



TA520L, TA530L LAN terminals  
TA520LB, TA530LB LAN terminals with built-in bar code reader

TA520M, TA530M Modem terminals  
TA520LB, TA530LB Modem terminals with built-in bar code reader



# TA520/530

## Data Collection Terminal

### Technical Reference Manual

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# Chapter I Overview

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**Time America Inc.** has been an innovator in the development of computerized time & attendance and data collection systems. Since 1987 we have constantly explored new ways to do a better job of collecting and processing your data.

We are committed to provide powerful systems that are simple to use. What sets Time America apart from all other time & attendance manufactures is our High Quality Products, Superior Service, and our Research and Development process. We are kept on the leading edge of technology through creativity and the relentless efforts of many people.

Contributions made by those using our product are essential. Product and system enhancement ideas have come from many customers using our products in their businesses. We welcome and encourage your comments and suggestions. Tell us what you'd like to see in future versions, what's important, what's helpful, and what's not. Tell us also what you think of our instructional manuals and how we can improve them. We appreciate your purchases and are confident that TA520 or TA530 by Time America will be the solution to your data collection needs.

## What's In This Manual?

- |           |  |
|-----------|--|
| Chapter 1 | Overview: This section tells you about Time America and what information is offered in this Operating Manual. It also describes the TA520/530 and its functions.                         |
| Chapter 2 | Installation: This section describes the connection of the communication and peripheral cables. The physical installation of the TA520 and TA530 terminal is also described.             |
| Chapter 3 | Basic Operation: This section describes how to use the swipe reader, keypad, and standard terminal function keys.  |
| Chapter 4 | Modes Of Operation: This section describes the different modes of operation that are available in the standard terminal. These modes include Configuration, Supervisor, and Diagnostics. |

## **FCC (15) Compliance**

This equipment complies with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide protection against interference when operated in a commercial environment.

Operation of this equipment in a residential area may cause interference with television or radio reception. Users should take whatever measures are required to eliminate the interference.

If this equipment causes interference, try to correct the problem by:

- A. Reorienting the receiving antenna
- B. Relocating the terminal with respect to the receiver with which it interferes.
- C. Plugging the terminal into a different AC outlet, and putting the terminal and receiver on different branch circuits.

*Warning: This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference with radio and television reception.*

## **FCC (68) Compliance**

This equipment complies with Part 68 of FCC Rules. Upon request, furnish the following information to the telephone company (telco).

- A. Manufacturer: VeriFone, Inc.
- B. Models: ZON 540 (TA520L), ZON 540M (TA530L), ZON 541 (TA520LB), ZON 541M (TA530LB), ZON 530 (TA520M), ZON 530M (TA530M), ZON 531 (TA520MB), ZON 531M (TA530MB).
- C. FCC registration number: B326BQ-14432-DT-E
- D. Ringer equivalence: 0.5A
- E. USOC modular telephone jack: RJ11

## **Attention Canadian Users**

Make sure your local telephone company will permit you to install this equipment. Use only the connection methods accepted by your telephone company. You should be aware, however, that compliance with the above conditions might not prevent degradation of service in some conditions.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Equipment malfunctions, or any equipment repairs and alterations made by a user, may cause the telephone company to request to disconnect the equipment.

For your own protection, make sure that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas or noisy electrical environments.



*Notice: The Canadian Department of Communications (DOC) label identifies certified equipment. This certification means the equipment meets certain telecommunications network protective, operational and safety requirements. The department does not guarantee the equipment will operate to a user's satisfaction.*

**CAUTION: Do not attempt to make such connections yourself; contact the appropriate electrical inspection authority or electrician.**

### **Terminal Load Number**

The load number (LN) indicates the amount of load the terminal will add to a telephone loop. The loop may consist of any combination of devices, provided the sum of their load numbers does not exceed 100. If the sum exceeds 100, the loop may be overloaded.

An alphabetic suffix is also specified in the load number for the appropriate ringing type (A or B), if applicable. For example, LN=38B designates a load number of 38 and a B-type ringer.

### **Service**

Unless otherwise instructed in this manual, do not, under any circumstances, attempt any service, adjustments or repairs on this unit. Call your local authorized TIME AMERICA dealer for repair or replacement.

### **About This Manual**

This manual is a reference guide for installing your TA520 or TA530 terminal. It also describes some of the basic operations of the unit. However, the actual operations and procedures used with the terminal depends on the program loaded into the terminal.

A program is a set of instructions stored in your terminal. All TA520 and TA530 terminals are equipped with standard programming. However, your terminal may also be supplied with a custom program to perform special transactions used by your company.

## Hardware Overview

The TA520 and TA530 are powerful data collection terminals capable of gathering, processing and transferring information at a high speed. The TA520 and TA530 perform identical functions, the difference being, the TA520 has a hardened plastic case and the TA530 has a metal case. The unique capabilities of these devices make them ideal for automating many costly manual procedures or as alternatives to expensive and bulky, full-sized computer terminals.

Because of their small size and versatile communications, these terminals can be utilized in practically any location or working environment. The TA520 and TA530 are ideal for many diverse applications including, time and attendance tracking, order entry, inventory, process tracking, access control, and other transaction processing.

The TA520 and TA530 communicate with a remote host computer via cable or telephone line, to perform transactions in a store forward mode. All terminals can communicate via RS232 serial communications. The TA520M, TA520MB, TA530M, and TA530MB contain an internal modem, which can communicate transactions over a standard phone line, at speeds up to 1200 baud. The TA520L, TA520LB, TA530L, and TA530LB contain an RS485 LAN port, which allows multiple terminals to communicate transactions over a single two-wire communications cable, at speeds up to 19200 baud.



*Figure 1: TA530 Time & Data Terminal*

### Display Panel

The 16-character alphanumeric display panel (see figure 1-1) provides you with the visual prompts and information needed to operate the terminal. The vacuum florescent display is easy to read, even under poor lighting conditions. It displays fully formed numerals, upper case letters, and several punctuation symbols.

## Keypad

The keypad (see figure 1-2) contains 16 keys, which can be used to enter alphabetical data, numeric data, and to initiate many different operations. The actual functions initiated by these keys will vary depending on your terminals programming.

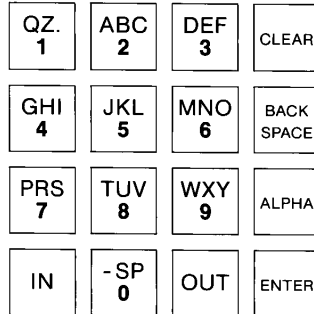


Figure 2: TA530 Keypad

## Card Reader

All terminals feature an ABA track 2 card reader (slot on the terminals right side, see figure 1-3) for reading magnetic card data. An optional track 1-card reader is available. The TA520 and TA530 MB and LB also include a slot bar code reader to read 3 of 9 or optionally 2 of 5 bar code badges. Both readers allow you to use a variety of card thicknesses. See Fast Faxes 21 & 29 for card specifications. You can enter identification information by simply sliding a card through the slot. The card reader will read the encoded data off the magnetic stripe or bar code.

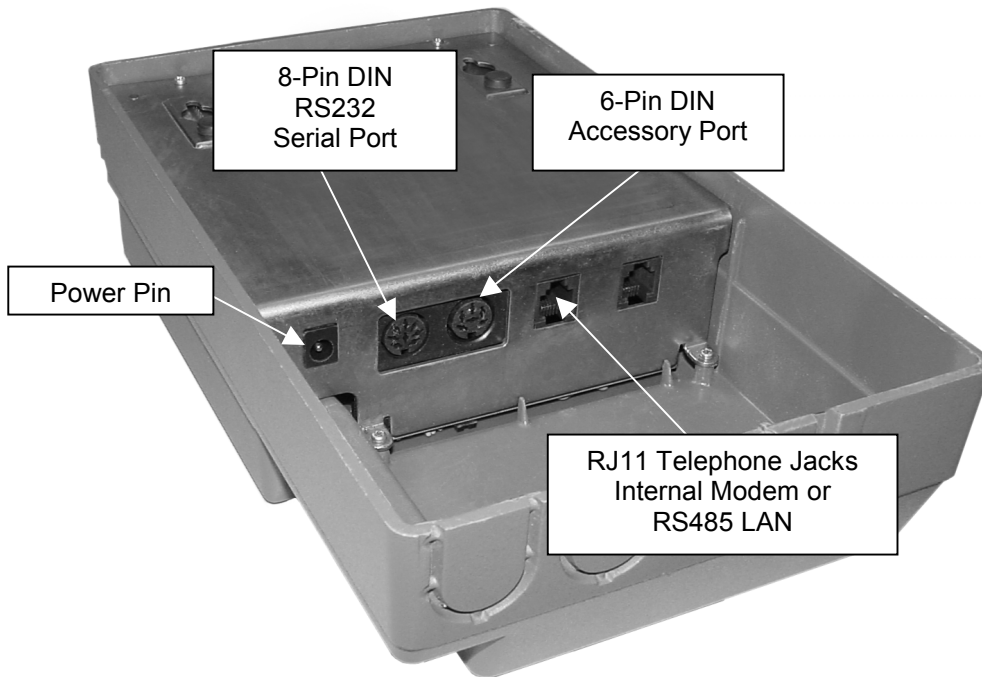
To slide the card through the card reader, place it at the top of the slot with the magnetic stripe/bar code away from you. Magnetic stripe facing to the right or bar code facing to the left. Slide the card down without stopping, keeping the card firmly pressed to the back of the reader (see figure 3).



Figure 3: TA530 Card Reader

## Serial Port

All terminals have one serial port for communicating with other devices (see figure 4). The RS232 serial port has an 8-pin DIN connector for direct connect with a computer. This port is also used to support the optional Serial Printer or external modem. The terminals serial port can communicate at up the 19,200 baud.



*Figure 4: TA530 Inner Cavity*

## Accessory Port

All terminals have one accessory port for communicating with optional devices (see figure 4). This port utilizes a 6-pin DIN connector for connecting a bar code wand or bar code slot reader, and up to two signal control relays. The signal control relays are used to turn on/off such devices as bells, and door strikes for access control. To connect more than one device to this port, you will need a 6-pin Din Y cable.

## Telephone Jacks

Each terminal contains two RJ11 modular telephone jacks (see figure 4). You can connect the RJ11 cable (telephone line) to either jack. These jacks are used for different types of communications (Modem or LAN), depending upon which model of terminal you are working with.

The TA520M, TA520MB, TA530M, and TA530MB use the RJ11 jacks to connect to the internal modem. A modem (Modulator/Demodulator), converts electronic data into tones that can be sent great distances over telephone lines. The M and MB models use a Telco Bell 212A, 1200 baud internal modem for simple and automatic telecommunications with a host computer. Either telephone jack can be used for communications. The second jack allows a standard telephone to

share the same line. When selecting your modem terminal, be sure that its modem is compatible with the host computer.

Note: Each terminal's serial port can be used to connect an external modem up to 9600 baud. See the connecting an external modem section of this manual.

The TA520L, TA520LB, TA530L, and TA530LB use the RJ11 jacks to connect to the terminal to an RS485 LAN network. An RS485 LAN (Local Area Network) is a direct connect which allows many terminals to use the same line. This allows terminals to be located up to 5000 feet from the host computer. Either telephone jack can be used for communications.

### **Power Pin**

The cord from the power pack plugs into the power pin on the terminal (see figure 4). Each terminal comes with a power pack that plugs into a standard 120 volt, 60 cycle, AC outlet. Power packs for other AC power configurations are available as options.

