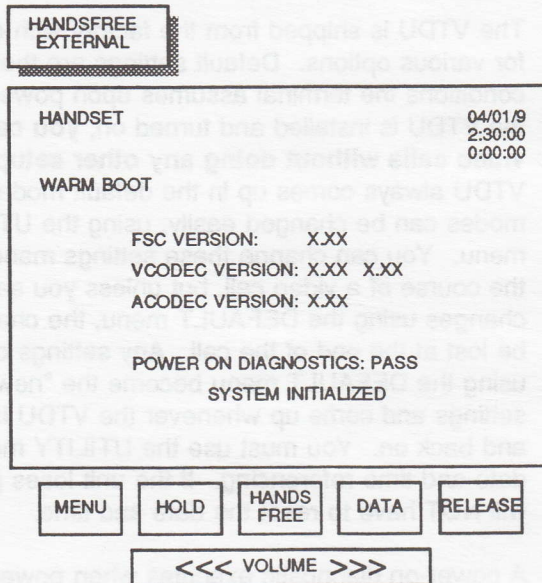


Figure 3-1 Power-On Screen

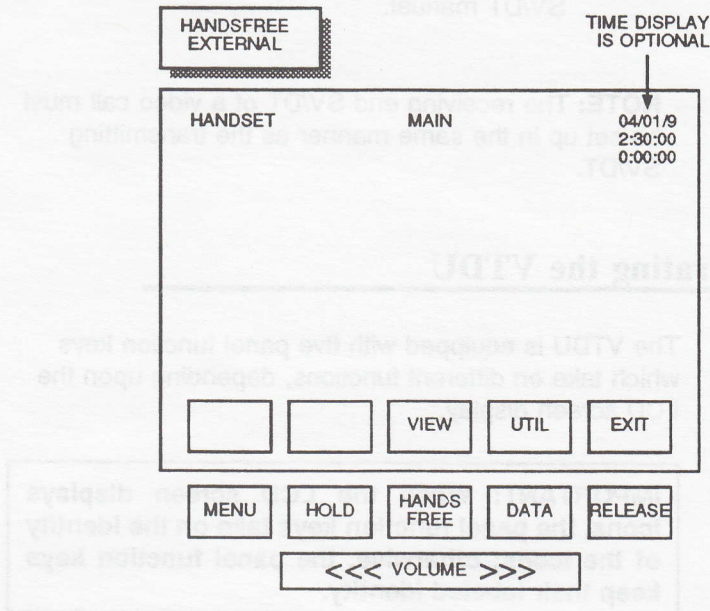


Figure 3-2 Main Menu

Secure Voice Data Terminal Setup

Before attempting to establish a video link with a remote site, perform the following actions on the SV/DT. Set up or verify the SV/DT for VTDU operation as follows:

1. Set the SV/DT to 9.6 KBS, full-duplex, synchronous mode.
2. ENABLE TRELIS coding in the SV/DT.

NOTE: Refer to the SV/DT users manual for secure data communication operation.

3. For all other SV/DT set up information, refer to the appropriate SV/DT manual.

NOTE: The receiving end SV/DT of a video call must be set up in the same manner as the transmitting SV/DT.

Operating the VTDU

The VTDU is equipped with five panel function keys which take on different functions, depending upon the LCD screen display.

IMPORTANT: When the LCD screen displays icons, the panel function keys take on the identity of the icons; otherwise, the panel function keys keep their labeled identity.

When the system is initially powered up, the Main Menu displays on the LCD screen. The panel function keys take on their own labeled identity when you exit from the Main Menu. The following paragraphs explain the function and operation of the menu system and panel keys.

Remember, attaching the VTDU to the secure voice/data terminal does not compromise the capabilities of the SV/DT. You can still operate the SV/DT in normal mode as if the VTDU were not attached.

Also remember that the VTDU has a screen saver feature to blank the screen during periods of inactivity.

Panel Key Functions

Refer to Figure 3-3 for the location of the panel function keys. These keys function as labeled when no icons are displayed on the LCD screen.

NOTE: When the system is not engaged in an active video call, after 2 minutes of user inactivity, the LCD screen turns off (as a screen saver) while the VTDU remains on. Depressing any panel key re-illuminates the LCD screen.

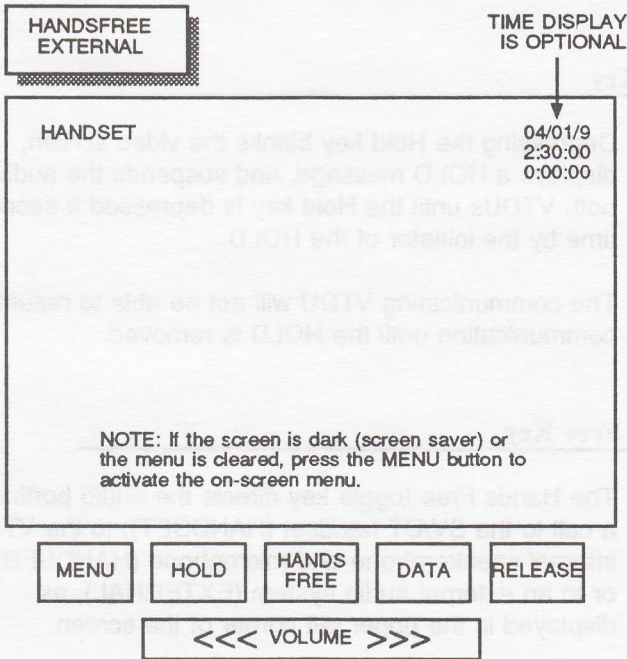


Figure 3-3 Menu Off Screen/Keys

Menu Key

Depressing the Menu key activates the Main Menu screen on the LCD display. The five panel keys function as labeled on the LCD screen immediately above each key. The following paragraphs describe this in more detail. Depressing the EXIT key while in the Main Menu mode removes the menu from the screen, and the keys on the panel shall function as labeled (see Figure 3-1 and 3-2).

Hold Key

Depressing the Hold key blanks the video screen, displays a HOLD message, and suspends the audio on both VTUDUs until the Hold key is depressed a second time by the initiator of the HOLD.

The communicating VTDU will not be able to resume communication until the HOLD is removed.

Hands Free Key

The Hands Free toggle key directs the audio portion of a call to the SV/DT handset (HANDSET), to the VTDU internal speakerphone and microphone (HANDSFREE), or to an external audio system (EXTERNAL), as displayed in the upper left corner of the screen.

Data Bypass Key

The Bypass mode allows external devices (e.g., fax machines, personal computers, etc.) to be connected directly to the data port of the SV/DT via the VTDU Bypass port. In effect, this feature allows the user the convenience of not having to disconnect the VTDU from the SV/DT when connecting peripheral devices to the SV/DT.

The Data key, when depressed, toggles the VTDU into the Bypass mode, allowing the flow of RS-232 signals

from the SV/DT directly to and from the VTDU Bypass port on the VTDU and causes a BYPASS message to display.

The Bypass mode must be activated by depressing the Data key **before** initiating or receiving a Secure Data call. Depressing the Data key again restores the video interface to make or receive the next call.

Otherwise, depressing the Data key during an active Secure Data call causes "Invalid Key" to display in red over the video signal.

NOTE: Video communication is not possible in the Bypass mode.

Release Key

The Release key terminates a video call.

Volume Key

The Volume rocker key increases or decreases speaker or handset volume, depending on which is active. A bar graph displays for approximately 1 second, showing the direction and level of volume change.

To Initiate a Video Call

To initiate a video call after VTDU installation and SV/DT set up, one can begin by making a voice call through the SV/DT. Once the audio connection is made, simply press the SECURE DATA button on the SV/DT to establish a video link.

The VTDU will operate at lower frame rates at 4.8 KBS full duplex, synchronous mode for both voice and video and at 2.4 KBS full duplex, synchronous mode for video only (no voice). These options expand network coverage and provide still picture transmission at 2.4 KBS.

Consider reducing the data rates when it is difficult to establish a video link or when you notice numerous red asterisks in the upper left-hand corner of the display during a video call.

Operation

4

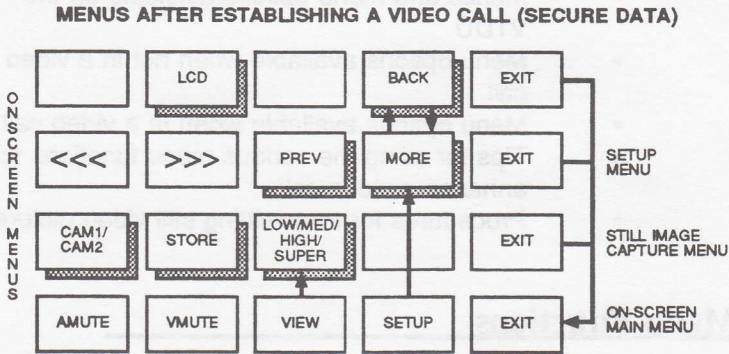
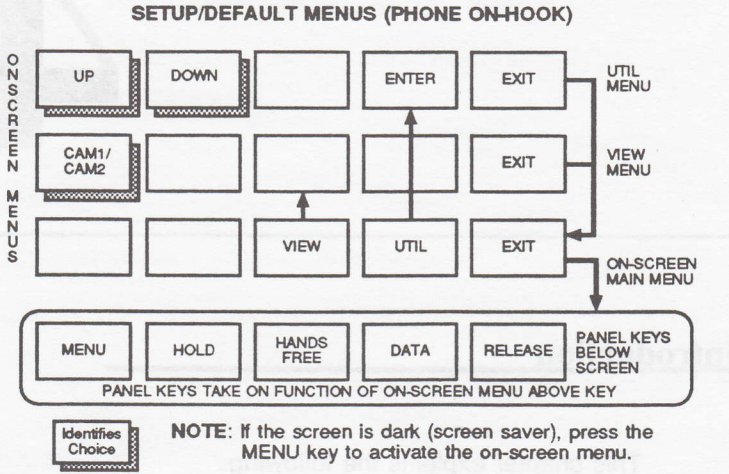
Introduction

This chapter explains the following.

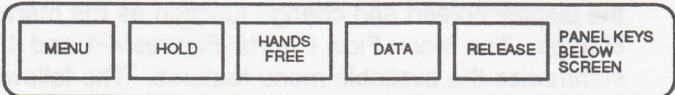
- Menus and menu options available on the VTDU
- Menu options available when not in a video call
- Menu options available when in a video call
- Tips for using the various menu functions to enhance a video call
- Procedures for transmitting still video pictures

Menu Functions

The menu system provides the user a screen display of the available VTDU features. In Menu mode, the five panel keys are defined by icons across the bottom of the display screen and change function as the menus change. The Menu Flow Charts, Figures 4-1 and 4-2, summarize the available menu features. The following paragraphs describe each menu and the associated display in detail.



To select HANDS FREE, HANDSET, or EXTERNAL VOICE after call setup, you MUST exit from the Main Menu.



