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b. For all hardware products (excluding batteries), including complete systems, fifteen (15) months from date of initial delivery to Buyer, subject to the additional conditions of paragraph c) below;

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Online Support

Intelligent Instrumentation's World Wide Web site http://www.lanpoint.com provides online support through technical support links. The site contains information on Intelligent Instrumentation's products, new developments, announcements, application notes, application examples, and other useful information. The site and support areas continue to grow as new products, updates, and features are added.

Email Support

Intelligent Instrumentation's technical support can be reached via email. When sending an email message, be sure to include complete contact information, the product model/part number with third-party accessory information, and a detailed description of the problem.

e-mail address for the support group:

support@lanpoint.com
Static Sensitivity
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FCC Radio Frequency Interference Statement
This equipment generates and uses radio frequency energy, and may cause interference to radio or television reception.

Per FCC rules, Part 15, Subpart J, operation of this equipment is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by other incidental or restricted radiation devices, industrial, scientific or medical equipment, or from any authorized radio user.

The operator of a computing device may be required to stop operating his device upon a finding that the device is causing harmful interference and it is in the public interest to stop operation until the interference problem has been corrected.

The user of this equipment is responsible for any interference to radio or television reception caused by the equipment. It is the responsibility of the user to correct such interference.

European CE Certification
European CE certification is as described on the Declaration of Conformity that ships with each LANpoint TIME terminal.

Revision History for the LANpoint TIME Installation and Maintenance Manual

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LANpoint TIME Terminal

1.0 About this Manual

This LANpoint TIME Installation & Maintenance Manual includes instructions for configuring, installing, and maintaining the LANpoint TIME terminal.

Maintenance of the terminal is minimal. This manual includes instructions for cleaning the terminal and replacing both the real-time clock battery and the optional backup battery pack.

In addition to this manual, these separate manuals are available:
- 855M533, LANpoint TIME Quick Start Manual
- 855M531 LANpoint PLUS Developer's Manual

Manual 855M533 ships with each terminal. All manuals may also be downloaded free of charge at www.lanpoint.com/351.html.

2.0 Operating the LANpoint TIME Terminal

2.0.1 Keyboard IMPORTANT NOTE

Throughout this manual there will be references concerning use of the keyboard for setup, configuration, and maintenance activities. Since many characters cannot be typed on the special reduced keypad on the LANpoint TIME terminal, an external PS/2 keyboard must be used temporarily for these purposes.

IMPORTANT: On reduced numeric/function keypad models, temporarily connect an external keyboard to the LANpoint TIME terminal for configuration and installation activities. Use any keyboard with a PS/2 style connector.

2.0.2 Power

The terminal receives power from an external power source via an adapter you connect to the power input connector, P1. There are different adapters for 110VAC power and 220VAC power.

When power is applied, the LCD backlight immediately illuminates. In a few seconds the startup sound is played. The terminal is ready when the OS version number and IP address are shown on the LCD.

During power-up, the terminal launches the Monitor program which allows certain configuration settings via commands sent to the serial port. A description of the Monitor program can be found in 855M531, LANpoint PLUS Developer’s Manual.
2.0.3  QuickStart Ethernet Configuration Steps

The first thing most installers will do is configure the terminal’s Ethernet parameters and connect it to the network. This "QuickStart" section is followed by more in-depth information concerning configuration and installation.

If your installation is via hardwired 10/100 BaseT Ethernet and uses DHCP to assign the terminal’s IP address, you can skip to section 3.0, as that is the factory default configuration.

2.0.3.1  Using Utilities to Set Wired or Wireless Ethernet Parameters

There are several ways to configure the LANpoint TIME Ethernet parameters. The easiest way for a new user to do this is described below. Other methods are described in 855M531, LANpoint PLUS Developer’s Manual.

To configure the terminal to use wired Ethernet, the minimum hardware is the terminal and power supply, with a common PS/2 PC keyboard.

To configure the terminal to use wireless Ethernet, the minimum configuration is the terminal configuration listed above, connected via the 10/100 BaseT Ethernet connector to a wired Ethernet network. The wired Ethernet parameters will be set first, and then the wireless Ethernet parameters can be set using a PC and the Remote Display utility that is built into the terminal.