### **Battery Backup (Standard)**

Your terminal comes standard with a built-in battery-providing backup power to preserve data in RAM for up to 7 months, in event of power failure. This type of battery backup does not support terminal operations.

### **Battery Backup (optional)**

When it is necessary to maintain terminal operation when power is cutoff, an operational battery backup is available. This battery backup provides complete terminal operation including communications and bar code wand scanning. This battery backup offers an excellent form of power surge protection, because the terminal is always running off the DC battery. Line power is then used to trickle charge the battery.

### **Communications Converter (optional)**

The RS232 <--> RS485 Communications converter allows a LAN to be run off a computer's serial port. A second version called the

"Smart Converter" allows a LAN to be driven from an external modem. This is useful for a remote LAN that will be dialed up using an external modem. See Appendix E - G for diagrams on the different types of LAN converters.

### **Cigarette Lighter (optional)**

The cigarette lighter adapter plugs into any standard automobile cigarette lighter, to provide a measure of portability to the terminal. For instructions on how to hook up the Cigarette Lighter Adapter, see "Connecting The Battery Backup or Cigarette Lighter Adapter."

### **Bar Code Wand (optional)**

Bar codes are a series of vertical lines on a label that are used to identify an item. These codes are read by drawing a special wand across the bar code. The bar code wand connects to the 6-pin DIN port on the terminal. The bar code wand can be used to enter bar code numbers for job tracking and inventory control.

### **Bar Code Slot Reader (optional)**

The bar code slot reader is used to read bar codes off a badge or card. These cards/badges are read by sliding the card/badge through the slot with bar code facing the reader's window. The bar code slot reader connects to the 6-pin DIN port on the terminal. The bar code slot reader can be used for access control or in place of the terminals internal bar code slot reader, when high resolution or infrared bar codes are used.

### **Transaction Print (optional)**

The transaction print option allows the terminal, through supervisor mode, to directly print out transaction lists in a variety of formats. This option also allows you to print out transactions as they occur, giving you an immediate hard copy backup. The transaction print option uses the terminals serial port; therefore, this option can only be used if you are not using the 8-pin DIN port for communications. You can print to any 40-column serial printer, or parallel printer by using a serial to parallel interface converter.

### **Signal Control Relay (optional)**

Where bell ringing or access control is required, the Signal Control Relay is used to control a 110 Volt AC or contact closure circuit. The terminal can tell the Signal Control relay to turn this circuit on/off at programmed times of the day for a programmed duration (Bell Control) and by an authorized employee number at the proper time of day and day of week (Access Control). The signal Control Relay connects to the 6-pin DIN port on the terminal. Each terminal can support up to two relays (one for bells and one for access), by using a 6-pin DIN Y cable. Appendix I gives detailed instructions on the relays operational settings.

Note: Your terminal must contain the Bell and Access Control EPROM option to support the Signal Control Relay. It must be wired for Bells/Access.

### **Signal Enhancer**

When installing the terminal in noisy environments, the terminals audio and feedback (accept/reject tones) may be drowned out. The Signal enhancer utilizes the Bell and Access options of the terminal to create a louder buzzer on the Signal Enhancer Box. Additional feedback is also provided by a green accept and red reject light. The Signal Enhancers buzzer and lights mimic the terminals standard accept and reject tones. The Signal Enhancer option uses the terminals Bell and Access signals; therefore, this option can only be used if you are not using Bell and Access control.

Note: Your terminal must contain the Bell and Access Control EPROM option to support the Signal Enhancer. It must be wired for Bells and Access.

# Chapter II Installation

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## Selecting a Location

Select a location for your terminal, which is convenient for your employees and offers adequate ventilation and protection.

In general, avoid areas with:

- \* Excessive heat;
- \* Oil or moisture;
- \* Excessive dust;
- \* Excessive electrical noise caused by air conditioners, motors, fans, or power tools;
- \* Direct sunlight;
- \* Artificial light that could reflect glare off the display panel;

If building for installation of a TA530 metal terminal, you may want to have a 120 volt AC outlet flush mounted at a height allowing the terminal power pack to be concealed inside the rear cavity with the terminal display at eye level.

For proper cable protection a studded mounting wall is preferred, in which communication cables (or telephone lines) can be routed through an access hole in the wall directly behind the terminal.

## Package Content

Check to make sure you have received all the parts necessary with your TA520 terminal. The parts included are:

- TA520 terminal
- Power supply
- Mounting Kit
- External Serial to Ethernet Converter, if Ethernet Kit purchased
- Connector(s). Depending on which TA520 terminal type you purchased, you may receive one or more of the following:
  - a. 6 foot, RJ11 to RJ11 cable
  - b. 8 Pin DIN to DB9 Serial Cable
  - c. 50 foot DB9 Serial Extension Cable
  - d. RS485 Converter

## Installing the Terminal

The plastic terminal includes a wall mounting kit for easy installation. The metal terminal has a built-in wall mount bracket.

1. Select a location for your terminal that is convenient for your employees use, 4-5 feet from the floor is recommended. The location should provide easy visibility of the display and where clock tones can be easily heard. It has been found by mounting the terminal a little higher than the average shoulder height it forces the employees to reach up to swipe, which increases the read rate of the terminal.
2. The communications cable and power pack cable can be routed through an access hole in the wall directly behind the terminal mount, or allowed to hang down from the bottom of the terminal mount. Please be aware that exposed cables are susceptible to damage and vandalism.

NOTE: If using the terminals serial port, the 6' RS232 communications cable is a special cable and must be used. If the terminal is more than 6 feet away from the printer RS232 communications extension cables are available in lengths of 25, and 50 feet. Communication cables are available from your local Time America dealer.

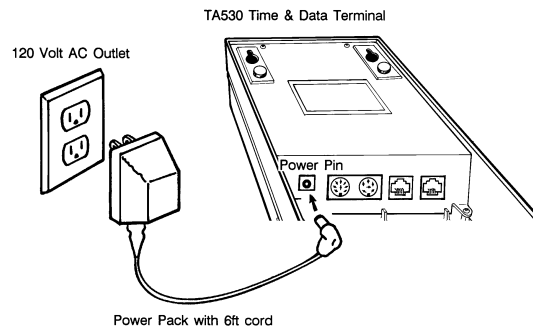
The following sections provide installation instructions for both the TA520 plastic and TA530 metal terminals. Follow the instructions for the type of terminal you are using. In most cases the diagrams will reference the TA530 metal terminal, however, the communications and power connections are identical on the TA520 plastic terminal. By using the Transaction Print option you can print transaction lists to a serial printer. In addition to this the terminal allows you to communicate these transactions to the PC software. By transferring the transactions via the Time America PC communications software you gain additional reporting, policy rules, historic data retention, the ability to enter tables on your PC and transfer them to the terminal, and the ability to transfer the transactions to third party software packages. This section also contains instructions on "Connecting your terminal to your PC". This will help you in connecting the terminal to your computer.

NOTE: For more information on Time America Time & Attendance Software systems that communicate with the TA520 and TA530, contact your local Time America distributor.



## Connecting the Terminal Power Pack

1. Attach the small plug on the power pack cord to the power pin on the terminal (see figure 5 for steps 1 and 2).
2. Plug the two-prong AC connector from the power pack into an indoor 120-volt AC outlet.



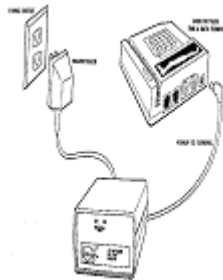
**Figure 5: Connecting the Power Pack**

## Connecting the Battery Backup or Cigarette Lighter Adapter (optional)

The operational battery backup and cigarette lighter adapter can replace the terminal power pack. Both units can be mounted in any position, and should be mounted out of the way.

NOTE: When the battery backup is disconnected from the 110 Volt AC power source, the on/off switch must be set to the off position. This prevents the battery from discharging, which prolongs battery life.

1. Attach the small plug on the battery backup or cigarette lighter adapter cord into the power pin on the terminal (see figure 6 for steps 1 and 2).
2. If using the battery backup, plug the two-prong AC connector from the battery backup into an indoor 120-volt AC outlet. If using the cigarette lighter adapter, plug the cigarette lighter adapter end into a 12 Volt DC auto cigarette lighter.

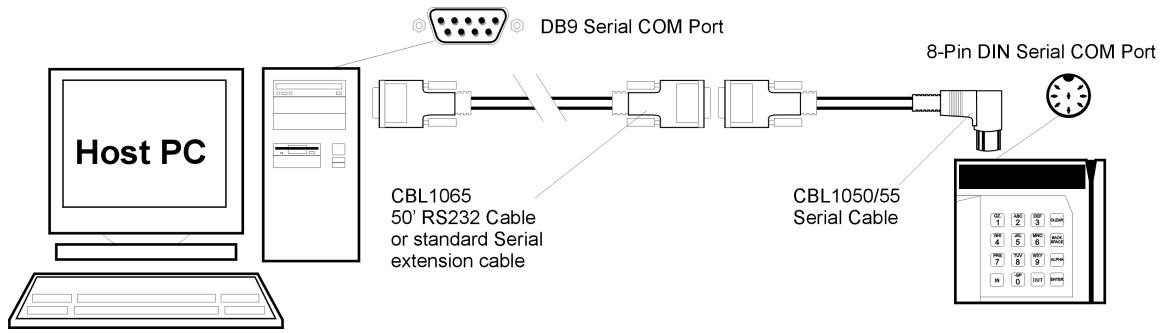


**Figure 6: Connecting the Battery Backup**

# Connecting the Terminal to the PC

## RS-232 Serial Connection

The TA520 can be connected with RS-232, which is the simplest connection. Units should come with an 8 pin DIN to DB9 cable and a 50-foot extension cable.



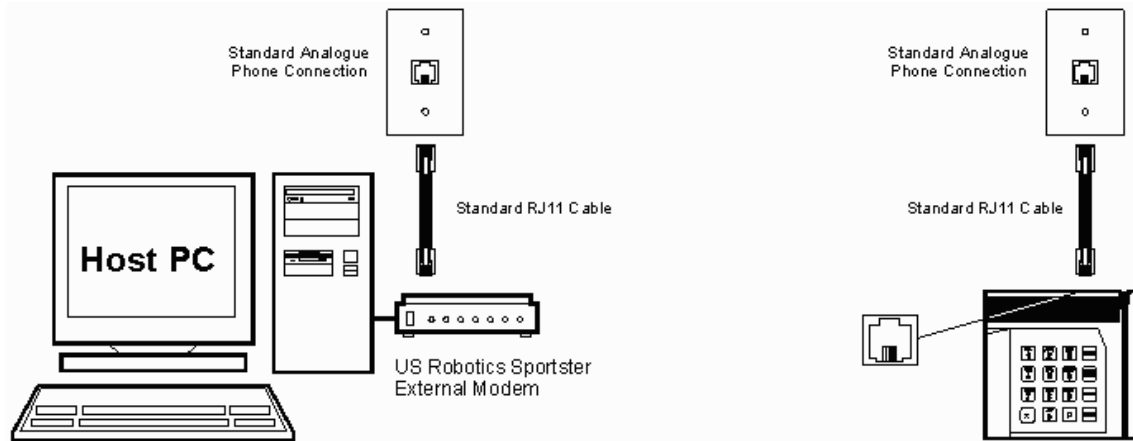
**Figure 7: RS-232 Serial Connection**

1. Plug the 8-pin DIN end of the cable into the female 8-pin DIN connector on the top of the TA520 unit next to the power connector.
2. Plug the DB9 end of the cable into the serial port of the computer.