Panel keys take on named function when EXIT is selected from Main Menu; on-screen menus will not be available until MENU is pushed. The call will be dropped if you press the RELEASE key after screen MENU is removed. Refer to the VTU User's Manual for details.

Figure 4-1 Menu Flow Chart

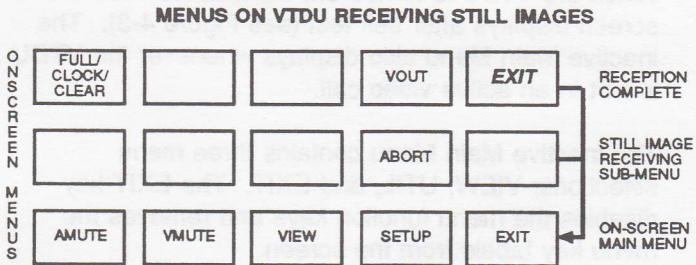
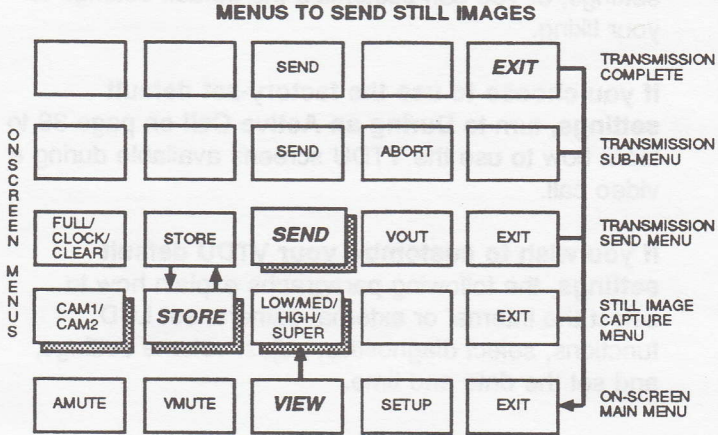


Figure 4-2 Menu Flow Chart (Continued)

Before an Active Call

The VTDU comes with factory-set default settings. You can immediately initiate video calls using these default settings, or you can customize the default settings to your liking.

If you choose to use the factory-set default settings, turn to *During an Active Call* on page 39 to learn how to use the VTDU screens available during a video call.

If you wish to customize your VTDU default settings, the following paragraphs explain how to select the internal or external camera, set LCD functions, select diagnostics, adjust volume settings, and set the date and time.

Main Menu

When the VTDU is turned on, the inactive Main Menu screen displays after self test (see Figure 4-3). The inactive Main Menu also displays whenever the VTDU is **not** in an active video call.

The inactive Main Menu contains three menu selections: VIEW, UTIL, and EXIT. The EXIT key disables the menu function keys and removes the menu key labels from the screen.

Figure 4-3 shows the Main Menu screen when not in an active video call.

Main Menu Settings

- VIEW:** Depressing this key selects the View (Capture) Men
- UTIL:** This key is not available during an active call. Depressing this key selects the Utility Menu and allows for review or changes to the default settings.
- EXIT:** Depressing this key turns the Main Menu OFF.

The Main Menu keys available before an active call include:

- | | |
|-------------------------|------|
| Proceed to View Menu | VIEW |
| Proceed to Utility Menu | UTIL |
| Turn Menu Off | EXIT |

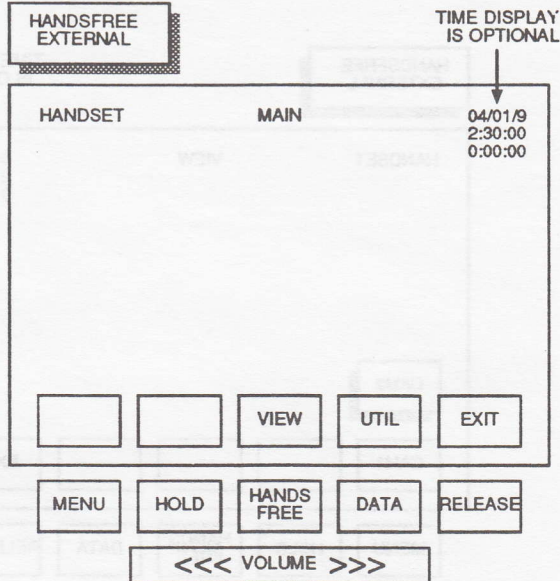


Figure 4-3 Main Menu Screen (Not during an Active Call)

View Menu

The View Menu screen allows the user to view an internal camera or an external camera. While not in an active call, the VIEW screen provides a preview of the internal and external cameras. See Figure 4-4.

The View Menu keys include:

Select View Source

Internal Camera

CAM 1

External Camera

CAM 2

Return to Main Menu and

EXIT

Receive Communicating VTDU

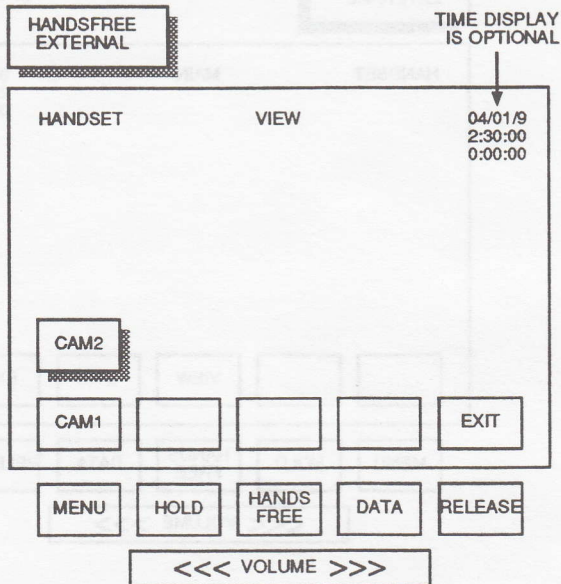


Figure 4-4 View Screen (Not during an Active Call)

Utility Menu

The Utility Menu is activated from the inactive Main Menu when an active video call is **not** taking place. The Utility Menu uses a combination of function keys to select the desired utility from the displayed list. The Utility Menu allows access to the following menus: Volume (speakerphone/handset); LCD; Date; Time; Diagnostic; and Default. See Figure 4-5.

The Utility Menu options include:

- | | |
|--------------------------|-------|
| Move Indicator Up | UP |
| Move Indicator Down | DOWN |
| Proceed to Selected Menu | ENTER |
| Return to Main Menu | EXIT |

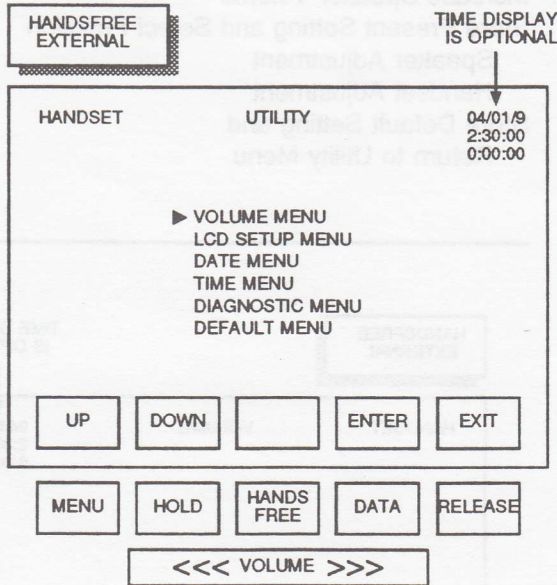


Figure 4-5 Utility Screen

Volume Menu

The Volume Menu allows you to set separate default volumes for the speaker and handset. Default volume settings can be overridden temporarily during an active video call by the Volume rocker key. Default settings are restored after the call terminates. The Volume Menu variable key is in the center key position and can be toggled between SPKR and HAND. This center

toggle key stores the present setting and advances the option to the next selection. The arrow keys increase or decrease the volume. The SAVE key stores the final default setting and returns control to the Utility Menu. See Figure 4-6.

The Volume Menu keys include:

Decrease Speaker Volume	<<<
Increase Speaker Volume	>>>
Store Present Setting and Select Function	
Speaker Adjustment	SPKR
Handset Adjustment	HAND
Store Default Setting and	
Return to Utility Menu	SAVE

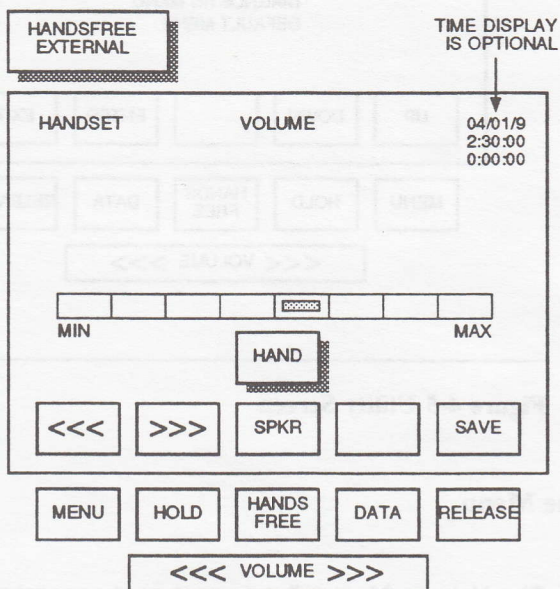


Figure 4-6 Speaker Volume Screen

LCD Setup Menu

The LCD Setup Menu allows you to adjust brightness (BRGHT) and contrast (CONTR) on the LCD SETUP screen while viewing the preview from the local camera. The arrow keys increase or decrease the value of the function selected. The LCD Setup Menu variable key is in the center key position and can be toggled between BRGHT and CONTR. This center toggle key stores the present setting and advances the setup option to the next selection. The SAVE key stores the final setting and returns to the Utility Menu. See Figure 4-7.

The LCD Setup Menu options include:

Decrease Selected Function Value	<<<
Increase Selected Function Value	>>>
Store Present Setting and Select Function	
Brightness Adjustment	BRGHT
Contrast Adjustment	CONTR
Display Color Bar Pattern	PATRN
Store Present Setting and	SAVE
Return to Utility Menu	

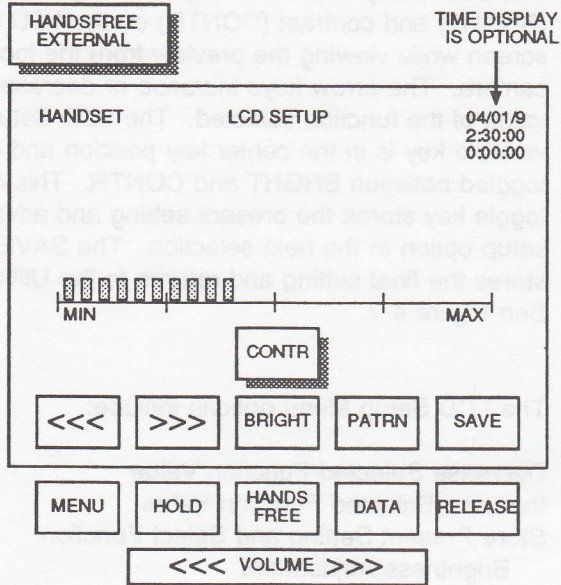


Figure 4-7 LCD Setup Screen

When the pattern key (PATRN) is depressed, a 3-block color swatch displays on the screen. See Figure 4-8. Adjust the brightness and contrast to the desired levels by depressing the left and right arrow keys. Depressing the PATRN key a second time returns you to the LCD Setup Menu in a preview mode.