2.0.3.1.1  Boot-Up

Plug an external PC keyboard into the PS/2 connector on the back of the terminal. Plug the power adapter into a live electrical outlet and into the POWER input connector located on the back of the terminal. It would also be a good idea to connect the terminal to the local area network using a 10/100 BaseT Ethernet cable, but this is necessary at this time only if you are going to configure the Wireless Ethernet parameters via the remote display utility.

The display backlight will come on, and a checkerboard pattern will be displayed briefly, followed by a screen showing the OS build number and the IP address.

In the figure below, the IP address on the second line was provided by a DHCP server on the network. A default address will be displayed if the terminal is not connected to the network.

**IMPORTANT:** On reduced numeric/function keypad models, temporarily connect an external keyboard to the LANpoint TIME terminal for configuration and installation activities. Use any keyboard with a PS/2 style connector.
2.0.3.1.2 Setup Utility

An easy way to change to the networking default and other basic configurable features is to connect to the network via wired Ethernet, and launch the remote display utility for wireless Ethernet setup and other uses. Selected Setup commands are listed here; a full list of Setup commands can be found in 855M531, LANpoint PLUS Developer's Manual.

When configuring the wireless Ethernet parameters for the first time, the terminal must be connected to the local area network via 10/100BaseT wired Ethernet at least once. Then the Remote Display utility can be used for full access to the LANpoint TIME's Windows CE.NET Graphical User Interface. The Remote Display utility is the only way to configure wireless Ethernet parameters, and is handy (or necessary) for other uses, too.

1. To start the Setup utility, press the 2nd key and release it, then press the F8 key (this is F16). You will briefly see:

   LANpoint TIME Setup Utility startup screen

2. and after the Setup information you will be prompted for Setup commands:

   LANpoint TIME Setup Utility command screen

3. If you are using DHCP to automatically set your IP address, skip to step 9. Otherwise, to set a hardcoded IP address, at the Setup> prompt type nixxx.xxx.xxx.xxx where x = IP address.

4. NOTE that you should not include any spaces in this command.

5. At the Setup> prompt type nsxxx.xxx.xxx.xxx where x = subnet mask.

6. At the Setup> prompt type ngxxx.xxx.xxx.xxx where x = gateway address.

   Note: The most commonly needed commands are listed immediately above. Other commands are available for enabling/disabling DHCP, setting DNS server, WINS server, and for performing other tasks. See 855M531 LANpoint PLUS Developer’s Manual, Section 3.1, Setup Utility for full instructions.

7. Reboot the terminal for the changes to take effect.

8. If you are using wired Ethernet, you are done configuring the IP address, otherwise, press 2nd-F8 to launch the Setup utility again.

2.0.3.1.3 Remote Display Utility

9. The wired Ethernet connection will be used during the initial configuration of the terminal, until the wireless Ethernet connection parameters are configured and operational. First,
connect the wireless terminal to the network via 10/100BaseT wired Ethernet and power it up.

10. Configure the wireless parameters using the remote display utility, which is actually two programs. There is a client portion that is shipped on each LANpoint TIME terminal, and a host portion, CERHOST.EXE, that runs on a Windows development PC somewhere on the same LAN. Copy and run the program CERHOST.EXE on your development PC. CERHOST.EXE can be found on the SDK CD, or downloaded from the LANpoint TIME product overview page, http://www.lanpoint.com/lanpoint-time.html.

11. Repeat steps 1 and 2 to launch the setup utility. At the Setup> prompt, set the IP address of the development PC - type rdhostxxx.xxx.xxx.xxx where x = the IP address of the development PC.

NOTE that you should not include any spaces in this command.

12. Then launch the remote host client program - type rdstart at the Setup> prompt.

13. The LANpoint PLUS' graphical user interface will be displayed on the development PC's CERHOST.EXE window. Use the development PC's mouse and keyboard to configure the rest of the parameters as follows.

2.0.3.1.4 Configuring Wireless adapter IP address, Network ID, Security, and other Properties

14. Using the development PC's CERHOST.EXE window, click on Start, select Settings, and click the Control Panel submenu item.