NOTE: If the computer doesn't have a DB9 port available, you must request an 8 pin DIN to DB25 pin cable instead.

## Modem Connection

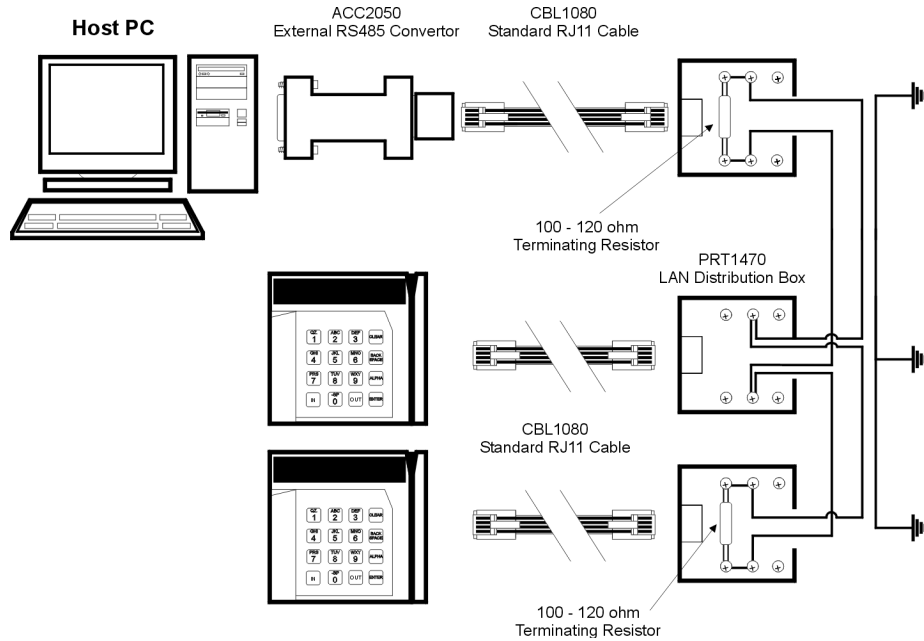
1. The computer that will poll the terminal must have a modem installed. The computer cannot access the Internet via modem and communicate with a modem terminal at the same time.
2. Locate the Standard RJ11 Cable supplied with the clock.
3. Plug into either RJ11 jack on the clock, and into the standard analogue phone connection.



*Figure 8: Modem Connections*

## Connecting the RS485 LAN (TA5XXL & TA5XXLB)

1. Connect the RS485 converter to the PC serial port.
2. Connect one end of the standard RJ11 cable to the modular jack on the converter. Connect the other end to the LAN distribution box.
3. Connect Cat 5 cable to the distribution box pins #2 & #5 (black & yellow.)
4. Connect the other end of the Cat 5 cable to the next distribution box using the same color code and pin out.
5. Connect one end of the standard RJ11 cable to the modular jack on the distribution box. Connect the other end to the clock.
6. Continue steps 3-5 for each LAN clock on the multi-drop.



**Figure 9: LAN Connections**

## TCP/IP Connection

The TA520 can be connected to a TCP/IP network by using the Etherlink Converter.

1. After configuring the IP Address in the Etherlink Converter (see below), attach to the Etherlink Converter to the network by plugging in the 10/100BaseT Ethernet cable
2. Attach the Serial cable provided to the 8pin DIN port on the terminal and the DB9 connector to the Etherlink Converter.
3. Plug the other end of the cable into the wall (or hub) to connect to network.
4. Power on the Etherlink Converter

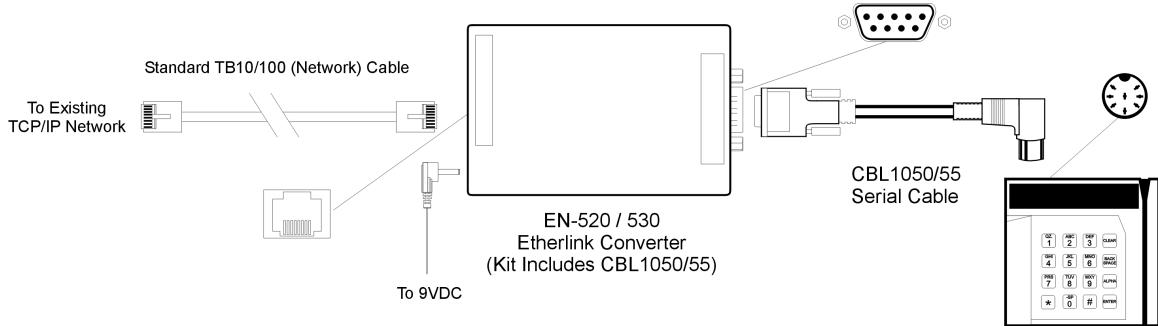


Figure 10: TCP/IP Connection

## Installation of an IP Address using Direct Connection

1. Remove power from the Etherlink Converter
2. Place the dipswitches in the 1-DOWN 2-UP positions on the Etherlink Converter
3. Connect the Etherlink Converter to a PC using the DB9 Female-to-DB9 Female serial cable provided
4. Start the HyperTerminal program in Windows on the PC. This program is found under Start->Programs->Accessories->Communication
  - a. Make sure the Etherlink Converter is not powered on
  - b. Place the name *Ethernet* in the name box and press ENTER
  - c. Change the **Connect Using** window to reflect DIRECT TO COMM1 or the respective comm. port being used and select OK
  - d. Set BITS PER SECOND to 9600, DATA BITS to 9, PARITY to NONE, STOP BITS to 1, and FLOW CONTROL to NONE and select OK
  - e. Power on the Etherlink Converter
5. Follow menu options to change IP information

## Installation of an IP Address Using a Web Browser

1. Connect the Etherlink Converter to the LAN using a standard 10/100baseT network cable
2. Power up the Ethernet Converter with the dipswitches set in the 1-DOWN 2-DOWN positions
3. Start the web browser and type the IP Address of the selected Etherlink Converter (default is 192.168.1.200). This procedure will only work if the address of 192.168.1.200 is not currently in use on the network, and is part of the network of the computer that is attempting to communicate with it.
4. A Graphical User Interface will appear in the browser window allowing changes to be entered.

## Connecting the P250, P600 or 80 Column Printer (optional)

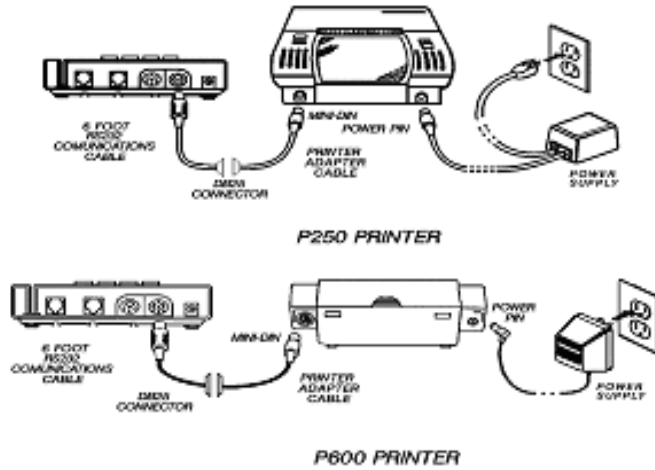
If you are using an 80-column printer, please refer to the owner's manual for specific printer setup instructions. It should, however, follow the same basic steps as the P250 and P600 printers.

***WARNING: When using an 80-column printer the printer must contain at least an 8K buffer.***

1. Select a convenient location for the printer. Usually this is away from the employees on a supervisor's desk.
2. Follow the instructions supplied with the printer for installing the paper and ribbons. If you are using a standard 80-column printer or sharing a P250 connected to a VeriFone credit card verifier, skip to step 6.
3. Route the power and communications cables to the printer. The short mini-DIN on the printer cable plugs into the connector marked "RS232". Be sure to align the key (a small recess) on the connector with the socket in the terminal. The other end connects with the DB25 connector on the RS232 communications cable supplied with the terminal. Please note that exposed cables are susceptible to accidental damage and vandalism. See figure 11.
4. Plug the printer power supply into the wall outlet. Do not plug the power pin into the printer at this time.
5. Making sure the O on the power switch is down (turned OFF), connect the power pin and RS232 cables to the respective marked ports on the back of the printer. After connecting the power pin press the power switch to the "1" position. The print head will align itself and the green "POWER" indicator will be on. You are now ready to print reports. If the green power light does not come on, press the power switch to the "O" position and check your power connections (step 3), then repeat steps 4 and 5.
6. If you are using a standard 80 column serial printer the 6 foot RS232 cable will connect directly to your printer. If the 25-pin cable end is not the same as the printer's 25-pin connection, you may obtain a DB25 serial adaptor (male-female gender changer) at your local computer store. If you are using the Parallel Interface Converter to a parallel printer, please see Appendix K for instructions on its

connections. If you wish to have your terminal share an existing P250 serial printer that is connected to a VeriFone credit card verifier you will need to purchase a special Y cable from your local Time America dealer. Appendix J documents the Y cables connections.

7. At this time you may want to run a test printout; see the "RUNNING PRINTOUTS" section of this manual. If you have problems getting the terminal to print, repeat steps 2 through 5 and consult your printer manual for more detailed instructions.



**Figure 11: Serial Printer Connections**

## Connecting the Bar Code Wand and Slot Reader (optional)

1. Connect the plug on the bar code wand to the 6-pin DIN port on the terminal (see figure 12).
2. If you have a TA530 metal unit, squeeze the two halves of the plastic strain relief tightly around the bar code wand cable approximately 12 centimeters from the connector. Slide the strain relief into the bottom of the small U-channel on the terminal's metal case, using the grooves molded into the strain relief (see figure 12).

NOTE: Since the terminal performs the bar code description, the slot or gun reader must be in "Bar Code Wand Emulation Mode".