The LCD Setup Menu keys include:

- Decrease Selected Function Value <<<
- Increase Selected Function Value >>>
- Store Present Setting and Select Function
 - Brightness Adjustment BRGHT
 - Contrast Adjustment CONTR
 - Display Color Bar Pattern PATRN
 - Store Present Setting and Return to Utility Menu SAVE

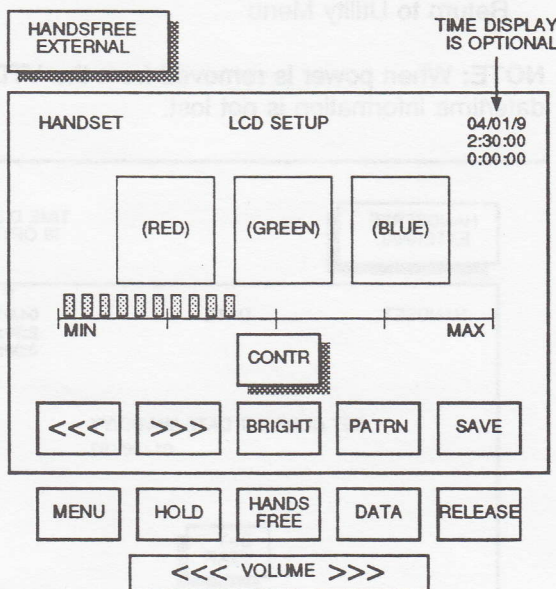


Figure 4-8 LCD Setup Screen with Color Pattern

Date Menu

The arrow keys increase or decrease the value of the function selected. The selected variable appears in the center key which toggles through MONTH, DAY, and YEAR. The toggle key stores the present setting and advances the setup option to the next selection.

Depressing the SAVE key starts the calendar and returns you to the Utility Menu. See Figure 4-9.

The Date Menu options include:

Decrease Selected Function Value	<<<
Increase Selected Function Value	>>>
Select Function and Store Present Setting	
Set Month	MONTH
Set Day	DAY
Set Year	YEAR
Store Present Setting and	SAVE
Return to Utility Menu	

NOTE: When power is removed from the VTDU, the date/time information is not lost.

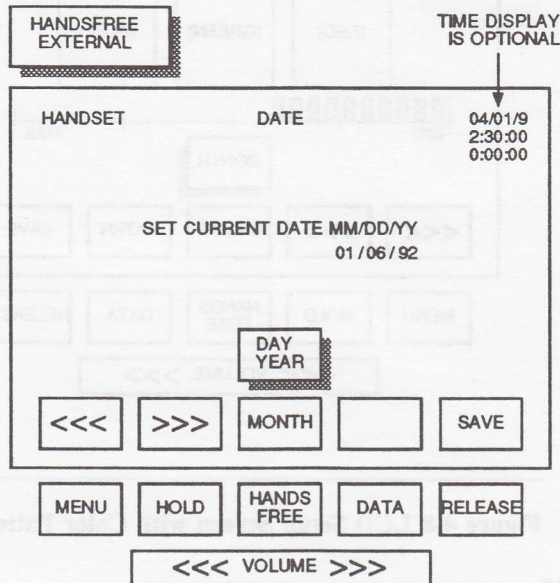


Figure 4-9 Date Screen

Time Menu

The arrow keys increase or decrease the value of the function selected. The selected variable appears in the center key which toggles through HOUR, MINUTE, and SECOND. This toggle key stores the present setting and advances the setup option to the next selection. Set AM and PM by scrolling through the 12-hour mode. Depressing the SAVE key starts the clock and returns you to the Utility Menu. See Figure 4-10.

The Time Menu options include:

Decrease Selected Function Value	<<<
Increase Selected Function Value	>>>
Store Present Setting and Select Function	
Set Hour	HOUR
Set Minute	MIN
Set Second	SEC
Select Clock Format	
Select the 12-Hour Display	12/HR
Select the 24-Hour Display	24/HR
Store Present Setting and	SAVE
Return to Utility Menu	

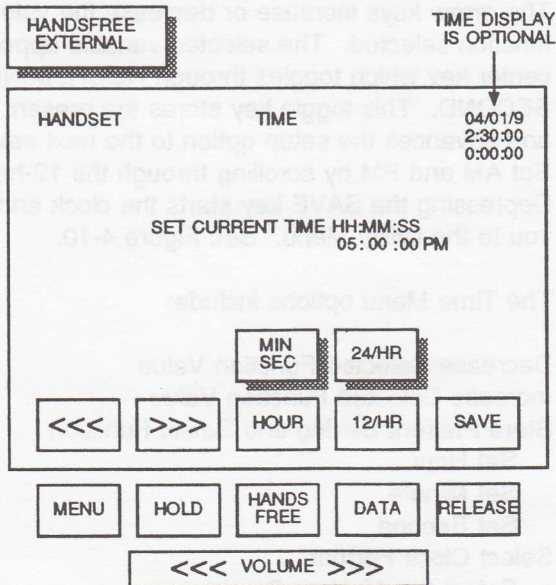


Figure 4-10 Time Screen

Diagnostic Menu

Select a diagnostic test by moving the indicator up or down on the Diagnostics Menu screen. Initiate the selected diagnostic by depressing the RUN key. This cycles the VTDU through the test. As each test completes, the screen indicates a pass/fail condition for that test. See Figure 4-11.

NOTE: Incoming calls cannot be accepted while running digital loopback.

The Diagnostic Menu keys include:

Move Indicator Up	UP
Move Indicator Down	DOWN
Run Diagnostic Test Indicated	START
Stop Diagnostic	STOP
Return to Utility Menu	EXIT

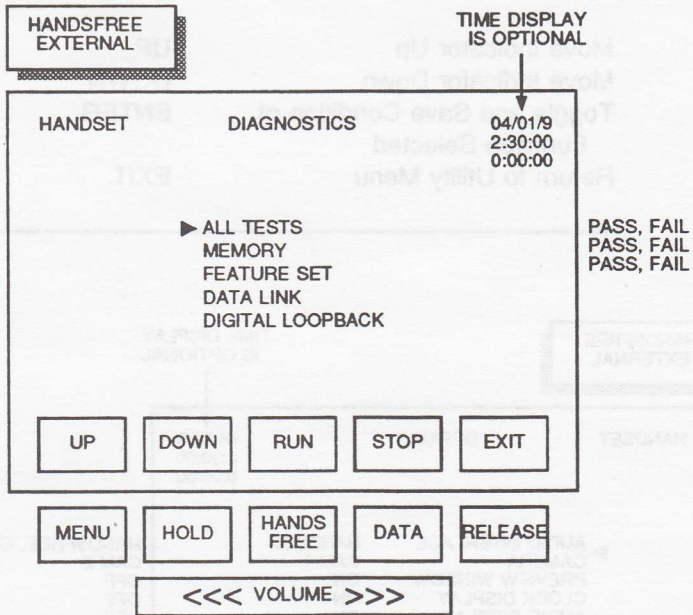


Figure 4-11 Diagnostic Screen

Default Menu

The Default Menu allows you to select and enter default preferences. The ENTER key selects the desired default condition. The Default Menu is not available during an active video call. All default settings are stored in battery-backed-up Random Access Memory (RAM). See Figure 4-12.

The Default Menu keys include:

Move Indicator Up	UP
Move Indicator Down	DOWN
Toggle and Save Condition of Function Selected	ENTER
Return to Utility Menu	EXIT

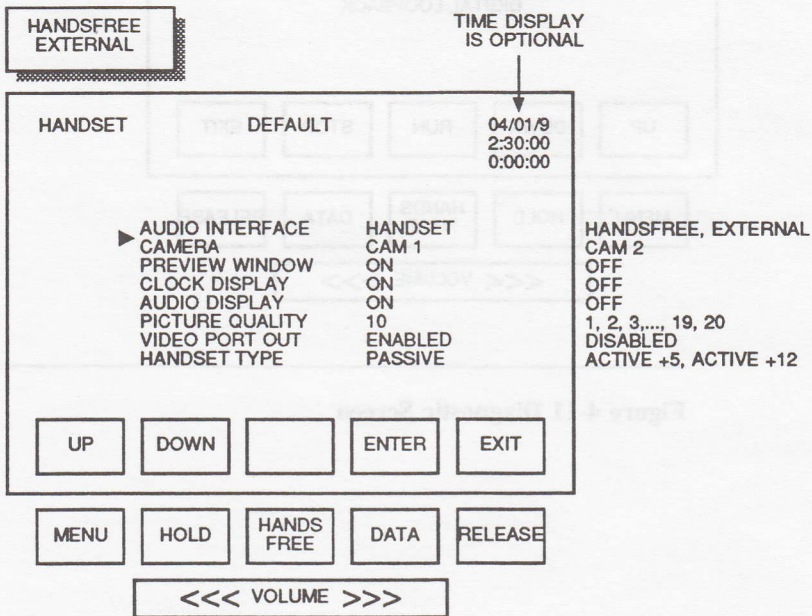


Figure 4-12 Default Menu Screen

Default Menu Selections

Audio Interface: The VTDU defaults to Handsfree mode upon receipt of a call when HANDSFREE is selected, defaults to Handset mode when HANDSET is selected, and defaults to an external microphone and speaker when EXTERNAL is selected. The Hands Free key on the front panel toggles between HANDSET, HANDSFREE, and the EXTERNAL (microphone and speaker).

Camera: The VTDU defaults to internal camera input when CAM 1 is selected and to external camera input when CAM 2 is selected.

Preview Window: The VTDU defaults to the preview window display on the active video screen when turned ON and to no preview window display during active video when turned OFF.

Clock Display: The VTDU defaults to display of the Date, Time, and Timer in the upper right corner of the screen at all times when in the ON state. No display is present when in the OFF state.

Audio Display: The VTDU defaults to displaying either HANDSET, HANDSFREE, or EXTERNAL in the upper left corner of the screen at all times when in the ON state. No display is present when in the OFF state.

When pressing the Hands Free key with the Main Menu not displayed and the Audio Display is set to OFF, the Audio function cycles through the options and displays the current audio setting on the screen for 1 second.

Picture Quality: The VTDU defaults to the selected picture quality, in increments of 1 from 1 to 20.