15. Double-click the Network and Dial-up Connections icon.

The configuration dialog displays the network driver:

- LAN90001 (this is the dialog for setting parameters for wired Ethernet)
- SDCCF10G1 (this is the dialog for the optional factory-installed Summit Wireless Ethernet adapter)

16. Double-click the SDCCF10G1 icon. The wireless IP address dialog (Summity WLAN...) opens as shown above; the LAN90001 dialog is similar.
17. If using DHCP to assign a TCP/IP address, verify the radio button for *Obtain an IP address via DHCP* is selected. If necessary, select this radio button.

Otherwise, if assigning a "hard-coded" IP address, select the radio button for *Specify an IP address*, enter the IP Address Subnet Mask, and Gateway address.

18. If a network server (WINS or DNS) configuration is required, now is a good time to do it, since the correct adapter dialog window is open. Select the *Name Servers* folder tab, and fill-in the appropriate server address information.

19. Click the *OK* button.

2.0.3.1.5 Wireless Network ID, Security, and other Parameters

20. Launch the *Summit Client Util.* dialog to set configuration parameters like ESSID, WEP, and security properties. Using the development PC’s mouse and keyboard in the CERHOST window, double-click on the RF Ethernet network icon in the system tray to open the dialog, or *Start/Programs/Summit/SCU* as shown in the figure below.

Launch the client utility for further configuration of the wireless adapter

The *Summit Client Utility* dialog opens as shown below. This utility displays WIFI

Launch the Summit WIFI properties configuration - main dialog
settings, and when logged-in as Administrator, allows configuration of those settings. Press the Admin Login button to enter the password and make changes. The factory-default password is **SUMMIT**, in all capital letters.

**Note:** The default password to modify the parameters with this dialog is **SUMMIT**, all capitalized. You can set it to your own value in the Global Settings dialog.

Once the password is entered, all functions supported by the Summit Client Utility are accessible and configurable. For instance, the figure above shows the **Config** tab dialog where new configurations can be added, and the SSID, client name, and other configuration parameters can be set.

Currently supported EAP types are: LEAP, EAP Fast, PEAP-MSCHAP, and PEAP-GTC. Currently supported Encryption methods are: Manual WEP, Auto WEP, WPA PSK, WPA TKIP, WPA2 PSK, WPA2 AES, CCKM TKIP, CKIP Manual, and CKIP Auto.
21. Another useful tool is the Diagnostic dialog as shown below. Other nodes on the network can be PINGed, the terminal can be re-connected to the network, and the IP address can be viewed/released/renewed; all useful tools for wireless network troubleshooting. *Site Survey* is not supported in the current release of the SCU.

22. The other dialogs, like *Status*, show client name, signal strength, radio channel, communications speed, MAC address, and others. *Global settings* shows and allows the setting of global parameters like roaming parameters, ping parameters, and the Admin password.

23. After the wireless parameters are set, run /FLASH/CEFlush.exe to save the registry in persistent memory.

![Summit WIFI properties configuration - diagnostics dialog](image)

**IMPORTANT:** CEFush must be run to save the changes in the registry in non-volatile storage. Failure to do so will result in loss of settings when the terminal is re-booted.

24. To verify that the wireless Ethernet configuration is accurate, reboot the LANpoint TIME - remove power and remove the wired Ethernet connection. After the terminal boots up, test the wireless connection as appropriate - ping the terminal, or even run the *Setup* utility again to launch the *Remote Display* utility (in which case, the host computer may display a connection error message; acknowledge it and the remote display will reconnect and run normally).

### 3.0 Specifications, Features, and Options

#### 3.0.1 Specifications

- Dimensions: with slot reader: 26.9 cm W x 20.2 cm H x 8.9 cm D (10.6 in. W x 7.93 in. H x 3.5 in. D)
LANpoint TIME Terminal

with proximity reader: 26.9 cm W x 17.8 cm H x 8.9 cm D (10.6 in. W x 7 in. H x 3.5 in. D)

- Operating System: Microsoft Windows CE.NET version 4.2.
- Power Requirements: 12 VDC.
- Temperature Range: 0°C to 50°C (32°F to 122°F) Operating and Storage

3.0.2 LANpoint TIME Terminal Features

3.0.2.1 Case and mounting

The case of the LANpoint TIME terminal is molded of a textured high-impact low-maintenance plastic. All connectors are in the rear of the terminal. The case is, in turn, mounted in a wedge-shaped enclosure, with the angle of the wedge suitable for wall-mounting. Should table-mounting be desired, the terminal can be rotated 180 degrees in the enclosure.