TA530 Time & Data Terminal

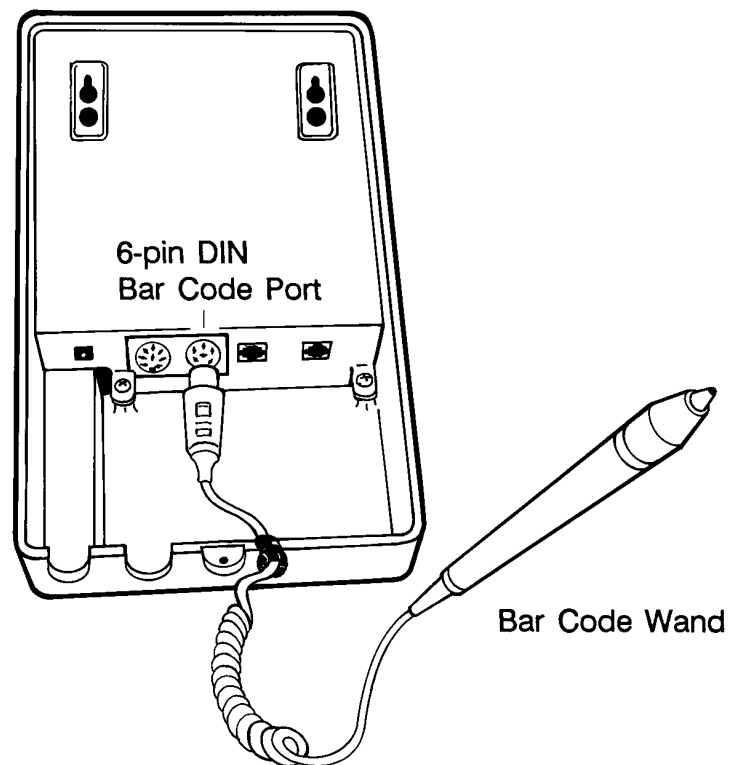


Figure 12: Connecting the Bar Code Wand

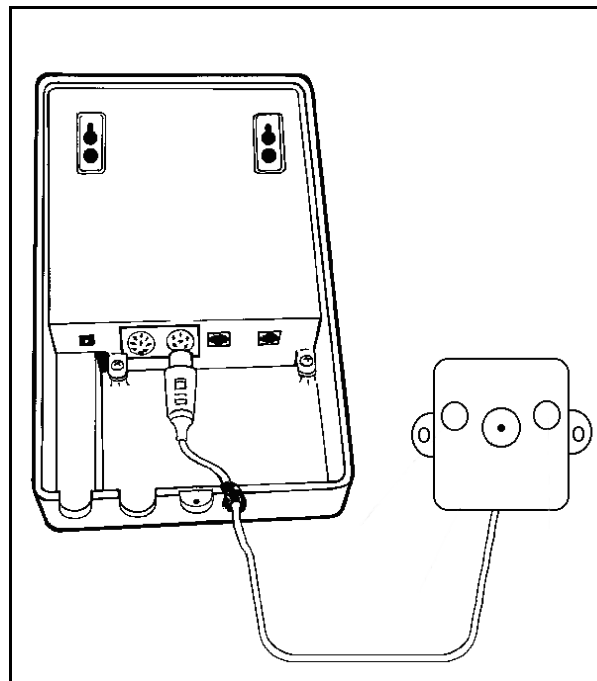


## Connecting the Signal Enhancer (optional)

To support the Signal Enhancer the terminal must contain the Bell and Access options.

1. Connect the plug on the Signal Enhancer into the 6-pin DIN port on the terminal (see figure 13).
2. If you have a TA530 metal unit, squeeze the two halves of the plastic strain relief tightly around the signal enhancer cable approximately 12 centimeters from the connector. Slide the strain relief into the bottom of the small U-channel on the terminal's metal case, using the grooves molded into the strain relief (see figure 13).

NOTE: When using the Signal Enhancer, Bells and Access cannot be used since the terminal uses the bell and access signals to operate the Signal Enhancer.



*Figure 13: Connecting the Signal Enhancer*

## Connecting the Signal Control Relay (optional)

To support the Signal Control Relay your terminal must contain the Bell and Access options.

1. Connect the plug on the Signal Control Relay into the 6-pin DIN port on the terminal (see figure 14).
2. The Signal Control Relay controls two types of output - dry contact and 110 VAC outlet. The contact is operated from the terminal's voltage. In order for the 110 VAC outlet to work, plug the three-prong AC connector from the relay into an indoor 120-volt AC outlet.

NOTE: When using the Signal Control Relay, the Signal Enhancer cannot be used since the terminal uses the bell and access signals to operate the Signal Enhancer. For further information on how to set the directional switch on the relay, see Appendix I.

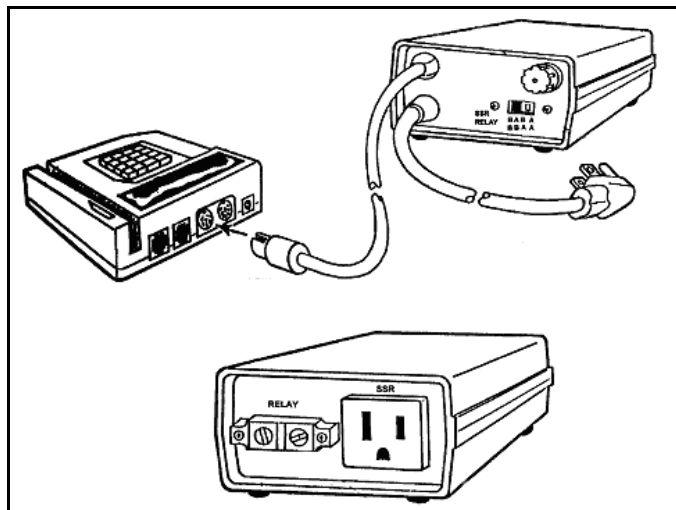
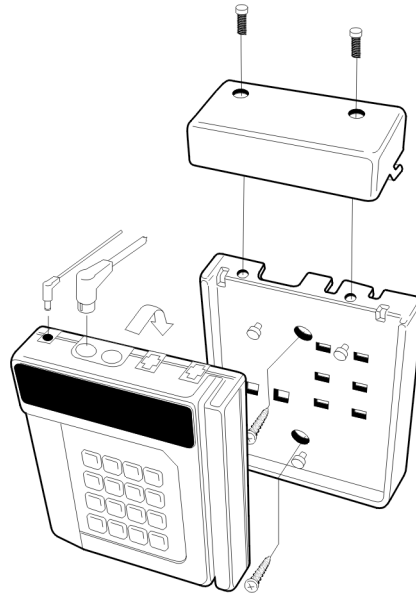


Figure 14: Signal Control Relay Hookup

## Mounting the TA520 Plastic Terminal



**Figure 15: TA520 Wall Mounting Diagram**

1. Position the Wall Mount Bracket on the wall and mark the two screw mounting holes. The bracket may be positioned over an access hole in the wall for communication cable and power cable.
2. Set the Wall Mounting Bracket aside and drill the appropriate size pilot holes for the mounting screws. If you are using screw anchors to attach the terminal to drywall or concrete, be sure the anchors fit snugly in the holes with their tops flush with the wall.
3. Position the Wall Mounting Bracket on the wall and screw it firmly in place. Be sure the communications and power cables coming out from the wall, or up from the ground, protrude through the opening in the top of the mount.
4. Plug the power supply into the wall outlet. Do not plug the power pin into the terminal at this time.
5. Place the terminal over the mounting pins, and slide the terminal down until it locks into place. Insert the communications cable into the proper terminal communication port.
6. Insert the power pin into the terminal's power connector. The display will light up; if it does not check your power cable connections.
7. Lower the wire shroud in place and push it backwards towards the wall, locking it in place. Then install the two security screws with a T-15 Torx screwdriver.
8. Peel the protective covering from the display.

## Mounting the TA530 Metal Terminal

The TA530 comes with an integrated metal wall mount bracket. The communication cables can be routed through an access hole in the wall directly behind the terminal. You can also route the cables through 2.54 cm diameter (1") conduit using the U-shaped cutouts on the bottom of the terminal.

Figure 16 shows the requirements for positioning the wall plate and conduit in relation to the AC outlet and cable conduit.

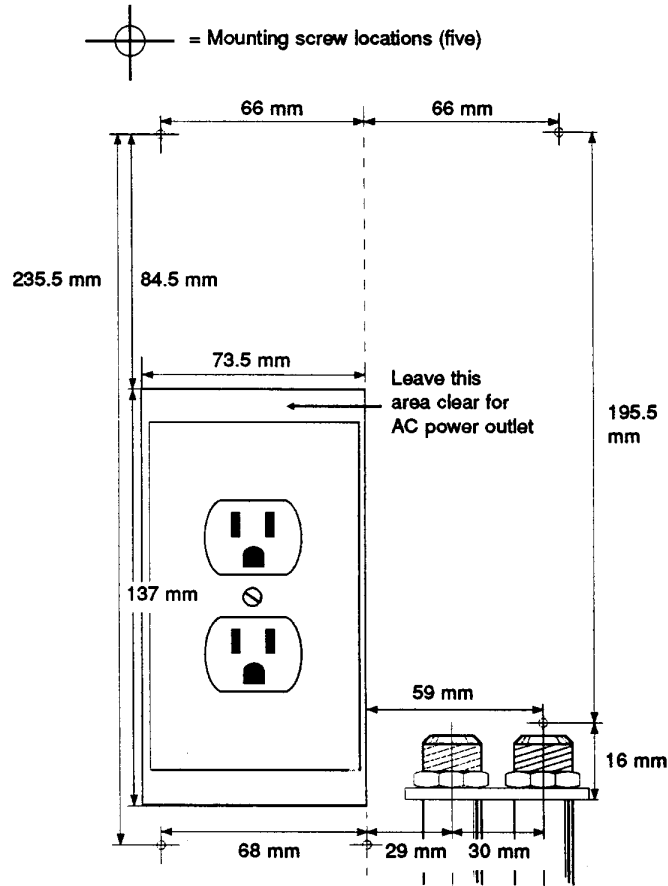
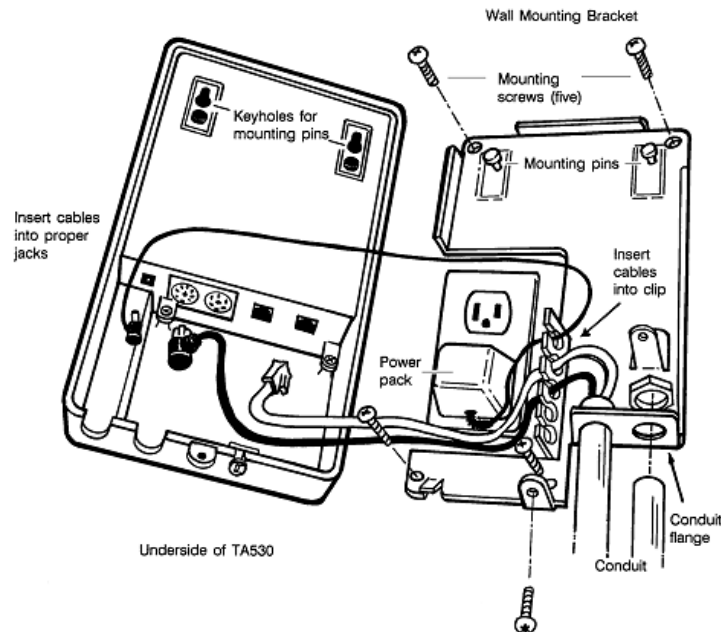


Figure 16: TA530 Mounting Specifications

1. Using a Phillips screwdriver, loosen the screw on the bottom of the terminal and carefully remove the terminal from the Wall Mounting Bracket.
2. Position the Wall Mounting Bracket on the wall and mark the four screw holes. This bracket may be mounted over an existing duplex power outlet or an access hole in the wall, which the communications cables will come through (see figure 16).
3. Set the Wall Mounting Bracket aside and drill the appropriate size pilot holes for the mounting screws. If you are using screw anchors to attach the terminal to drywall or concrete, be sure the anchors fit snugly in the holes with the tops flush with the wall.

4. Position the Wall Mounting Bracket on the wall. Be sure any communications cables coming out from the wall run through the opening in the bracket.
5. If you are using conduit, insert the threads on the end of the conduit into the conduit flange before screwing the mounting bracket in place.



**Figure 17: TA530 Wall Mounting Diagram**

6. Screw the mount firmly in place. If you are using conduit, thread and tighten the nuts that secure the conduit to the mount.
7. Pull the cables through the conduit or wall until their ends stick out approximately 12 centimeters.
8. Plug the power supply or operational battery backup into the wall outlet. Do not plug the power pin into the terminal at this time.
9. Holding the terminal close to the wall plate, insert the communications cable into the proper communication port on the underside of the terminal.
10. Connect the other ends of the cables to the proper outlet or device (see corresponding connecting section of this manual). If you are using a Bar Code Wand, Signal Control Relay, or Feedback Enhancer, connect it at this time.
11. After checking all of your connections, insert the power/ battery backup cord into the terminals power pin and the wall plate cable clip. The display will light up; if it does not check your power cable connections.
12. Place the terminal over the mounting pins on the wall plate and slide it down until it locks in place.
13. Install the security screw in the bottom of the terminal with a T-20 Torx screwdriver.
14. Peel the protective covering from the display.