Video Port Out: The VTDU defaults to the mode selected which enables video to the output ports constantly when ENABLED or disables video to the output ports when DISABLED.

In the DISABLED default mode, enable the Video Out port by selecting VOUT, to allow output of a video still to a printer or computer.

Handset Type: The VTDU will accept passive and active handset interfaces. The current AT&T SV/DT has a passive handset.

Table 4-1 lists the items set by default settings upon power up. You have the ability to change these default settings preset at the factory.

Table 4-1 VTDU Factory-Preset Default Settings

FUNCTION	FACTORY DEFAULT SETTING	OPTIONS
Audio Interface	HANDSET	HANDSET, HANDSFREE, EXTERNAL
Camera	CAM 1	CAM 1, CAM 2
Preview Window	ON	ON, OFF
Clock Display	OFF	ON, OFF
Audio Display	ON	ON, OFF
Picture Quality	10	1 - 20 in increments of 1
Video Port Out	ENABLED	ENABLED, DISABLED
Handset Type	Passive	ACTIVE +5, ACTIVE +12

During an Active Call

The following paragraphs describe the functions of the various screens available during an active video call.

Main Menu

On initializing an active video call, both the sending and receiving displays are in the active Main Menu mode. Figure 4-13 shows the Main Menu screen for an active video call.

The active Main Menu contains five menu selections: AMUTE, VMUTE, VIEW, SETUP, and EXIT. The EXIT key disables the menu function keys and removes the menu key labels from the screen.

Main Menu Settings

AMUTE: Available only during an active call. Depressing AMUTE turns the key graphic red and mutes the audio while still processing video.

Depressing AMUTE again deactivates the muting, returns the caller to normal conversation, and returns the key graphic to the normal inoperative blue.

VMUTE: Available only during an active call. Depressing VMUTE turns the key graphic red and displays "Remote Video Mute" on a white background over the receiving VTU.

Depressing VMUTE again deactivates the muting, returns the caller to normal video, and returns the key graphic to the normal inoperative blue.

VIEW: Depressing this key selects the View (Capture) Menu.

SETUP: Available only during an active call. Depressing this key selects the Setup Menu.

EXIT: Depressing this key turns the Main Menu OFF.

The Main Menu keys during an active call include:

Mute Audio Transmission	AMUTE
Mute Video Transmission	VMUTE
Proceed to View Menu	VIEW
Select Setup Menu	SETUP
Turn Menu Off	EXIT

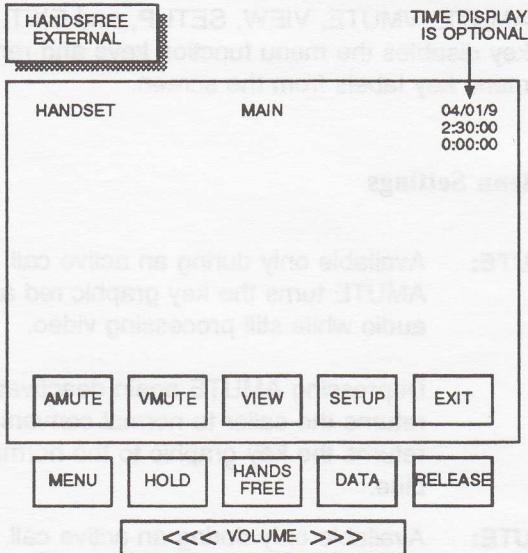


Figure 4-13 Main Menu Screen (During an Active Call)

Setup Menu

The Setup Menu screen allows the user to adjust picture quality, LCD display, and Preview Window during an active call. See Figure 4-14.

The Setup Menu keys include:

- Decrease Selected Function Value <<<
- Increase Selected Function Value >>>
- Select Preview Window PREV
- Select Additional Function MORE
- Return to Main Menu and Receive Communicating VTDU EXIT

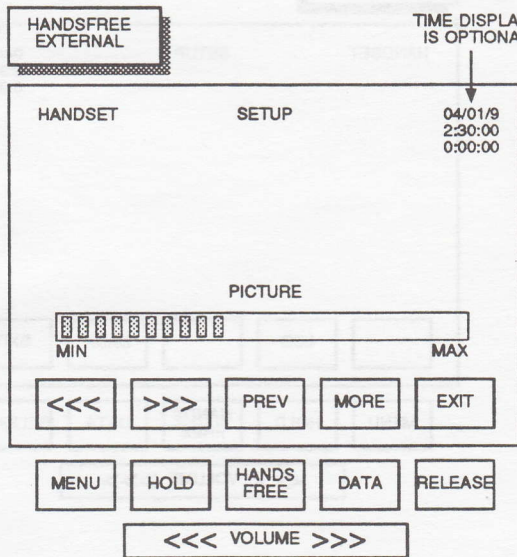


Figure 4-14 Setup Screen (During an Active Call)

Setup More Menu

The Setup More Menu screen allows the user to select additional Setup functions during an active call. See Figure 4-15.

The Setup More Menu keys include:

Select LCD Setup Menu Options	LCD
Return to the Setup Menu	BACK
Return to Main Menu and Receive Communicating VTDU	EXIT

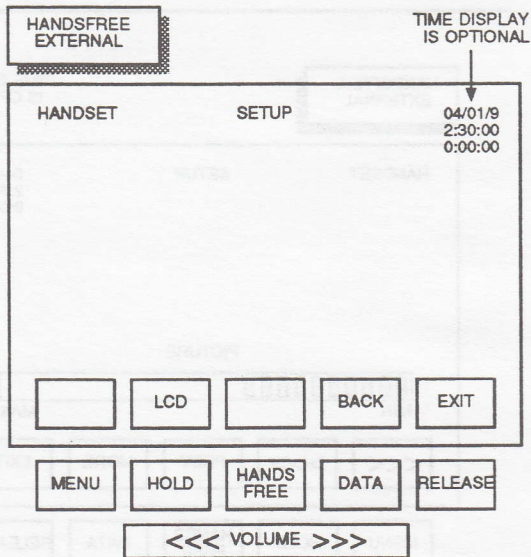


Figure 4-15 Setup More Screen (During an Active Call)

See pages 29 and 30 for LCD Menu options.

View Screen Capture Menu

While in an active call, the VIEW screen incorporates the CAPTURE feature.

From the Capture Menu the user can change the camera selection by toggling the CAM key (CAM 1/CAM 2). The selected camera can be used until the call is terminated.

NOTE: CAM 1 is the internal camera; CAM 2 represents the video source from the VIDEO IN jack.

During a call, the camera selection can be changed at any time by going back into the View Menu. From the View Menu, select the particular camera source. Select the outgoing video with the CAM1/CAM2 menu item. **When you EXIT from this menu, the last camera selection is retained in the VTDU.**

The CAPTURE feature allows the user to capture a frame of the display and to store that frame in memory during an active video call. The VTDU defaults to the last resolution selected. The lower the resolution is set, the faster the image completes transmission. The higher the resolution is set, the longer it takes for the image to complete transmission. See Figure 4-16.

The View Menu keys and their colors include:

Select View Source

Internal Camera	CAM 1	Blue
External Camera	CAM 2	Blue

Capture Frame	STORE	Blue
---------------	-------	------

Select Still Resolution

Super	SUPER	Blue
High	HIGH	Blue
Medium	MED	Blue
Low	LOW	Blue

Return to Main Menu and Receive Communicating VTDU	EXIT	Blue
---	------	------

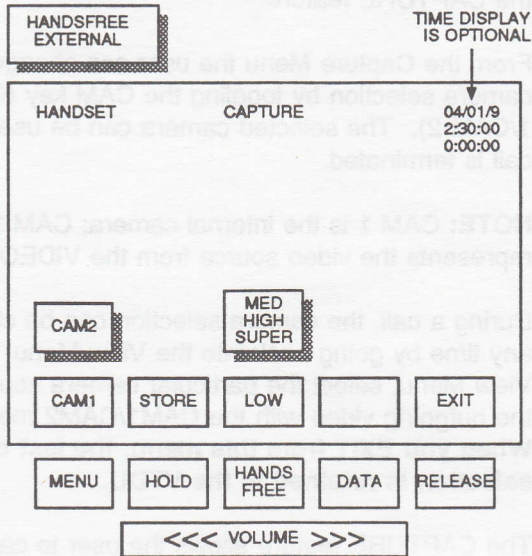


Figure 4-16 View Screen (During an Active Call)

After capturing a frame using the STORE key (see Figure 4-16), you can send the image to the receiving VTDU by pressing the SEND key (see Figure 4-17).

NOTE: After the image is stored in temporary memory, preview the image on the screen before sending it to the communicating VTDU. Prior to sending a stored image, you may transmit it to local media (e.g., a video printer) via the Video Out port. The VTDU defaults to outputting everything on the screen to the Video Out port when FULL is selected (including menus), an image with date and time when CLOCK is selected, and an image only when CLEAR is selected. See Figure 4-17. Selecting the VOUT key allows you to preview the picture without menus or to activate a disabled video port (default setting). To send the

picture, press the VOUT key (data) to restore the menu to the screen and to enable the SEND key.

The Capture Menu Output Screen keys and their colors include:

Selection for External Screen

All Menu	FULL	Blue
Time Stamp Only	CLOCK	Blue
No Menu Graphics	CLEAR	Blue
Capture Frame	STORE	Blue
Transmit Image	SEND	Blue
Preview Video Saved		
Toggle Video Port Enable	VOUT	Blue
Return to Main Menu and Receive Communicating VTDU	EXIT	Black

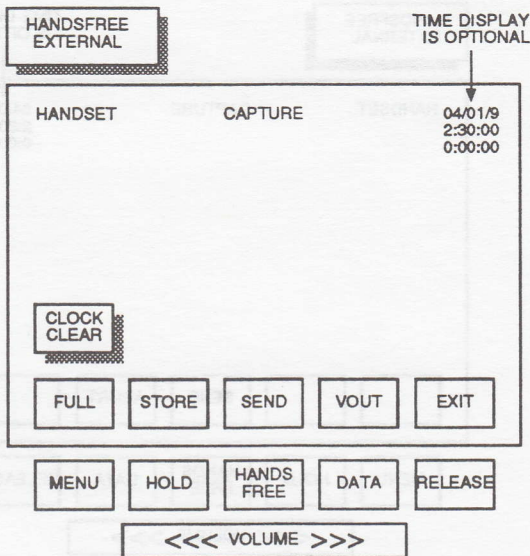


Figure 4-17 Capture Menu Output Screen (During an Active Call)

While transmitting a still, the stored image remains on the sender's display. The SEND key is colored red while sending the still, and only audio interaction is possible during a send process. When the receiving VTDU receives the still, the SEND key of the sending VTDU turns green. The sender's unit releases when either party aborts or exits (see Figure 4-18). When either party aborts or exits, the sender's unit returns to the OUTPUT screen, ready to send another still or to exit to the Main Menu. **The previous still image cannot be recalled.**

The Send Screen keys and their colors include:

Transmitting Image	SEND	Red
Abort Image Transmission	ABORT	Black
Return to Main Menu and Receive Communicating VTDU	EXIT	

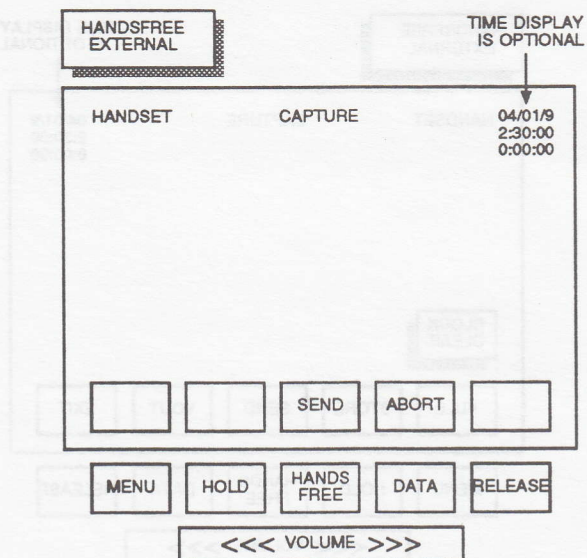


Figure 4-18 Send Screen - Sender (During an Active Call)

The receiving unit can abort the receipt of a still while the still is being received. The display automatically shows the viewer the still as it is being received. See Figure 4-19.