The terminal case is rated for NEMA-12/IP54 resistance to dripping and windblown water and dust.

3.0.2.2 Display

The terminal has a text display, 2 lines of 40 characters each. The LANpoint TIME Software Development Kit contains APIs for custom-developed application programs, which control the display of text strings that are associated with Windows edit and/or radio button controls.

Optional terminal emulation software (VT, 5250, 3270) can easily be used to eliminate the need for custom programming.

The Windows CE Graphical User Interface (GUI) can be accessed remotely via the included Remote Display Utility, providing access to graphical Windows CE functions such as the Control Panel and RF Ethernet configuration programs.

3.0.2.3 Keyboard

The sealed elastomeric construction features a long-life industrial design. The numeric and function key keyboard is removable for easy cleaning.

There are eight programmable function keys for use as menu selectors and other operator shortcuts. Each of the eight keys (as well as almost any key or key combination) can be programmed to launch an application or insert a user-defined string of characters into the keyboard buffer.

IMPORTANT: On reduced numeric/function keypad models, temporarily connect an external keyboard to the LANpoint TIME terminal for configuration and installation activities. Use any keyboard with a PS/2 style connector.
By using the modifier key (‘2nd’), up to 16 individual functions can be programmed using these 8 keys. See the LANpoint PLUS Developer’s Manual, 855M531, for programming instructions.

3.0.2.4 Connectors

The terminal includes the following connectors:

- Power
- +3.3 V, +5 V, and +12 V accessory power output
- Ethernet RJ45 10/100 Base-T
- Serial ports COM1, COM2, COM3
- Mini-DIN6 keyboard
- Digital I/O (included in every terminal; an optional Digital I/O termination panel for ease and reliability of field wiring, is available)
- Backup battery
- PCMCIA type I, II, III slot. The PCMCIA slot cover door cannot be installed when using type III cards (Option Board models only).
- Internal Compact Flash slot for additional local non-volatile data storage if needed (Option Board models only)

3.0.2.5 Auto-ID Interfaces

The terminal comes with the slot reader of your choice - visible red barcode, infrared barcode, or magnetic stripe - or with a proximity reader for reading HID format RF ID badges. In addition, other autoID readers can be added by the customer, including:

- Standard "keyboard wedge" devices (magnetic stripe and barcode badge slot readers, wands, lasers, imagers, etc.) via the PS/2 keyboard port. Power is supplied through the PS/2 port. The autoID data is placed directly into the keyboard buffer.
- Serially connected devices such as 2D scanners, slot readers, biometric readers, and RFID and proximity readers via COM1, COM2, and/or COM3. A jumper associated with each of these ports can be set to supply +5 VDC to pin 9 of the standard DB9 connector.
- Serially-connected devices can be used with the wedgece.exe “wedge” software utility included with each terminal, making it easier to integrate autoID into applications. Data collected via wedgece appears as if it were keyed into the keyboard. See the LANpoint PLUS Developer’s Manual, Section 3.4, Wedge Utility for more information.
- External slot readers, whether PS/2 or serially-connected, can be attached to the chosen LANpoint TIME and mounted flat on a wall or other mounting surface with an optional slot reader bracket or other mechanical mounting means.
- Each LANpoint TIME terminal has a connector with 4 pins that can be used to provide 3.3 VDC, 5 VDC, and/or 12 VDC and ground to power an autoID device, no matter how it is connected to the terminal. Alternately, pin 9 of any COM port can be configured to provide +5 VDC as noted above. See section A.3.6, Accessory Power Output.
• The jumpers to configure pin 9 are factory-set to provide the Ring Indicator (RI) signal on pin 9. To change the jumper, it is necessary to remove the rear case-half of the terminal; an appropriately sized allen wrench for removing the four machine screws that secure the case rear to the face is shipped with each terminal. See Appendix A, Section A.3.3, COM1, COM2 and COM3 Ports for more information.