# Chapter III Basic Operations

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## How the Terminal Works

This section will give you an overview of the terminals capabilities and how its standard functions work. More detailed operational information can be found in the manual written for your application.

### Local Functions

Local functions are performed only at the terminal and do not require communications with a host computer.

The terminal can perform several different local functions. Some of these functions are standard for all terminals. Up to ten custom local functions (also called local transactions) can be programmed for your application and performed from the keypad, magnetic stripe reader, bar code reader, or optional bar code wand/slot reader. However, the actual number of local functions available to the user depends on how many were programmed into the application.

### Applications

The way a terminal operates and the procedures it follows is determined by its programming (also called application program). An application is a series of instructions electronically stored (programmed) in the terminal's memory. These instructions direct the terminal to perform specific operations and to respond properly to different events as they occur. The type of programming available depends on the Time America software purchased.

## Basic Operations

This section describes how to perform some of the basic operations of the TA520 and TA530 terminal. These operations are used with the application supplied with each terminal. It is recommended that you program the clock with the Time America Software before using it.

### Start-up

The terminal will start up automatically as soon as it is plugged into its power source. The terminal will first display TIME AMERICA INC. The terminal will then display the firmware version number. You will be asked for it when calling in for customer service, so write this number down. The terminal will then display the initialization sequence:

#### *INITIALIZATION 1*

The terminal is clearing out all memory and returning to default application settings. This includes transactions, tables, and any programming settings. Initialization 1 only occurs on initial power-up or when using the CR=Y command from COMM5.

### *INITIALIZATION 2*

The terminal is comparing the terminal serial number with the firmware revision number. If the terminal locks up on this prompt, call your local TIME AMERICA dealer.

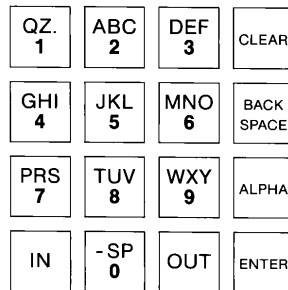
### *INITIALIZATION 3*

The terminal is resetting the communications and input ports.

The terminal will now display the idle prompt indicating it is ready for operation. The idle prompt is the day of the week, date, and time. For example: MON 8/16 10=23A (Monday, August 16, 10:23 A.M.)

## **The Keypad**

The terminal keypad has 12 keys that are used to manually enter alphanumeric information and 4 special keys used to control the entry of data. The following will discuss the use of both types of keys.



**Figure 18: The Keypad**

<b>Key</b>	<b>Color</b>	<b>Function</b>
<CLEAR>	Dark Gray	The <CLEAR> key is use to exit a transaction from any point WITHOUT SAVING THE ENTERED DATA. This key will work with an entry from any source
<BACKSPACE>	Dark Gray	<p>The &lt;BACKSPACE&gt; key is used when entering data from the keypad. If an incorrect digit is pressed when an entry is being made the &lt;BACKSPACE&gt; key will back up and delete the last entered digit.</p> <p>The &lt;BACKSPACE&gt; key can also be used to view previous transactions of the badge that was initially swiped. Pressing the &lt;BACKSPACE&gt; key while “ENTER FUNCTION” is displayed does this. This feature is not available if the terminal is in Swipe &amp; Go mode.</p> <p>NOTE: Once the &lt;ENTER&gt; key is pressed the data is entered into the terminal’s memory. The &lt;BACKSPACE&gt; key will not allow you to back up to the last entry. If this is a multi prompt transaction with a prompt still showing in the display panel you may use the &lt;CLEAR&gt; key to start the transaction from the beginning.</p>
<ALPHA>	Dark Gray	The <ALPHA> key is only used to enter alphanumeric characters from the keypad (see Entering Alphanumeric Data From the Keypad).
<ENTER>	Blue	<p>Following all keypad entries the &lt;ENTER&gt; key must be pressed to store the data into the terminals memory. After the &lt;ENTER&gt; key is pressed for the last entry of a transaction, the display will go back to the idle prompt.</p> <p>NOTE: Recheck all data in the display panel before pressing the enter key. Once the enter key is pressed and the display goes to the idle prompt there is no way to change an incorrectly entered transaction without a supervisor.</p>
<IN>	Green	<p>The &lt;IN&gt; key is a pre-programmed FUNCTION KEY used for Time &amp; Attendance applications when an employee is coming in for work. This key does not require the use of the Enter key. After pressing this key the terminal will go to the idle prompt.</p> <p>The &lt;IN&gt; key can also be used to simulate the Enter key when keying in the initial badge number. In this case, after you have keyed in your employee/badge number press the &lt;IN&gt; key instead of &lt;ENTER&gt;. The terminal will perform the functions of both accepting the number and clocking you in.</p>



<b>Key</b>	<b>Color</b>	<b>Function</b>
<OUT>	Red	<p>The &lt;OUT&gt; key is a pre-programmed FUNCTION KEY used for Time &amp; Attendance applications when an employee is leaving work. This key does not require the use of the Enter key. After pressing this key the terminal will go to the idle prompt.</p> <p>The &lt;OUT&gt; key can also be used to simulate the Enter key when keying in the initial badge number. In this case, after you have keyed in your employee/badge number press the &lt;OUT&gt; key instead of &lt;ENTER&gt;. The terminal will perform the functions of both accepting the number and clocking you out.</p>
Keys 0-9	Light Gray	The 0-9 keys are used to enter the numbers 0-9 respectively. When used in conjunction with the <ALPHA> key the 0-9 keys can be used to enter alpha characters.

## Using the Keypad

The following steps describe how to enter data using the keypad.

1. Make sure the idle prompt is displayed before you start your transaction.
 

If it is not being displayed, press the <CLEAR> key to end the current operation and display the idle prompt.
2. Enter your badge number.
3. Press the <ENTER> key to store the data.
4. At the "ENTER FUNCTION" display, select the appropriate function key.
5. Complete the transaction as instructed by the prompts on the display panel.

## Entering Alphanumeric Data from the Keypad

Of the 16 keys on the terminal keypad, 0-9, <IN> and <OUT> keys can be used to enter as many as 40 different alphanumeric characters. These characters are the letters A through Z, the numerals 0 through 9 and the following special characters "-", ".", "/", and <space>. Just as the <SHIFT> key on a typewriter selects one of two different characters assigned to a single key, the <ALPHA> key selects the different levels that determine which character will be entered.

Press the key containing the character you want, then press the <ALPHA> key as many times as required to display the correct character.

NOTE: The terminal must be programmed for alpha data entry before information can be entered from the keypad.

The following examples demonstrate how the characters 2, A, B and C are entered using the <2> key and the <ALPHA> key.

<i>Desired Character</i>	<i>Keys to Press</i>
2	Press the <2> key.
A	Press the <2> key. Press the <ALPHA> key once.
B	Press the <2> key. Press the <ALPHA> key twice.
C	Press the <2> key. Press the <ALPHA> key three times.

If the <ALPHA> key is pressed four times, the Key Character will return to it's original number.

### Alphanumeric Key Chart

The following table lists the different characters available from the keypad and how to access these characters. See Figure 18 for the location of each key on the keypad.

<i>Key to Press</i>	<i>Without Pressing &lt;ALPHA&gt; key</i>	<i>Press &lt;ALPHA&gt; key one time</i>	<i>Press &lt;ALPHA&gt; key two times</i>	<i>Press &lt;ALPHA&gt; key three times</i>
1 QZ.	1	Q	Z	.
2 ABC	2	A	B	C
3 DEF	3	D	E	F
4 GHI	4	G	H	I
5 JKL	5	J	K	L
6 MNO	6	M	N	O
7 PRS	7	P	R	S
8 TUV	8	T	U	V
9 WXY	9	W	X	Y
0 -SP	0	-	(space)	/

## Using the Internal Card Reader

The card reader saves time and avoids mistakes that can occur if you manually enter information from the keypad. The standard terminal card reader supports magnetic stripe. Terminals containing the optional bar code badge reader support both magnetic stripe and bar code, on opposite sides inside the card slot. Bar code and magnetic stripe badge specifications can be found in Fast Faxes 21 & 29. All units contain a bar code wand port, however a bar code wand reader is optional.

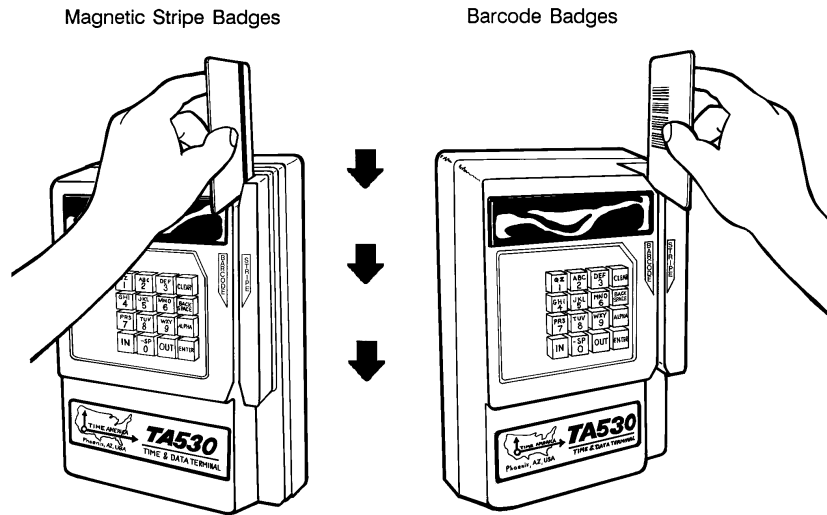


Figure 19: Using the Card Reader

1. Check the display for the idle prompt, if it is not being displayed, press the <CLEAR> key to end the current operation and display the idle prompt.
2. Insert the magnetic stripe/barcode badge into the top of the card reader slot. The magnetic stripe should be facing to the right or the barcode facing to the left.
3. Without stopping, slide the card briskly through the slot (see figure 19). If the terminal beeps 3 times and displays "PLEASE TRY AGAIN", check the position of the magnetic stripe/barcode, and slide the card through the slot again. If the warning persists, the card may be damaged. If no tone is heard and no message is displayed when the card is slid through the reader check to see if the magnetic stripe/barcode is in the right position and slide the card briskly through the slot again.

NOTE: The terminals default program is set to accept a five (5)-digit badge. If "INVALID BADGE" is displayed, you are probably using a different length badge number.

4. If the card reader is used to initiate the transaction the terminal will display "ENTER FUNCTION". Press the key corresponding to the Transaction desired (see Function Keys). For example, press <IN> if coming in to work. If your clock has been programmed Swipe & Go the display will show "PUNCH ACCEPTED."
5. Complete the transaction as instructed by the prompts on the display panel.

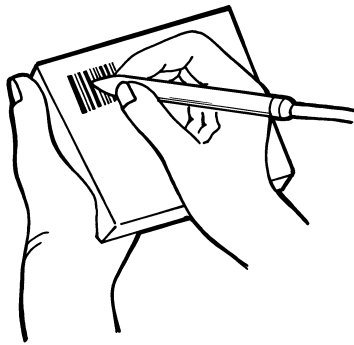
NOTE: In applications where only employee badges are being used, the card reader must be swiped to access the function keys.