The Incoming Still Screen (during and active call) keys and their colors include:

Abort Receipt of Image **ABORT** Black

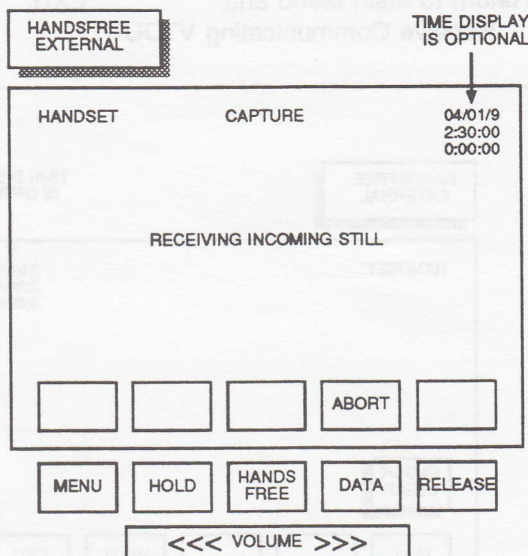


Figure 4-19 Incoming Still Screen - Receiver (During an Active Call)

When a still is no longer needed, either the sender or the receiver can press the EXIT key to release the still and return the receiver to the Main Menu/Active Video mode and the OUTPUT screen. The VTDU defaults to outputting everything on the screen to the Video Out port when FULL is selected, to active video and the clock when CLOCK is selected, and to active video

only when CLEAR is selected. See Figure 4-20.

The Incoming Still Screen (after receipt of a still) keys and their colors include:

Selection for External Screen

All Menus	FULL	Blue
Time Stamp Only	CLOCK	Blue
No Menu Graphics	CLEAR	Blue

Removes Menu from Screen

Toggle Video Port Enable	VOUT	Blue
Return to Main Menu and Receive Communicating VTU	EXIT	Black

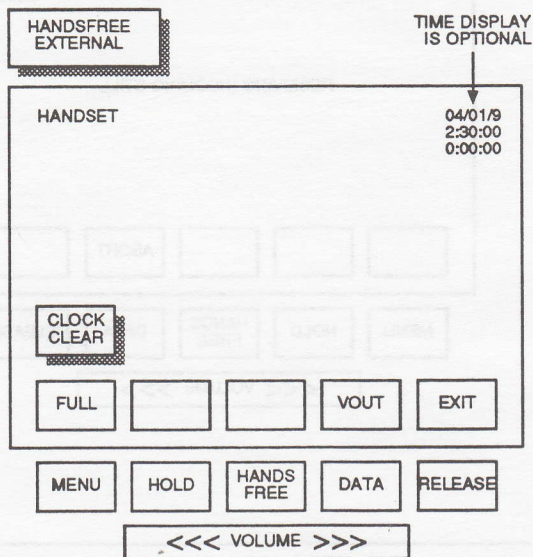


Figure 4-20 Incoming Still Screen after Receipt of a Still

Figure 4-21 shows the sender's screen upon completion of a still transmission.

If the sender presses the EXIT key, the CAPTURE screen displays, and the stored image is erased from memory. This allows the sender to send the next still image.

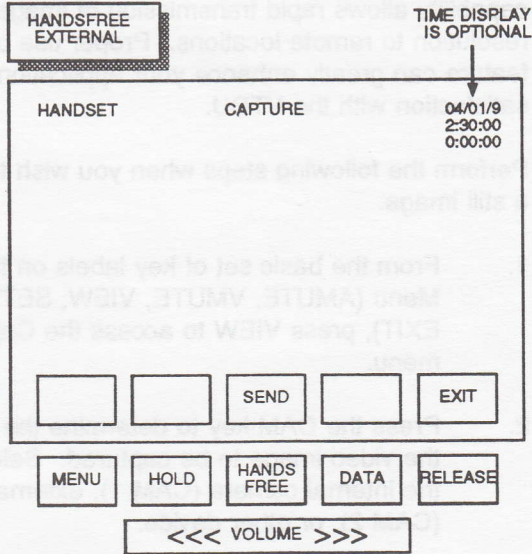


Figure 4-21 Send Screen after Receipt of a Still - Sender

Extended Applications

Transmitting Still Video Images

The VTDU allows you to "capture" an image and transmit it to another VTDU. The source of a captured image can be the internal VTDU camera, an external camera, or other video (NTSC) input source. See Figures 4-22 and 4-23 for alternative applications. This capability allows rapid transmission of images at good resolution to remote locations. Proper use of this feature can greatly enhance your applications and satisfaction with the VTDU.

Perform the following steps when you wish to transmit a still image.

1. From the basic set of key labels on the Main Menu (AMUTE, VMUTE, VIEW, SETUP, and EXIT), press VIEW to access the Capture menu.
2. Press the CAM key to determine the source of the video image to be captured. Select either the internal camera (CAM 1), external camera (CAM 2), or other device.
3. Toggle the resolution keys (SUPER, HIGH, MED, LOW) to select the level of resolution desired for transmission.

NOTE: The lower the resolution, the shorter the transmission time.

The CAM 2 selection defines the Video In jack as the video source for transmission. All external devices that are the source information should be connected to the Video In and Audio In jacks.