3.0.2.6 Digital I/O

Digital I/O provides eight input signals that can be monitored for sensing switch settings, door closures, and other on/off signals. The eight digital inputs are fully isolated with each input channel (+) having its own return (-). These digital input channels have a switching threshold of 5V, nominal, but can withstand input voltages to 30V.

The inputs can also be configured (see 855M531, LANpoint PLUS Developer’s Manual) to count events that are monitored by high/low signal sensors, such as turns of a turnstile, opening of a door, revolutions of a shaft, boxes on a conveyor belt, and so on, up to 50 counts per second.

Eight output signals can activate door latches, lights, buzzers, and the like. The eight digital output channels are not isolated from the terminal and are meant to drive external relays. These outputs are open collector outputs that can sink 200mA and withstand 50V. The switching threshold is 12V, nominal. Output voltage for all channels is provided via an external voltage source (or jumpered from the accessory output power connector, JP8 - see appendix section A.3.6, Accessory Power Output). Pinouts and schematics can be found in the Appendix, A.3.7, Digital Input-Output Connector.
Devices can be connected easily using the factory installed Digital I/O termination option (shown below), or a connector fabricated with a standard 34-pin connector such as AMP 746288-8 or equivalent.

3.0.2.7 Networks
In addition to the standard RF- and wired-Ethernet drivers included with the Windows CE.NET Operating System, the terminal includes the following network software, described in more detail in the following section:

- Web-enabled remote management software
- SNMP
- VT100, VT220, HP, ANSI, IBM5250, IBM3270 terminal emulation evaluation software; production-ready when activated with separately purchased license key

3.0.2.8 Utilities
Standard Intelligent Instrumentation and Microsoft software tools and utilities shipped on every terminal include the following. Full descriptions and instructions are documented in Chapter 3 of 855M531 LANpoint PLUS Developer’s Manual.

- Setup Utility - view and modify Ethernet and other parameters, and launch programs via the integral keyboard and 2-line text display. Some functions are described above in section 2.0.3, QuickStart Ethernet Configuration Steps
- Remote Display Client - remote control/manipulation via the familiar Windows Graphical User Interface using the Remote Display host program on a networked Windows PC
- CEPad Text Editor - editor for text files (via Remote Display)
- Wedge - move any/all COM port(s) data to the keyboard input buffer
- Programmable Function Key (PFK) Utility - editor and application: define a string to be placed in the keyboard buffer whenever a given key is pressed, or launch a program whenever a given key is pressed
- DebugLauncher Utility - tool to help debug custom application software during development
- Time Synchronization Client - synchronize the terminal real-time clock to a central source
- Monitor Program - allows configuration of Ethernet and other parameters via commands received on serial port COM1. The command set is similar to the Setup Utility commands.
- Remote Manager - Web server application to view and control the terminal settings, upload and download files, launch and terminate programs, and reboot the terminal through a standard web browser on a PC on the network.
- SerialSocket - allows a remote computer to access the devices connected to one or more serial ports on the terminal, as if it were a local serial port on that remote computer
- SNMP - not a utility per se; allows monitoring of terminal via the Simple Network Management Protocol (SNMP) standard
- LCmdSet Utility - Telnet server utility which processes commands from a remote telnet client program. Used to view and set Ethernet and other parameters
- Thin Client: Text-based Terminal Emulation Application - processes host-based programs just as a text-based terminal would, eliminating need for custom programming. Emulates IBM5250, IBM3270, VT, or HP terminals. Evaluation version is on every terminal. Production usage requires purchase of license key

3.0.3 Accessories and Options

Intelligent Instrumentation relies on open-architecture concepts to allow customers to use easily purchased and economical common accessories such as autoID readers, serial printers, software development tools, and so on. Where necessary, terminal-specific accessories are provided, such as battery backup, additional slot readers, and others.