## Using the External Bar Code Wand / Card Reader (optional)

The bar code wand saves time and avoids mistakes that can occur if you manually enter information from the keypad. The bar code wand adds greater flexibility by providing remote data collection and inventory control. In access control applications the external card reader can be used to allow access from the outside of a door.

If using a wand:

1. Check the display for the idle prompt. If it is not being displayed, press the <CLEAR> key to end the current operation and display the idle prompt.
2. Position the bar code wand at the left edge and aligned with the center of the bar code label. Make sure the wand is perpendicular to the bar code label. Draw the wand briskly across the bar code from left to right (see figure 20).



*Figure 20: Using the Bar Code Wand*

If using card reader:

1. Check the display for the idle prompt. If it is not being displayed, press the <CLEAR> key to end the current operation and display the idle prompt.
2. Insert the bar code badge into the top of the card reader slot with the bar code facing in the direction indicated on the card reader. Without stopping, slide the card briskly through the slot.
3. If the terminal beeps 3 times and displays "PLEASE TRY AGAIN", check the position of the bar code, and try again. If the warning persists, the bar code may be damaged. If no tone is heard and no message is displayed when trying to read the bar code, check to see if the bar code is in the right position and the bar code meets the specifications listed in Fast Fax 21. Check to see if the bar code label is of the right code. Your terminal will read 3 of 9 bar codes. 2 of 5 bar code is optional.
4. If the bar code is used to initiate the transaction the terminal will display ENTER FUNCTION. Press the key corresponding to the transaction desired (see Function Keys). For example, press <IN> if coming in to work.
5. Complete the transaction as instructed by the prompts on the display panel.

NOTE: In applications where only bar code badges are being used, it will be necessary to swipe the bar code to access the function keys.

## Function Keys

The 10 alphanumeric keys along with the <IN> and <OUT> are known as function keys. These keys can be used to perform custom functions programmed by the TA software. To access these keys you must have already entered an employee/badge number using the keypad, swipe reader or optional bar code.

1. At the "ENTER FUNCTION" prompt select the appropriate key. If the function key you press is not an available function, the terminal will display "NOT AVAILABLE PLEASE TRY AGAIN." Select a different function key.
2. Follow the instructions given by the prompts on the display panel. These prompts can be customized depending on the Time America software used.
3. If at any time during the transaction you enter incorrect data, use the <BACKSPACE> key to back-up and delete the last entered character. To exit a transaction and not save the data press <CLEAR>. When the correct data is shown in the display press <ENTER> to save it.
4. When the transaction is finished the terminal will display the idle prompt.

## Memory Low

It is recommended that the terminal be polled and cleared on a regular schedule. If you forget your terminal has built-in checks to test the size of available data storage memory. These checks are performed every time the <ENTER> key is pressed.

If after an entry, your available memory drops below 800 bytes, the terminal will display MEMORY LOW. The terminal will still allow transactions to take place.

***WARNING: When MEMORY LOW is displayed you must poll and clear the terminal or data could be lost.***

## Out of Memory

If the terminal is not polled during MEMORY LOW you could reach the critical point of not having enough memory to process the current transaction. When this occurs the terminal will display CLOCK FULL.

***WARNING: No transactions including the current will be processed at this point until the clock is polled and cleared.***

## Accept/Reject Tones

Along with displayed messages the terminal comes with Accept and Reject tones to verify input. These tones sound on any input whether it be from the Keypad, Magnetic Stripe, or optional Bar Code.

The tones are:

ACCEPT (valid input) – short, high tone

REJECT (invalid input) – long, low tone

# Chapter IV Modes of Operation

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## Overview

Besides the basic modem of operation your terminal contains three additional modes that can only be accessed by a specific numbered badge, or key press combination. These modes are:

<b>Mode</b>	<b>Accessed By</b>	<b>Code</b>	<b>Description</b>
Configuration	Card Reader	All zero's (0)	Used to program communication and clock settings. Optionally you can test the Signal Control Relay.
Supervisor	Card Reader	# starts with 11	Used to lookup / recall and add transactions giving them a specific date and time. Optionally used to print transaction lists.
Diagnostics	Keypad	1 and */IN concurrently	Used to test terminal keypad and magnetic/bar code readers, badges and labels. This mode can also be used as a quick check of communication settings.

## Configuration Mode

Configuration Mode allows you to set some of the communications and terminal parameters, at the terminal. This includes the RS232 baud rate, LAN/Modem baud rate, and clock time.

To prevent unauthorized manipulation of the terminal configuration, a special configuration badge is required. This configuration badge must be a badge of all zeros (0), this means any initial badge entry of all zeros (0) will enter Configuration Mode.

NOTE: Configuration Mode cannot be accessed through the keypad.

The following steps describe how to use Configuration Mode:

1. Swipe a badge of all zeros (0) through the card reader or wand a bar code.
2. The display will say "CONFIGURATION MODE" then "RS232 BAUD - X"

Enter the desired baud rate index value, where X is the baud index. See chart 1.

<b>Index</b>	<b>Baud Rate</b>
6	19200
5	9600
4	4800
3	2400
2	1200
1	600
0	300

**Chart 1: Baud Rate**

3. The display will then say "EXTRNL MODM – X"

If you are connecting an external modem to the serial port on this terminal enter one (1). The default zero (0) indicates no external modem. If you select one (1), you can connect an external modem to the serial port using an 8-pin DIN modem cable. Every time the terminal powers down or is polled, the terminal will reset the modem and program it to auto answer. Since the terminal's serial port will communicate at 2400, and 9600 baud, modems up to 9600 baud may be used.

NOTE: In order to support the external modem, the terminals "RS232 BAUD" must be set to that of the external modem.

*IF YOUR TERMINAL SUPPORTS MODEM COMMUNICATIONS, THE FOLLOWING WILL DISPLAY:*

3.1 "MODEM BAUD – X"

Enter the desired modem rate index value, where X is the baud index. See chart 1.

NOTE: Only a modem baud rate of 300 or 1200 is supported.

3.2 The display will then say: "RESET MODEM – X"

Enter a one (1) to reset the modem, or 0 to by-pass the modem reset. This reset will change the ring delay to 1, start/stop answer to 0000 - 2359 (all day), and internal modem baud rate back to 1200 (The default standard application settings). The default zero (0) leaves the current setting.

*IF YOUR TERMINAL SUPPORTS RS485 LAN COMMUNICATIONS, THE FOLLOWING WILL DISPLAY:*

3.1 "RS485 BAUD – X"

Enter the desired baud rate index value, where X is the baud index. See chart 1.

NOTE: This index must match the RS485 baud rate in the polling software.

3.2 The display will then say: "LAN ID – X"

Enter the one digit terminal LAN ID value. 0 - 9, a - z, A - Z. In LAN communications, all terminals are connected on the same LAN cable. The LAN ID tells the computer which terminal on the line you want to communicate with. The LAN ID must be different in all terminals that share the same LAN line.

NOTE: This LAN ID must match the LAN ID in the polling software.

*IF YOUR TERMINAL SUPPORTS BELL / ACCESS CONTROL, THE FOLLOWING WILL DISPLAY:*

3.3 "RELAY 1 – A – 2 – B – 0 "

Press one (1) to test the access signal.  
Press two (2) to test the bell signal.  
Zero (0), the default, bypasses the relay test.  
Press enter to exit this test.

4. The display will then say "CLOCK SET – 0"

Enter a one (1) to set the terminal's date and time or zero (0) to bypass the clock set.  
*IF ONE (1) WAS SELECTED, THE FOLLOWING WILL DISPLAY:*

4.1 "MMDDYY – 110394"

Enter the current date as two-digit year, two-digit month including any leading zeros, two-digit day of the month including any leading zeros. The default is the current system date as displayed in the date/time idle prompt. For example, this display is showing you that the current date is November 3rd, 1994.

NOTE: The terminal will validate that the date was entered in a correct format. For example, the month cannot be greater than 12. However, the year is validated by checking the current terminal year against the entered year. If there is a 2-year or more difference, the terminal will display "INVALID" and return to idle, without accepting the entered date.

4.2 The display will then show "HHMM – 1320"

Enter the current time of day expressed in military format (1:00 PM is 1300). The default is the current system time as displayed in the date/time idle prompt. See Appendix D for a time conversion chart. For example, this display is showing you that the current time is 1:20 PM.

NOTE: The terminal will validate that the time was entered in a correct format. For example, the hour cannot be greater than 24. If the time is entered in an incorrect format, the terminal will display "INVALID" and return to idle, without accepting the entered time.



## Supervisor Mode

Supervisor Mode allows manual entry of a transaction. It allows recall of previous transactions by badge number and also allows the supervisor to print out all transactions stored in the TA530 clock.

To prevent unauthorized manipulation of the data stored in the terminal, the supervisor code is required. This code is preset to 11, which means any badge starting with 11 will enter Supervisor Mode.

NOTE: Supervisor Mode cannot be accessed through the keypad.

### Adding Transactions in Supervisor Mode.

1. Swipe a supervisor badge through the card reader or use a bar code wand.
2. Enter in "0" to add a transaction.
3. Enter the employee badge number. Press <ENTER>.
4. The last transaction will show in MMDD HHMM Function Key format. Press <ENTER>.
5. Select "1" to Add a transaction.
6. The current day will be displayed. Select one of the following options:
  - To select this date Press <ENTER>.
  - To select a new date enter the two-digit month and day in the MMDDYY format and Press <ENTER>.
7. The current time will be displayed. Select one of the following options:
  - To select this time Press <ENTER>.
  - To select a new time enter the two-digit hour and minute in military time as in the HHMM format and Press <ENTER>.
8. Enter the appropriate function key and follow the prompts.
9. When finished, Press CLEAR to return to the idle prompt.

## **Deleting Transactions in Supervisor Mode.**

1. Swipe a supervisor badge through the card reader or use a bar code wand.
2. Enter in "0" to add or delete transactions.
3. Enter the employee badge number.
4. The last transaction will show in MMDD HHMM Function Key format. Select one of the following options:
  - If this is the transaction you wish to delete Press <ENTER>.
  - If you would like to delete another transaction use the IN and OUT keys to scroll through the transactions for that employee. Once you have selected a transaction Press <ENTER>.
5. Select "3" to Delete a transaction.

The clock will beep and read "Deletion Accepted."
6. When finished, Press CLEAR to return to the idle prompt.

## Editing Transactions in Supervisor Mode.

To edit a transaction, you first delete the existing transaction and then go back and add a new transaction.

1. Swipe a supervisor badge through the card reader or use a bar code wand.
2. Enter in "0" to add or delete transactions.
3. Enter the employee badge number.
4. The last transaction will show in MMDD HHMM Function Key format. Select one of the following options:
  - If this is the transaction you wish to delete Press <ENTER>.
  - If you would like to delete another transaction use the IN and OUT keys to scroll through the transactions for that employee. Once you have selected a transaction Press <ENTER>.

5. Select "3" to Delete a transaction.

The clock will beep and read "Deletion Accepted."

6. Enter in "0" to add a transaction.
7. Enter the employee badge number. Press <ENTER>.
8. The last transaction will show in MMDD HHMM Function Key format. Press <ENTER>.
9. Select "1" to Add a transaction.
10. The current day will be displayed. Select one of the following options:
  - To select this date Press <ENTER>.
  - To select a new date enter the two-digit month and day in the MMDDYY format and Press <ENTER>.