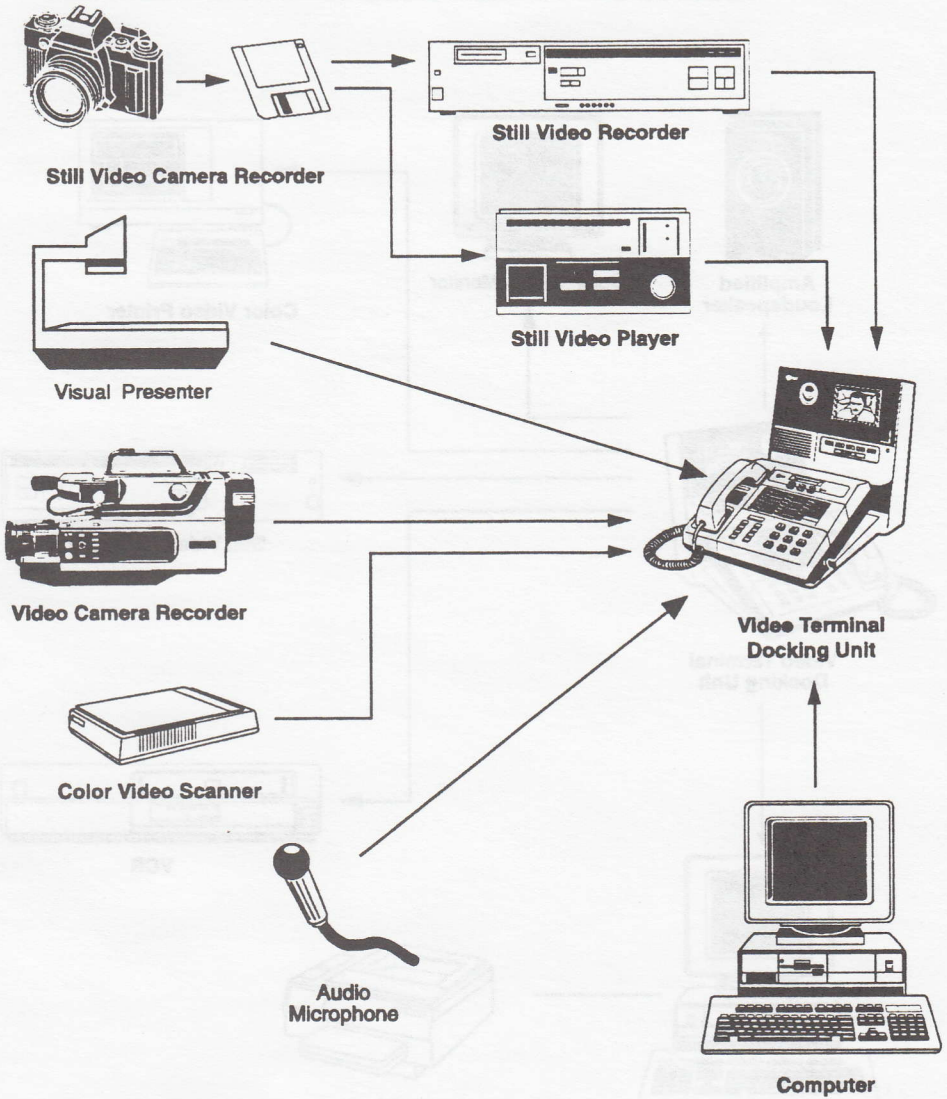


Figure 4-22 Alternative Applications - Sending

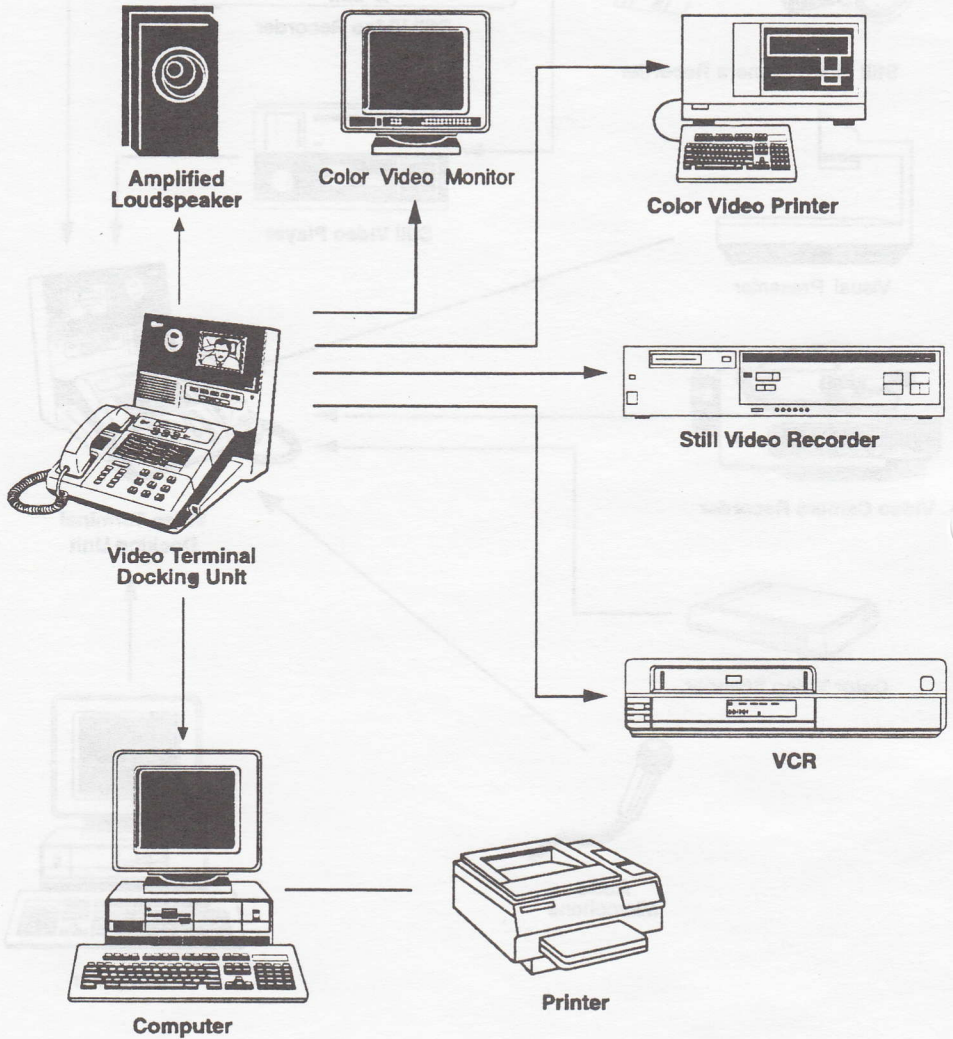


Figure 4-23 Alternative Applications - Receiving

4. Press STORE to capture the image. You can toggle the STORE key as many times as you like until you are satisfied with the captured image. Note that the SEND and VOUT key labels appear as soon as you store an image.
5. After storing an image, you have two options for transmitting that stored image. Press SEND to transmit the image to a receiving-end VTU, or press VOUT, if the external Video Out port is disabled, to send the image to an external device connected to your VTU.
6. If you are sending to a remote VTU, after a satisfactory image has been obtained, press SEND to transmit the video image. Once the SEND key is pressed, either the sender or the receiver can abort the transmission by pressing the ABORT key prior to completion of the transmission.

Depressing the SEND key changes the word SEND from blue to red on the transmitting VTU, indicating a send is in progress. Once the transmission is complete, the word SEND changes to green. Transmitting time to send a still is variable, depending on the resolution you wish to obtain. The lower the resolution, the faster the image will be transmitted.

During the sending period, the audible link is maintained, and the receiver sees the following message on the screen: "Receiving Incoming Still." Upon completion of the transmission, the receiver will see the still image on the screen.

After receiving the still image, the receiver controls how that still is processed. The still can be sent to an external apparatus (video printer, monitor, etc.). Pressing the VOUT key clears the menu from the screen and enables the Video Out port, if disabled. The external devices for receiving images should be connected to the Video Out and Audio Out jacks. Toggle the External screen key (FULL, CLOCK,

CLEAR) to determine the information to be overlaid onto the received display. Upon completion of transmission to an external device, press VOUT to return to the Capture Menu.

NOTE: The receiving or sending end must exit out of the Capture Menu to restore the video link between both parties.

During the sending period, the audio link is maintained, and the receiver sees the following message on the screen: "Receiving Incoming Still". Upon completion of the transmission, the receiver will see the still image on the screen.

Maintenance and Troubleshooting

5

Maintenance

Periodically clean the camera lens and the LCD screen. To clean these areas, use a clean, damp, lint-free cloth.

The VTDU has no user-maintenance elements, and the warranty will be voided if you open the VTDU enclosure. During the warranty period (standard or extended), the battery contained within an integrated circuit inside the enclosure will be replaced free.

Post-warranty recommended battery maintenance and replacement instructions follow.

1. Read and understand the following precaution **before** attempting a replacement.

WARNING NOTE: There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or an equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



SA 1966

2. The Dallas Integrated Circuit (DS1287), located on the Controller Assembly (Part Number 9371253) in location U12, contains a lithium battery within the integrated circuit. There is no recommended maintenance. However, if the battery fails, the integrated circuit must be replaced with an identical DS1287 circuit.

Troubleshooting

The VTDU has been designed to give years of trouble-free operation. If a problem does develop, follow the simple steps below before calling the Customer Service Center for assistance.

Table 5-1 Troubleshooting Procedures

STEP	ACTION
1	Power down the VTDU and the SV/DT.
2	Check that all connections between the VTDU and the SV/DT are securely fastened. Check to see that power cables are properly connected. Also, check that wall connections are made properly.
3	Check the setup of the SV/DTs, as follows. <ul style="list-style-type: none"> - Both must be set to sync, full duplex. - Review security setup features (i.e., SACS).
4	If the screen goes blank after initiation of a video call, verify that both parties have the SV/DT modem set at "sync" (synchronous).
5	If there is difficulty establishing a video link, consider reducing the data rate from 9.6 to 4.8/2.4 KBS or consider adjusting the modem output level (see Table 5-2).
6	If numerous red asterisks are appearing in the upper left-hand corner of the display during a video call, either try recalling the party or lower the data rate of the SV/DT.
7	If the image of the display is dark during a video call, try adjusting the brightness of the display via the Setup Menu.
8	If the image is not as sharp as desired, select the Setup Menu and increase the Picture Quality level. By increasing Picture Quality, the motion (Frame Rate) will be reduced.
9	For optimal handsfree operation, only one end of the call (party) should be in the handsfree mode.

STEP	ACTION
10	Power up the VTDU and the SV/DT. Verify that the "Power On Diagnostics Passed" and "System Initialized" messages display on the VTDU screen.
11	<p>If the messages do not appear, or if an error message displays, turn the power switch on the VTDU off, and call the Customer Service Center for assistance.</p> <p>NOTE: If a problem does occur with the VTDU, it should not affect operation of the SV/DT, and normal secure voice calls can still be made without disconnecting the VTDU and SV/DT.</p>

The SV/DT Network Interface shall provide the maximum modem output levels, by country code setting, as shown in Table 5-2.

Table 5-2 Modem Output Levels

Country Code	Max. Modem Level (dBm)*	Country Code	Max. Modem Level (dBm)*
Australia	-10	Netherlands	-6
Belgium	-6	New Zealand	-10
Bermuda	-10	Norway	-10
Canada	-9	Portugal	-6
Denmark	-10	Spain	-10
France	-10	Sweden	-13
Germany	-12	Switzerland	-9
Greece	-10	Turkey	-10
Iceland	-10	United Kingdom	-9
Italy	-3	USA	-9
Luxembourg	-10		

* It is recommended that the output level be set 1 dBm lower than the level specified in this table to ensure that the maximum value is never exceeded over the life of the terminal.

STEP	ACTION
10	Power up the VTDU and the SVDT. Verify that the "Power On Diagnostic Passed" and "System Initialized" messages display on the VTDU screen.
11	If the messages do not appear or if an error message displays, turn the power switch on the VTDU off, and call the Customer Service Center for assistance.

NOTE: If a problem does occur with the VTU, it should not affect operation of the SVDT, and normal service voice calls can still be made without disconnecting the VTDU and SVDT.

The SVDT Network Interface shall provide the maximum modem output level, by country code setting, as shown in Table 5-2.

Table 5-2 Modem Output Levels

Country Code	Star Modem Level (dBm)*	Star Modem Level (dBm)
Australia	-10	-8
Belgium	-8	-10
Denmark	-10	-10
France	-8	-8
Germany	-10	-10
Italy	-10	-8
Japan	-10	-10
Netherlands	-10	-8
Portugal	-8	-8
Spain	-10	-10
Sweden	-10	-10
Switzerland	-12	-8
Turkey	-10	-10
United Kingdom	-10	-8
USA	-7	-8
Luxembourg	-10	-8

* It is recommended that the output level do not exceed 1 dBm lower than the level specified in this table to ensure that the maximum value is never exceeded over the life of the terminal.

Customer Assistance

6

For assistance with problems, or to order optional accessories for the VTDU, contact the AT&T Customer Service Center at the following phone numbers:

AT&T Customer Service Center

Toll Free

800-243-7883

Commercial

919-279-3411

Customer Assistance



For assistance with problems, or to order optional accessories for the VTDU, contact the AT&T Customer Service Center at the following phone number:

AT&T Customer Service Center

Commercial
819-279-3411

Toll Free
800-243-7883

Warranty Information



WARRANTY - VIDEO TERMINAL DOCKING UNIT

a. DEFINITIONS (Applicable only to this warranty)

- (1) "VTDU," as used in this warranty, means only the AT&T Video Terminal Docking Unit(s).
- (2) "Customer," as used in this warranty, means the person or entity that will be using VTDU(s).
- (3) "Customer Representative" means an authorized representative of Buyer.

b. WARRANTY OBLIGATIONS

- (1) Seller warrants to Customer that for ONE YEAR for the VTDU, beginning on the date of shipment from Seller's manufacturing location, all VTDUs furnished by Seller to Customer will be free from defects in material and workmanship.
- (2) The initial warranty provided hereunder can be extended under the same terms and conditions as specified in this initial warranty at the price(s) in effect on the date the exercise of option is received by Seller. These options can be exercised no later than 30 days prior to the expiration of the initial ONE YEAR warranty. The current prices of these options will be provided upon request.
- (3) Seller warranty VTDU service is available from 8:00 a.m. to 8:00 p.m. Eastern Time, Monday through Friday, for the reporting of problems with VTDU(s). When not attended, the

toll-free number will allow the taping of a message. The telephone number is listed in Chapter 6 of this manual.

At these numbers Seller can provide on-line diagnostic service by qualified technicians who will assist in exercising built-in tests. Only the above numbers have the authority to instruct VTDUs to be returned to Seller for warranty purposes.

- (4) VTDUs shall not be returned to Seller unless authorization is received from Seller's Warranty VTDU Service Center.
- (5) When VTDUs are returned to Seller for repair under warranty, pursuant to Seller's instruction and in accordance with packing and shipping directions provided by Seller, Seller shall bear commercial transportation costs and risk of loss or damage to VTDU(s) to Seller's repair facility unless such VTDU(s) are outside the Continental United States. In these cases Customer shall pay all packing, shipping, and any other charges to AT&T's repair facility.