Instructions for installing some of the available mounting accessories are described in section 4.0, Installing the LANpoint TIME Terminal.

A power adapter can be ordered through Intelligent Instrumentation for using the terminal via wall power outlets across the world

Other accessories include:
- the LPA080 EZ-ID biometric fingerprint reader (see www.lanpoint.com/ezid.html) which is particularly useful in Time and Attendance applications to prevent “buddy punching”, unauthorized access, and other identification misrepresentations
• a backup battery pack that provides enough time to close a program during an interruption in external power
• several types of autoID readers, and
• specialized mounting hardware.

Some of these are described below. See a complete listing of accessories available from Intelligent Instrumentation at the web site www.lanpoint.com.

### 3.0.3.1 External Power Adapter

Intelligent Instrumentation offers two AC power adapters, one for 120VAC 60Hz power, the other for 240VAC 50Hz power. Both power adapters supply 12 VDC @ 1.2 A.

### 3.0.3.2 Option Board

The Option Board models of the terminal contain a second internal printed circuit board, that has a PCMCIA slot and a Compact Flash slot. The PCMCIA slot is populated at the factory for RF Ethernet models. In non-WIFI models, it can be used as a general purpose slot, supporting Type I and Type II cards, such as Flash memory cards, SRAM memory cards, and the like. Type III cards can be used, but the rear access panel cannot be re-installed due to the size of Type III cards.
The option board also has a Compact Flash slot that supports additional non-volatile data and program storage space via a customer-supplied CF card. It is only accessible by removing the rear housing of the terminal, which, in turn, is only accessible by removing the terminal from the wedge-shaped enclosure. Appropriately sized allen wrenches (3/32” and 9/32”) are shipped with each terminal specifically for this purpose. See section 5.0.4, COM Ports for more information.

3.0.3.3 Backup Battery Pack
A NiCd backup battery pack is available. Installation instructions are found below.

Each terminal has a connector and trickle-charge circuitry for this accessory. When fully charged, the battery pack provides approximately 20 minutes of fully-operational power. This provides a sufficient amount of time to span short power glitches and/or shut down in an orderly fashion if necessary.

Perform these steps after installation or replacement of a new battery pack:
1. Power the terminal for 15 to 30 minutes, allowing the new battery pack to partially charge.
2. Remove the external power source and verify that the terminal remains powered.
3. Power the terminal for 48 hours to ensure a full charge.

![Note: Backup battery packs are shipped from the factory uncharged. Power the terminal with the battery pack installed for 48 hours for the battery pack to be fully-charged.]

3.0.3.3.1 Backup Battery Pack Installation/Replacement
Determine the best location to attach the battery pack and plugging-in the keyed connector. Usually, the battery pack is attached with double-sided foam tape or velcro strips, which are both supplied with the new battery pack. The battery can be attached to the rear of the terminal (not obscuring product labels) or an appropriate surface within the enclosure as
shown below. The keyed connector on the terminal is 'JP7', labeled as BATT, as shown in Appendix A, Section A.2, Hardware Location Diagram.

One location for backup battery accessory - Velcroed inside the terminal's mounting enclosure
4.0    Installing the LANpoint TIME Terminal

Note: If the optional backup battery pack is used, it should be installed prior or during installation - see section 3.0.3.3.1, Backup Battery Pack Installation/Replacement for instructions.

The terminal can be configured for mounting on a work surface or in a wall orientation. It ships from the factory configured for a wall mount orientation. Cables are routed through the rectangular openings in the rear of the enclosure.

The first step in mounting the terminal is to disassemble the enclosure. Remove four (4) machine screws using the 9/64” allen wrench shipped with each terminal; two of these screws are shown in the drawing above. The terminal will stay attached to the wedge-shaped top half
of the enclosure. The rear baseplate can then be carefully separated and removed. This baseplate will first be mounted to the wall and then the enclosure will be mated to it during the final installation steps, as described below.

Use the enclosure baseplate (rear half), OR the template that is shipped with each terminal (as shown below) for marking mounting locations on a wall. Care has been taken to make the template the exact size as the marked dimensions, but it is a good idea to verify the actual template measurements against the dimensions shown below.