11. The current time will be displayed. Select one of the following options:
  - To select this time Press <ENTER>.
  - To select a new time enter the two-digit hour and minute in military time as in the HHMM format and Press <ENTER>.

12. Enter the appropriate function key and follow the prompts.

13. When finished, Press CLEAR to return to the idle prompt.

## **Print Transactions in Supervisor Mode**

1. Swipe a supervisor badge through the card reader or use a barcode wand.
2. Enter in "1" to print transactions.
3. Select the appropriate option.
  - a. Select "0" to print transactions by employee or badge number.
  - b. Select "1" to print today's transactions
  - c. Select "2" to print transactions by function
  - d. Select "3" to print all transactions
4. Follow the prompts accordingly.
5. When finished, Press CLEAR to return to the idle prompt.

## **Recall Transactions in Supervisor Mode**

1. Swipe a badge designated for recall through the card reader or use a bar code wand.
2. Enter in "0" to review transactions.
3. Enter in the employee/badge number and press Enter.
4. The last transaction entered will display and then the idle prompt will display.

## Appendix A General Clock Functions – Using a Badge

When swiping the badge it is usually best to start from the top of the slot and slide the badge down in a brisk smooth motion. If using magnetic stripe badges be sure the stripe is facing the outer edge of the clock. If using bar code badges be sure the bar code is facing toward the center of the clock.

### CLOCK IN

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the “IN” (\*) key.

### CLOCK OUT

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the “OUT” (#) key.

### CLOCK OUT FOR LUNCH

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the “4” key – “out for lunch”

### CLOCK IN FROM LUNCH

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the “6” key – “in from lunch”

### TIPS

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the function key assigned to TIPS  
The clock with display “ENTER TIPS”
3. Key in the dollar amount of tips (up to \$325.)
4. Press <ENTER> to accept it.

### DEPARTMENT TRANSFERS

1. Swipe the badge.  
The clock with display “ENTER FUNCTION.”
2. Press the function key assigned to DEPARTMENT TRANSFERS  
The clock with display “ENTER DEPARTMENT”
3. Key in the department number transferring to (0-99)
4. Press <ENTER> to accept it.

## Appendix B General Clock Functions – Using the Keypad

### CLOCK IN

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the “IN” (\*) key.

### CLOCK OUT

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the “OUT” (#) key.

### CLOCK OUT FOR LUNCH

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the “4” key – “out for lunch”

### CLOCK IN FROM LUNCH

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the “6” key – “in from lunch”

### TIPS

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the function key assigned to TIPS  
The clock with display “ENTER TIPS”
4. Key in the dollar amount of tips (up to \$325.)
5. Press <ENTER> to accept it.

### DEPARTMENT TRANSFERS

1. Key in your badge number.
2. Press <ENTER>  
The clock with display “ENTER FUNCTION.”
3. Press the function key assigned to DEPARTMENT TRANSFERS  
The clock with display “ENTER DEPARTMENT”
4. Key in the department number transferring to (0-99)
5. Press <ENTER> to accept it.

## Appendix C Alpha Character Chart

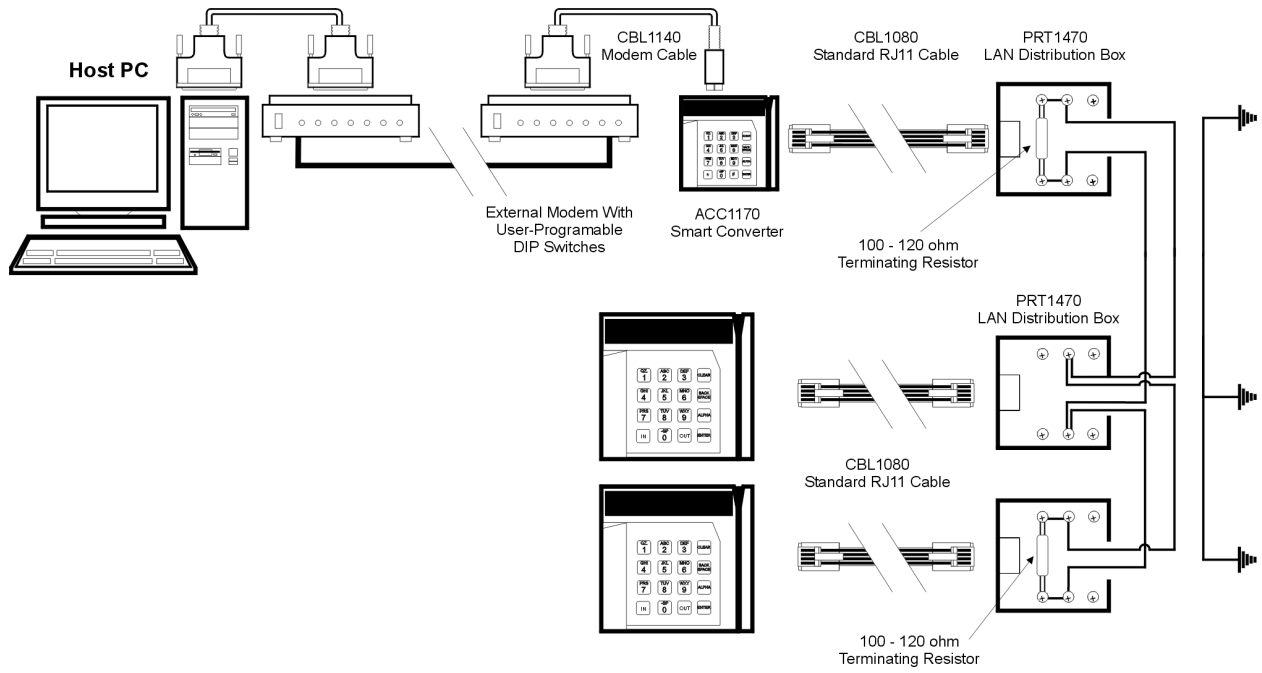
<i>Alpha Character Desired</i>	<i>Number Key to Press</i>	<i>Then Press &lt;ALPHA&gt; key...</i>
A	2	1 time
B	2	2 times
C	2	3 times
D	3	1 time
E	3	2 times
F	3	3 times
G	4	1 time
H	4	2 times
I	4	3 times
J	5	1 time
K	5	2 times
L	5	3 times
M	6	1 time
N	6	2 times
O	6	3 times
P	7	1 time
R	7	2 times
S	7	3 times
T	8	1 time
U	8	2 times
V	8	3 times
W	9	1 time
X	9	2 times
Y	9	3 times
Q	1	1 time
Z	1	2 times
=	1	3 times
- (hyphen)	0	1 time
(space)	0	2 times

## Appendix D Time Conversion Table

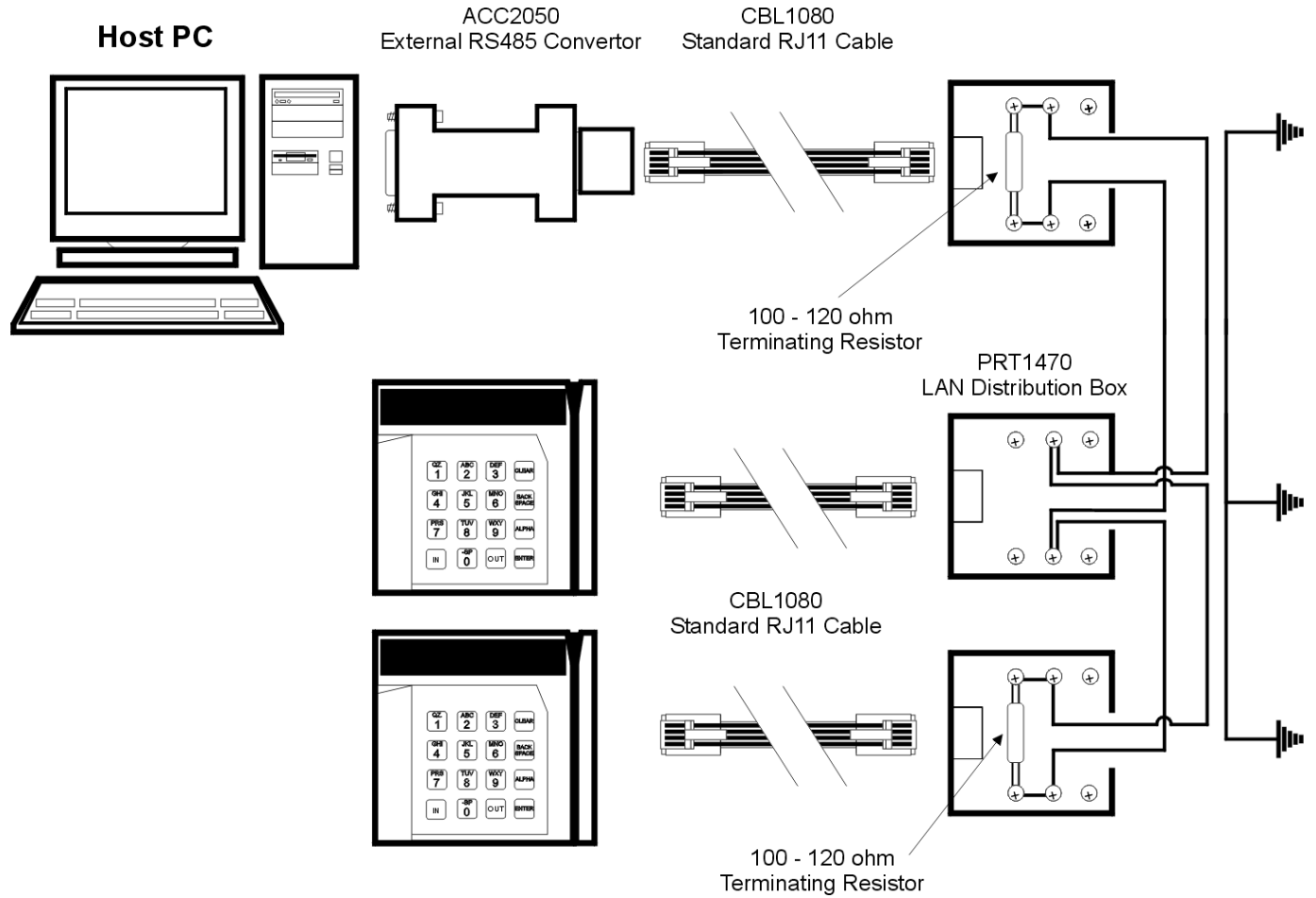
AM / PM Time	Military Hours	MM/100ths	MM/100ths
12 AM	0	:00 – 0.00	:30 – 0.50
1 AM	1	:01 – 0.01	:31 – 0.51
2 AM	2	:02 – 0.03	:32 – 0.53
3 AM	3	:03 – 0.05	:33 – 0.55
4 AM	4	:04 – 0.06	:34 – 0.56
5 AM	5	:05 – 0.08	:35 – 0.58
6 AM	6	:06 – 0.10	:36 – 0.60
7 AM	7	:07 – 0.11	:37 – 0.61
8 AM	8	:08 – 0.13	:38 – 0.63
9 AM	9	:09 – 0.15	:39 – 0.65
10 AM	10	:10 – 0.16	:40 – 0.66
11 AM	11	:11 – 0.18	:41 – 0.68
Noon	12	:12 – 0.20	:42 – 0.70
1 PM	13	:13 – 0.21	:43 – 0.72
2 PM	14	:14 – 0.23	:44 – 0.73
3 PM	15	:15 – 0.25	:45 – 0.75
4 PM	16	:16 – 0.26	:46 – 0.76
5 PM	17	:17 – 0.28	:47 – 0.78
6 PM	18	:18 – 0.30	:48 – 0.80
7 PM	19	:19 – 0.31	:49 – 0.81
8 PM	20	:20 – 0.33	:50 – 0.83
9 PM	21	:21 – 0.35	:51 – 0.85
10 PM	22	:22 – 0.36	:52 – 0.86
11 PM	23	:23 – 0.38	:53 – 0.88
		:24 – 0.40	:54 – 0.90
		:25 – 0.41	:55 – 0.91
		:26 – 0.43	:56 – 0.93
		:27 – 0.45	:57 – 0.95
		:28 – 0.46	:58 – 0.96
		:29 – 0.48	:59 – 0.98