When VTDUs are returned to Seller for out-of-warranty repair pursuant to Seller instruction and in accordance with packing and shipping directions provided by Seller, Customer shall bear commercial transportation costs and risk of loss or damage to VTDUs both to and from Seller's repair facility.

- (6) Except as provided herein, Seller shall mail a repaired or replacement VTDU to Customer within 10 working days from receipt of Customer's returned VTDU. Customer is responsible for returning all cords, power supplies, handsets, etc. which were originally included with the VTDU. If such items are not returned, the 10-working-day period will not begin until such items are returned. Seller shall not mail a repaired or replacement VTDU within the specified time if a valid export license is required. In such cases, the repaired or replacement VTDU will be shipped within 10 working days of receipt of a valid export license.
- (7) Notwithstanding any part of this warranty, Seller has the sole discretion to determine if a VTDU is to be repaired and returned or replaced.
- (8) When Seller determines repairs to be outside the scope of the warranty, Seller shall notify Customer of this determination and provide a not-to-exceed price for the necessary repairs.

Seller shall make no repairs until authorization is received from Customer Representative. If Seller does not receive written authorization within 20 days after the date of Seller's letter notifying Customer of the out-of-warranty determination, Customer's original VTU shall be returned and Customer shall be responsible for payment to Seller for any shipping charges and, if payment is not made, all reasonable and necessary collection fees and costs.

Upon Seller's receipt of written authorization from Customer Representative, Seller shall repair VTU, and Customer shall pay for these repairs. Customer shall receive the VTU back upon completion of such repairs.

- (9) Any replacement VTU provided by Seller to Customer shall be covered by the balance of the warranty on Customer's original VTU.

c. LIMITATIONS AND EXCLUSIVITY OF WARRANTY

- (1) The warranty set forth in paragraph b.(1) does not extend to failures of VTUs to perform properly due to:

- (i) misuse, neglect, accident, or abuse of VTUs;
- (ii) use in other than normal and customary manner;
- (iii) improper installation, storing, or handling by other than Seller;
- (iv) unauthorized alterations or repairs;
- (v) acts of God; or
- (vi) improper use of peripheral devices.

- (2) The warranty specified in paragraph b.(1) does not extend to security effectiveness of the Government Sponsoring Agency-specified algorithms and processes.

- (3) SELLER MAKES NO WARRANTY THAT THE VTU WILL PREVENT CRYPTANALYTIC ATTACK ON ANY ENCRYPTED TRANSMISSION BY ANY GOVERNMENT AGENCY, ITS AGENTS, OR ANY THIRD PARTIES. FURTHERMORE, SELLER MAKES NO WARRANTY THAT THE VTU WILL PREVENT ANY ATTACK ON ANY COMMUNICATION BY METHODS WHICH BYPASS ENCRYPTION, INCLUDING BUT NOT LIMITED TO RADIATION EMANATIONS, REPROGRAMMED PBX BUGS, WIRED MICROPHONE BUGS, RADIO TRANSMITTER BUGS, CARRIER CURRENT BUGS, ON-PREMISES WIRED

TELEPHONE TAPS, TELEPHONE BUGS, RADIO TRANSMITTER TELEPHONE TAPS, OR ANY OTHER MEANS WHICH ACCESS THE ORIGINAL UNENCRYPTED COMMUNICATION.

- (4) NOTWITHSTANDING ANY OTHER CONTRACTUAL PROVISIONS, THE ABOVE RIGHTS AND REMEDIES ARE EXCLUSIVE AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED FROM ANY OBLIGATION CONTAINED IN THIS WARRANTY. IN ADDITION, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES.

WARRANTY - ITEM(S) OTHER THAN AT&T VIDEO TERMINAL DOCKING UNITS

"Item(s)," as used herein, shall only mean all other product(s) furnished except AT&T Video Terminal Docking units.

Seller warrants to Buyer that for a period of ONE YEAR, beginning on the date of shipment from Seller's manufacturing location, all Item(s) furnished by Seller to Buyer will be free from defects in material and workmanship. Buyer shall notify Seller within ONE YEAR of the date of delivery of any Item(s) not meeting the warranties. Seller, at its option, will repair or replace Item(s) not meeting warranties or refund the purchase price. Repaired or replaced Item(s) will be delivered f.o.b destination of the original shipment. Buyer shall follow Seller's instructions regarding return of Item(s) not meeting the warranty, and no Item(s) will be accepted for repair or replacement without the written authorization of and in accordance with Seller's instructions. Buyer shall repay all transportation charges to Seller for returns.

THIS WARRANTY AND THE REMEDIES SET FORTH IN THIS CLAUSE ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES WHETHER EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. IN ADDITION, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES.

If it is necessary for Seller to perform on-site diagnostics, repair, or installation effort associated with any Item(s), Buyer shall pay a service charge to cover travel, labor, and other expenses related to

on-site effort including a reasonable profit.

The foregoing warranty does not extend to any Item(s) which has been:

- (i) subjected to misuse, neglect, accident, or abuse;
- (ii) repaired or altered by anyone other than Seller;
- (iii) improperly installed, stored, handled, or maintained;
or
- (iv) used in violation of Seller's instructions.

The warranty does not extend to any system designed or manufactured by anyone other than Seller into which any Item(s) furnished hereunder are incorporated.

on-site effort including a reasonable profit.

The foregoing warranty does not extend to any item(s) which has been:

- (i) subjected to misuse, neglect, accident, or abuse;
- (ii) repaired or altered by anyone other than Seller;
- (iii) improperly installed, stored, handled, or maintained;
- or
- (iv) used in violation of Seller's instructions.

The warranty does not extend to any system designed or manufactured by anyone other than Seller into which any item(s) furnished hereunder are incorporated.

Replaceable Items/ Optional Accessories

B

The VTDU is supplied with all cables necessary for operation with any SV/DT telephone. The following replaceable items/optional accessories are available for the VTDU. Contact the AT&T Customer Service Center at 1-800-243-7883 for pricing and ordering information.

- Power Supply (AC)
- Handset Jumper Cord (8-inch)
- RS-232 DTE Cable Assembly
- Power Jumper Cable
- Locking Post Kit (Mounting Screws)
- Power Cord (6-foot)
- Power Cord (15-foot)
- User Manual
- Quick Reference Guide

Optional Accessories
Replaceable Items

B

The VTDU is supplied with all cables necessary for operation with any SVDT telephone. The following replaceable items/optional accessories are available for the VTDU. Contact the AT&T Customer Service Center at 1-800-242-7888 for pricing and ordering information.

- Power Supply (AC)
- Handset Jumper Cord (8-inch)
- HS-322 DTE Cable Assembly
- Power Jumper Cable
- Locking Post Kit (Mounting Screws)
- Power Cord (8-foot)
- Power Cord (15-foot)
- User Manual
- Quick Reference Guide

Display Messages

C

This appendix provides a listing of the display messages shown on the LCD screen of the VTDU.

Table C-1 LCD Display Messages

MESSAGE	DESCRIPTION
Remote video mute	Video muted (blanked) from remote end. Displayed on receiver's screen.
Remote audio mute	Audio muted from remote end. Displayed on receiver's screen.
Remote hold	Video and audio placed on hold (muted) from remote end. Displayed on receiver's screen.
Receiving incoming still	Message displayed on receiver's video screen during transmission of video still.
Hold	Both video and audio muted.
Invalid key	This function not available at this time.
Power-On Diagnostics Passed	Displayed upon VTDU powerup. Indicates internal diagnostic tests passed.
System Initialized	System is operable.
Codec Interface Error	Video communications inoperable. Reset VTDU.

Display Messages



This appendix provides a listing of the display messages shown on the LCD screen of the VTDU.

Table C-1 LCD Display Messages

MESSAGE	DESCRIPTION
Remote video error	Video muted (disabled) from remote end. Displayed on receiver's screen.
Remote audio mute	Audio muted from remote end. Displayed on receiver's screen.
Remote hold	Video and audio placed on hold (muted) from remote end. Displayed on receiver's screen.
Receiving incoming call	Message displayed on receiver's video screen during transmission of video call.
Hold	Both video and audio muted.
Invalid key	The function not available at this time.
Power-On Diagnostic Passed	Displayed upon VTDU powerup. Indicates internal diagnostic tests passed.
System initialized	System is operable.
Codec Interface Error	Video communications inoperable. Reset VTDU.

VTDU Interface and Data Port Information

D

Video Interface

The NTSC video input (interlaced) operates at 75 ohms impedance and 1 volt peak-to-peak. The composite video output (interlaced) operates at 75 ohms impedance and 1 volt peak-to-peak. The RGB output connector has the pin assignments shown in Figure D-1.

PIN	FUNCTION
1	Ground
2	Ground
3	Red Output
4	Green Output
5	Blue Output
6	N/C
7	Bloc Sync (Composite Sync) Output
8	Horizontal Sync (Subcarrier/Burst Flag) Output
9	Vertical Sync (Composite Blanking) Output

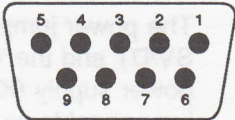


Figure D-1 9-Pin D-Subminiature (RGB Interface Connector)

Power Interface

The power-in terminal of the VTDU is rated at +5 volts/5 amps, +12 volts/1.2 amps, and -12 volts/0.25 amp. The power-out terminal of the VTDU is rated at +5 volts/1.75 amps, +12 volts/0.4 amp, and -12 volts/0.12 amp. Figure D-2 shows the pinout for the DIN connector.

PIN	VOLTS
1, 6	+5V
4	+12V
5	-12V
2, 3, 7, 8	Ground

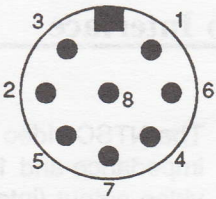


Figure D-2 DIN VTDU Power-IN Connector

Power Jumper Cable Option

The power jumper cable is an option that allows the SV/DT and the VTDU to be powered from the same power supply (KS23821-L3). Either end of the power jumper cable can be connected to the PWR OUT jack of the VTDU. The opposite end of the power jumper cable would be connected to the power input of the SV/DT.

NOTE: When connecting the power jumper cable, the VTDU power switch should be in the OFF position.

EIA-232 Data Port

This appendix provides the pin connections for the VTDU. The transmit and receive timing pins provide a continuous clock signal in all communication states except Power Off, Reset, and Fault.

For synchronous data communication, the VTDU asserts Clear to Send (CTS) such that the first rising edge of the Send timing clock (TXC), after the Data Set Read (DSR), Request to Send (RTS), CTS, and Data Terminal Ready (DTR) signals are high, frames the first bit to be encrypted. The DTE frames Send Data between the edges of TXC. The VTDU samples Send Data on the falling edge of the TXC. The DTE should remove RTS on the rising edge of TXC.