**LANpoint TIME mounting footprint dimensions (Drawing not to scale)**
Position and level the template/enclosure and use a sharp instrument or marker to mark the mounting holes and the cable routing hole locations.

**Note:** If cables cannot be routed through the rear of the enclosure and into the wall, then hole(s) will have to be drilled through the metal slot reader plate for conduit or other wire routing method. Remove the slot reader plate from the housing before drilling, and be careful not to damage the slot reader, external beeper, and wires.

Now drill four (4) mounting holes suitable for the type of wall anchors chosen. Anchors must be supplied by the installer, with a diameter smaller than the enclosure base (0.185") (4.7mm), or drill the base holes slightly larger if necessary. In the example shown, 1/8" molly bolts will be used.

Cut the cable access hole(s). In the example shown, a hole saw is used.
Peel and stick the rear seal to the enclosure base as shown in the two photos below, and mount the enclosure base on the wall.

**Note:** If the optional backup battery pack is used, it should be installed prior or during installation - if not done yet, now is the last chance to do that. See section 3.0.3.3.1, *Backup Battery Pack Installation/Replacement* for instructions.

Once the backplate is mounted on the wall, attach the cables to the terminal (see section 5.0, *Cable Connections*) and mate the two halves, being careful in aligning the components as shown in the two photographs below.
Replace the four screws, and power-up the terminal to test that the installation is complete.
5.0 Cable Connections

This section provides cable connection information for the Ethernet, serial ports, auxiliary power connectors, external speaker, and external keyboard. The digital I/O connector, and the digital I/O circuitry is described in A.3.7, Digital Input-Output Connector.

**Note:** All cable connections are at the rear of the terminal, inside the enclosure. To access the connections, separate the enclosure by removing the four (4) machine screws as described in section 4.0, *Installing the LANpoint TIME Terminal*.

5.0.1 Powering 2D Scanners and Auto-ID Devices

To power serial 2D Scanners, Auto-ID devices, and other customer add-on accessories, connector JP8, labeled *AUX PWR*, provides power outputs of +3.3 VDC, +5 VDC, and +12 VDC. See A.3.6, *Accessory Power Output* for pinout and other wiring information. An alternative for
powering 5V devices connected to a COM port is to set the pin 9 jumper, JP1 - JP3 respectively. See section 5.0.4, *COM Ports*.

### 5.0.2 Ethernet

Every LANpoint TIME terminal has one RJ45 Ethernet port on the back of the terminal that accommodates a 10/100 Base-T Ethernet cable. In addition, terminals that include WIFI wireless ethernet have the PCMCIA slot populated with the WIFI radio card.

See section 2.0.3.1.2, *Setup Utility*, for TCP/IP address and other configuration instructions.

### 5.0.3 Option Board - PCMCIA Card Support

The LANpoint TIME Option Board models have a circuit board that supports PCMCIA cards. The most common use for the PCMCIA slot in Option Board models is to support an RF (Radio Frequency -Wireless Ethernet, IEEE802.11b/g) PCMCIA card. Other cards, such as Flash memory cards, are also supported.

#### 5.0.3.1 PCMCIA Card Installation

The PCMCIA card is installed by removing the access panel as shown in the photograph below. The terminal does not have to be removed from the wedge-shaped enclosure to remove the access panel.

PCMCIA card types I and II are physically held in place in the terminal via a cushion on the access panel, which press on the card when the panel is in place. Type III PCMCIA cards, rarely used, require that the access panel remain uninstalled, and therefore are not recommended for any installations where vibration or mechanical shock is a consideration.
Type III cards are generally rotating media disk drives, which are not likely to be used in vibration/mechanical shock applications.

5.0.4 COM Ports

Three DB9 serial COM ports are located on the back of the terminal. Each has a jumper located just above it that makes pin 9 either:

- a RI (Ring Indicator) signal, which is standard RS232C convention (and factory default), or
- a source for +5 VDC power to energize barcode scanners, proximity readers, fingerprint readers, and other accessories.

The pin 9 jumpers are only accessible with the internal rear cover of the terminal removed. First, remove the four (4) machine screws from the outer enclosure as described in section 4.0, Installing the LANpoint TIME Terminal. Then disassemble the terminal from the wedge-shaped portion of the outer housing by removing the four Phillips screws.