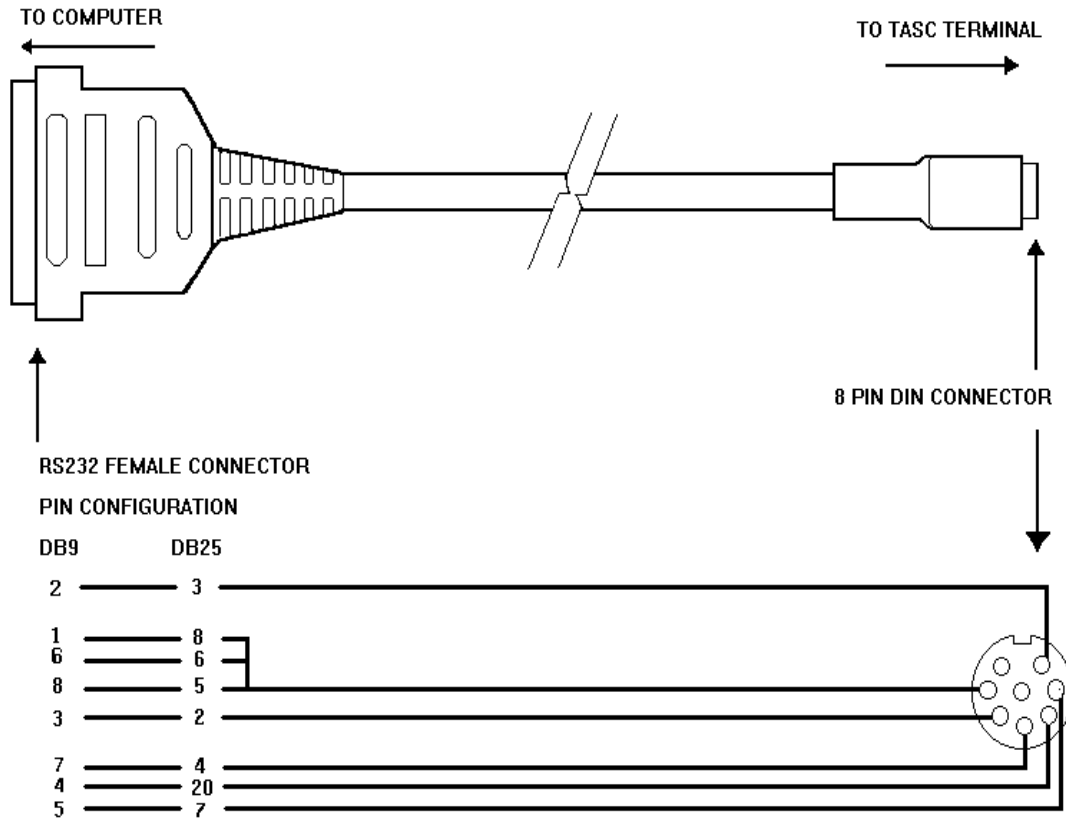
# Appendix E Smart Converter Wiring Diagram



# Appendix F RS485 LAN Wiring, External



# Appendix G RS232 Wiring Diagram



## Appendix H Signal Control Relay Settings

The Signal Control Relay offers two means by which an external device can be controlled, a dry contact (normally open), and an 110v A.C. outlet. The maximum load for the dry contact is 5 amps at 110v, and a maximum load for the outlet is 10 amps.

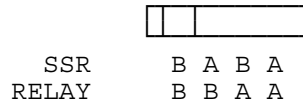
NOTE: To support the Signal Control Relay, your terminal must contain the Bell or Access option.

If you are just using the dry contact, the 110v A.C. power cord does not have to be plugged in. However, if the 110v A.C. power cord is plugged in, when using a volt meter, you will find that the volt meter always reads 110v A.C.. This is because the circuit works off of impedance. The Signal Control Relay can be used with other equipment sharing the same 6 pin DIN port on the terminal, such as a bar code wand, by using a Y splitter. The Y splitter can be purchased from your local Time America Dealer.

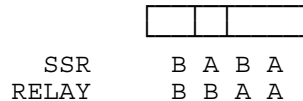
The following is a switch position diagram on how the Bell/Access directional switch on the backside of the Signal Control Relay operates. The switch allows you to direct which, output device (dry contact or 110v outlet) is controlled by Bells and which by Access.

SSR = (solid state relay) 110v A.C. outlet  
 RELAY = Normally open dry contact.  
 B = Operates off the Bell  
 A = Operates off Access

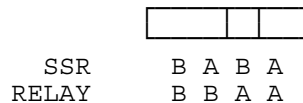
Example 1: The Bell signal will activate the SSR and the Relay.



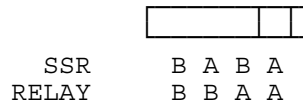
Example 2: The Access signal will activate the SSR and the Bell signal will activate the Relay.



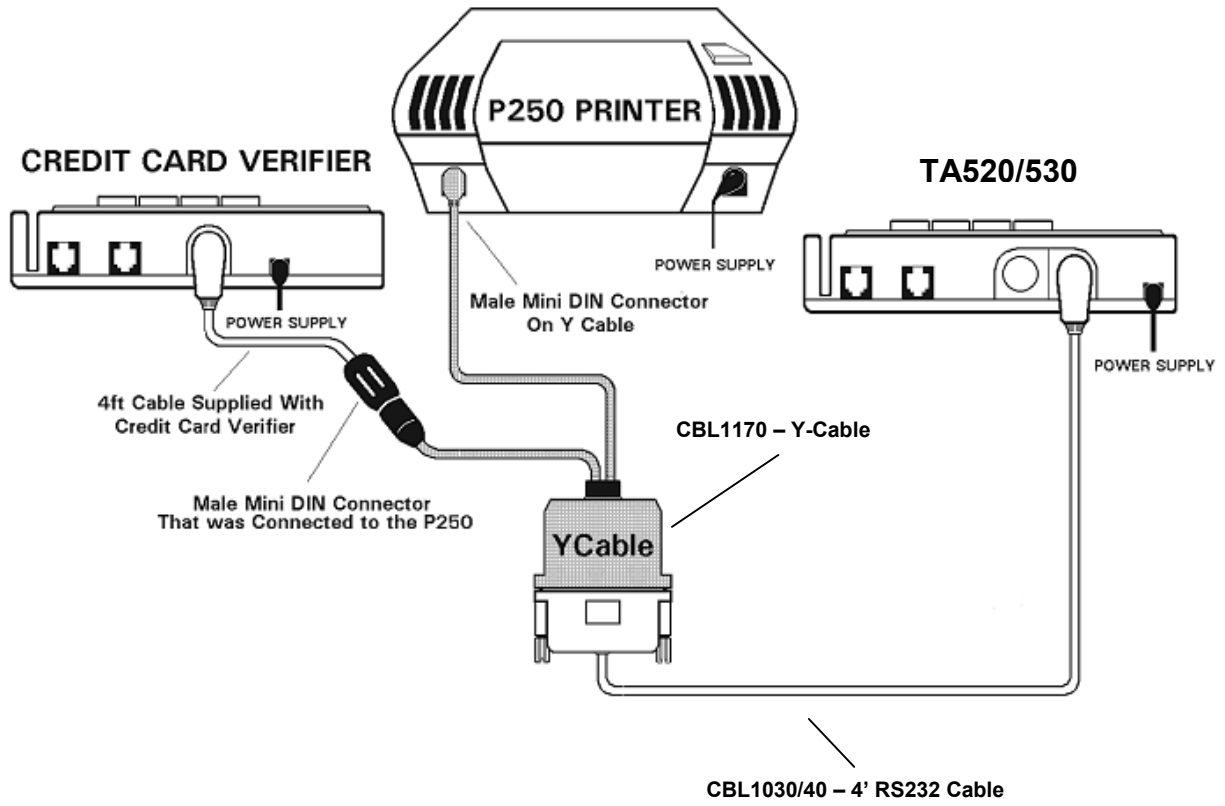
Example 3: The Bell signal will activate the SSR and the Access signal will activate the Relay.



Example 4: The Access signal will activate the SSR and the Relay.



# Appendix I Connecting the Y Cable



## Appendix J Clock Features & Specifications

### Microprocessor

Z-80 microprocessor and support circuitry.

### Memory

32K EPROM, 32K RAM

### Calendar Clock Chip

Built-in calendar/clock chip for maintaining current date and time. Used for date and time stamping of transactions.

### Battery Backed Memory

Internal lithium battery backup power source for RAM in the event of a power failure. This battery supplies the required power to ensure the clock keeps accurate time and information stored in memory is not lost.

### Display panel

16-Character, Vacuum fluorescent, alphanumeric display including special characters / . (space). Display panel scrolls 4 characters at one time. Terminal has two scroll keys for scrolling in either direction.

### Key Pad

16-button silicon-rubber key pad with color coded keys including 0-9, A-Z, IN, OUT, CLEAR, BACKSPACE, ALPHA, and ENTER.

### Magnetic Stripe Reader

Card reader reads (ABA) track 2 information from a magnetic stripe card.

### Bar Code Reader

Card reader reads 3 of 9 information from a bar coded card.

### Modem (520/530 Internal Modem Chip)

Internal Auto-answer modem with modular jack. 1200 baud (Bell 212A) modem.

Modem data format for all Models:

8 data bits      1 stop bit

no parity        1 start bit

Serial interface

### **RS232 8-Pin DIN Connector**

Bi-directional local communication via an 8-Pin DIN RS232 Port. Standard on all terminals.

#### *Pin Function*

1	GND (through a 47 ohm resistor)
2	RS-232 Aux input
3	RS-232 Aux output
4	RS-232 Auxiliary ready input
5	RS232 RCV
6	RS232 XMT

Communicates at 9600,baud.

8 bit data

1 start bit

1 stop bit

no parity

single character I/O through program control

### **RS485 LAN (520 MODEL WITH RS485 LAN ONLY)**

Network interface many terminals on one line. This model does not contain an internal modem, but instead uses the RJ11 telephone jacks for RS485 communications.

### **Bar Code Wand 6-Pin Din Connector**

Bar Code Wand connects to the 6-Pin DIN port and reads 3 of 9 (code 39) bar codes.

### **PLASTIC 520 Construction**

Durable plastic construction with separate wall mounting kit.

Blue/Gray color

### **METAL 530 Construction**

Durable metal construction with mounting plate for wall mount.

Lower cavity to conceal Power Pack and communication lines.

Blue/Gray color

### **Power Requirements**

Voltage: 120 volts AC, 60Hz

Power Consumption: 10W

### **Environmental**

Operating Temperature: 0-40 C, 32-104 F

Storage Temperature: -18 to 70 C, 0 to 158 F

Humidity: 5% to 90%, non condensing