For receiving data, the VTDU asserts Data Carrier Detect (DCD) such that the first rising edge of the receive timing clock (RXC), after DSR, DTR, and DCD signals are high, frames the first decrypted bit. The VTDU frames Read Data with the rising edges of RXC.

Table D-1 EIA-232 Data Port Pins

PIN NO.	FUNCTION	SOURCE	
1	Protective Ground (GND)		Green Wire GND
2	Transmitted Data (TXD)	DTE	Transmitted Data
3	Received Data (RXD)	DCE*	Received Data
4	Request to Send (RTS)	DTE	Request to Send
5	Clear to Send (CTS)	DCE	Clear to Send
6	Data Set Ready (DSR)	DCE	Data Set Ready
7	Signal GND		Signal GND

PIN NO.	FUNCTION	SOURCE	
8	Data Carrier Detect (DCD)	DCE	Signal DCD
9	Reserved for Testing		GND through 3.65K
10	Reserved for Testing		GND through 3.65K
11	Unassigned		Shorted to Pin 10
12	Secondary RR	DCE	Signal GND
13	Secondary CTS	DCE	Signal GND
14	Secondary TXD	DTE	GND through 3.65K
15	Transmit Timing (TXC)	DCE	Transmit Timing
16	Secondary RXD	DCE	Signal GND
17	Receive Timing (RXC)	DCE	Receive Timing
18	Unassigned		GND through 3.65K
19	Secondary RTS	DTE	GND through 3.65K
20	Data Terminal Ready (DTR)	DTE	Data Terminal Ready
21	Signal Quality Detector	DCE	GND through 3.65K
22	Ring Detector (RI)	DCE	Ring Detector
23	Data Signal Rate Selector	DCE	GND through 3.65K
24	Transmit Timing	DTE	GND through 3.65K

PIN NO.	FUNCTION	SOURCE	
25	Test Voltage	DCE	+7V through 2K Max Load 2 ma

* DCE - Data Communication/Circuit-Terminating

ITEM NO.	FUNCTION	SOURCE
25	Test Voltage	DCE
		Load 5 m
		3K Max
		+TV through

* DCE - Data Communications Circuit Terminating

Technical Specifications

E

This appendix provides the technical specifications for the VTDU.

Information Protected

- Set by the limits of the attached SV/DT which include company-proprietary
- U. S. Government Top Secret, Secret, Confidential, and Classified
- U.S. Government Contractors

User Community

- State/local governments
- Commercial/international applications

Compliance with Standards

- VTDU
 - FCC Part 15, Subpart J, Class B
 - FCC Part 68
 - UL 1459
 - NSTISSAM TEMPEST 1/91
- Power Supply
 - UL/TUV/CSA

Display Features

- High-resolution LCD
- TFT Active Matrix LCD
- Viewing Angle
 - +10°/-30° vertical
 - ±45° horizontal
- Full 256-color display
- On-screen, easy-to-use menus

Display Format

- 6-inch Display:
 - 720(w) x 240(h); 172,800 dots
 - 0.158mm(w) x 0.365mm(h) dot pitch
- 4-inch Display:
 - 479(w) x 234(h); 112,086 dots
 - 0.171mm(w) x 0.264mm(h) dot pitch

Camera Features

- 1/3-inch interline transfer CCD
- Focal range: 19 in to 111 in
- Sensitivity: 5 LUX, f=1.4
- 510 pixels(h) x 492 pixels(v)
- Field of view: ± 40° horz, ±30° vert
- Lens speed: F2.0 to F2.8

Secure Video Data Operation Modes

- 9.6 KBS full-duplex sync (standard mode)
- 4.8 KBS and 2.4 KBS available to improve network coverage
- Video and voice @ 9.6/4.8 KBS
- Video only @ 2.4 KBS
- Audio @ 2.4 KBS full-duplex STC
- Dependent upon secure voice/data terminal capabilities

Telephone Features

- Built-in Microphone and Speakerphone
- Speaker and Handset Volume Control
- Hold
- Audio Mute
- Line Disconnect

Interfaces

- External power supply, IEC 320/CEE-22 DIN-type connector
- EIA RS-232 data port with a 25-pin subminiature D-connector (Electrically connects VTDU to SV/DT)
- EIA RS-232 data port with a 25-pin subminiature D-connector (bypasses VTDU and connects DTE device to Secure Voice/Data terminal)
- Auxiliary video composite jack-NTSC (RCA phono jack)
EIA Standard RS-170A
 - Video In:
75 ohms impedance interlaced;
1.0 V peak-to-peak
 - Video Out:
75 ohms impedance interlaced;
1.0 V peak-to-peak
- External audio input/output (RCA phono jack)
 - Audio In Jack:
110K ohms impedance;
0.5 - 1.0 V peak-to-peak
 - Audio Out Jack:
1.2K ohms impedance;
0.5 - 1.0 V peak-to-peak
- RGB video output (9-pin subminiature D-connector) with bloc sync, horizontal sync, and vertical sync
75 ohms impedance
1.0 V peak-to-peak
- Handset interface connector RJ-11H

Physical Characteristics

- 10.0"(w) x 11.5"(h) x 14.25"(d)
25.4cm(w) x 29.2cm(h) x 36.2cm(d)
- 12 lbs. (5.4 kg)

Environmental Data

- Operating temperature range:
40° to 100° F (4.4° to 37.8° C)
- Storage temperature range:
-10° to 140° F (-23.3° to 60° C)
- Relative humidity (storage): 5% to 95% noncondensing

Power (VTDU only)

- External power supply selectable
90-134 VAC, 186-253 VAC
- Input frequency 47-63 Hz, single phase
- Power Supply rated at:
+5.2 V @ 5.0 A
+12.2 V @ 1.2 A
-12.2 V @ 0.25 A

Glossary

F

This glossary defines abbreviations, acronyms, and key codes used both in the SV/DT manual and in this manual.

AC	Alternating Current
AT&T	American Telephone and Telegraph Company, Inc.
BPS	Bits per Second
CCD	Charge Coupled Device
CONUS	Continental United States (including Alaska and Hawaii)
CTS	Clear to Send
d	deep
DCD	Data Carrier Detect
DCE	Data Communication/Circuit-Terminating Equipment
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTR	Data Terminal Ready
EIA	Electronics Industry Association
F	Fahrenheit
FCC	Federal Communications Commission
GND	Ground
h	High, horizontal
Hz	Hertz
IEC	International Electronics Committee
KBS	Kilo Bits per Second
LCD	Liquid Crystal Display
ma	Milliamp
NTSC	National Television Standard Committee
OCONUS	Outside Continental United States
RCA	Radio Corporation of America
RGB	Red-Green-Blue
RTS	Request to Send

RXC	Receiving Clock
RXD	Received Data
SV/DT	Secure Voice/Data Terminal
TXC	Transmitting Clock
TXD	Transmitted Data
v	Vertical
V	Volt
VAC	Volts Alternating Current
VTDU	Video Docking Unit
w	Wide

Panel Key Functions

Menu	Activates Main Menu screen
Hold	Suspends both sound and video
Hands Free	Directs audio to SV/DT handset or VTDU speakerphone
Data	Enables sending/receiving of data
Release	Terminates a video call
Volume	Adjusts speakerphone/handset volume up/down

Main Menu Keys

AMUTE	Mute the Audio Transmission
VMUTE	Mute the Video Transmission
VIEW	Proceed to View Menu
UTIL	Proceed to Utility Menu
SETUP	Select Setup Menu
EXIT	Turn Menu Off

Setup Menu Keys

<<<	Decrease Selected Function Value
>>>	Increase Selected Function Value
PREV	Select Preview Window
Return to Main Menu and Receive Communicating VTDU	
EXIT	

View Menu Keys (Not during a Call)

Select View Source	
CAM 1	Internal Camera
CAM 2	External Camera
Return to Main Menu and Receive Communicating VTDU	
EXIT	

View Menu Keys (During an Active Call)

Select View Source
 CAM 1 .. Internal Camera
 CAM 2 .. External Camera
 STORE ... Capture Frame
 Select Still Resolution
 SUPER .. Super
 HIGH ... High
 MED Medium
 LOW Low
 Return to Main Menu and Receive Communicating VTDU
 EXIT

Capture Menu Keys (Send during an Active Call - Sender)

SEND Transmitting Image
 ABORT ... Abort Transmission of Image
 EXIT Return to Main Menu

Capture Menu Keys (Incoming Still during an Active Call - Receiver)

ABORT ... Abort Receipt of Image

Capture Menu Keys (Incoming Still after Receipt of a Still - Receiver)

Selection for External Screen
 FULL ... All Menus
 CLOCK .. Time Stamp Only
 CLEAR .. No Menu Graphics
 VOUT Toggle Video Port Enable
 Return to Output screen and Receive Communicating VTDU
 EXIT

Capture Menu Keys (Send Screen after Receipt of a Still - Sender)

SEND Color change indicates still transmission complete
 Return to Output screen and Receive Communicating VTDU
 EXIT

Utility Menu Keys

UP Move Indicator Up
 DOWN Move Indicator Down
 ENTER ... Proceed to Selected Menu
 EXIT Return to Main Menu.

Speaker Volume Menu Keys

<<< Decrease Speaker Volume
 >>> Increase Speaker Volume

Store Present Setting and Select Function

SPKR . . . Speaker Adjustment

HAND . . . Handset Adjustment

Store Default Setting and Return to Utility Menu

SAVE

Default Menu Keys

UP Move Indicator Up

DOWN Move Indicator Down

ENTER . . . Toggle and Save Condition of Function
Selected

EXIT Return to Utility Menu

LCD Setup Menu Keys (with and without Color Pattern)

<<< Decrease Selected Function Value

>>> Increase Selected Function Value

Store Present Setting and Select Function

BRGHT . Brightness Adjustment

CONTR . Contrast Adjustment

PATRN . . . Display Color Bar Pattern

Store Present Setting and Return to Utility Menu

SAVE

Date Menu Keys

<<< Decrease Selected Function Value

>>> Increase Selected Function Value

Select Function and Store Present Setting

MONTH . Set Month

DAY Set Day

YEAR . . . Set Year

Store Present Setting and Return to Utility Menu

SAVE

Time Menu Keys

<<< Decrease Selected Function Value

>>> Increase Selected Function Value

Store Present Setting and Select Function

HOUR . . Set Hour

MIN Set Minute

SEC Set Second

Select Clock Format

12/HR . . . Select the 12 Hour Display

24/HR . . . Select the 24 Hour Display

Store Present Setting and Return to Utility Menu

SAVE

Diagnostic Menu Keys

UP Move Indicator Up
DOWN Move Indicator Down
RUN Run Diagnostic Test Indicated
STOP Stop Diagnostic
EXIT Return to Utility Menu

Diagnostic Menu Keys
UP Move Indicator Up
DOWN Move Indicator Down
RUN Run Diagnostic Test Indicated
STOP Stop Diagnostic
EXIT Return to Utility Menu