Finally, remove the internal rear cover of the terminal using the small 3/32" allen wrench that is shipped with each terminal to remove the four machine screws that secure the terminal’s rear cover to the face of the terminal. See Appendix A, Section A.3.3, COM1, COM2 and COM3 Ports of this manual for specific information about jumper selection.

5.0.5 External Keyboard

To use an external keyboard and/or a keyboard wedge auto-ID reader, connect the cable before applying power to the terminal. Windows CE.NET does not support hot swap.

Connect the keyboard cable to the keyboard mini-DIN6 connector J5, labeled KYBD, and restart the terminal. If multiple keyboard/keyboard wedge devices are desired, use the ‘Y’ cable that is usually supplied with that device or easily procured at electronic stores.

5.0.6 Adjusting the Integral Beeper Volume, Sounds, etc.

The internal beeper volume is controlled by the Windows CE.NET Operating System.

To adjust the volume level and sound schemes, use the control panel. Do this through the remote display utility, similar to how Ethernet parameters were set in section 2.0.3.1.2, Setup Utility:

1. Use the control panel’s Volume & Sounds dialog to adjust the volume slider bar under the Volume tab.
2. Adjust the sound preferences under the Sounds tab. As each adjustment is made, the terminal emits the volume chosen.
3. Run \FLASH\CEflush.exe afterwards to save the setting changes to the non-volatile registry file.
5.0.7 External Beeper Option

The terminal can be ordered with an integral externally-accessible beeper. As such, its normally loud volume can be adjusted by physically turning the speaker’s baffle ring. This reduces the size of, and eventually closes ports between the beeper and the outside of the terminal, effectively reducing the volume of the beep that is emitted.

When so equipped, the terminal includes the digital I/O termination board option and the beeper is driven by digital output channel 0.

6.0 Maintenance

Maintenance of the LANpoint TIME terminal includes cleaning the keyboard when necessary, and replacing the real-time clock battery and the optional backup battery pack when needed.

6.0.1 Cleaning the Keyboard

When the keyboard becomes dirty, or if keys become sticky due to something in the environment, the keyboard is removable for easy cleaning in warm, soapy water. As shown here, use a small, thin tool, or a thin coin, to carefully pry the keyboard bezel off of the terminal.
After removal, clean the bezel and key set in warm soapy water.

Care must be taken when replacing the bezel so that the keys do not catch the silicone rubber knobs of the underlaying keypad layers. Depending on the installation specifics, a simple "trick" helps. If the terminal is installed such that it can be moved, hold the terminal upside down while replacing the bezel. Slip the tabs at the top of the keyboard bezel behind the tabs on the terminal, as shown, and then press the bottom edge of the bezel until the latches click.

Test that each key is operational with no binding.
6.0.2 Replacing the Real-time Clock Battery

The real-time clock battery maintains the current date and time. It has a life expectancy of 5 years.

To replace the real-time clock battery:

1. Obtain battery replacement part: 3 V lithium CR 2032
2. Follow proper ESD grounding procedures to prevent damage to electronics.
3. Split the enclosure by removing the four (4) 9/32” machine screws as mentioned in section 4.0, Installing the LANpoint TIME Terminal
4. Disconnect the external power cable and the battery backup pack, if installed.
5. Remove the terminal from the front half of the enclosure by removing the 4 phillips screws.
6. Access the back of the terminal. Using the small (3/32”) allen wrench that ships with each terminal, remove and save the 4 machine-head screws that hold the two halves of the housing together.
7. If the Option Board is installed, it is not necessary to remove it - just loosen the nylon standoff posts to lift one end slightly - for clearance to remove the battery. Carefully, so as
not to slip and damage the circuit board, pry/push the plastic retaining lip holding the existing lithium real-time clock battery. The battery will spring up slightly.

8. Remove the battery from its holder on the CPU board as shown.

9. Insert the new lithium real-time clock battery into the holder with the positive + battery terminal side of the battery facing you. The retaining clip will snap into place when the battery is pressed down.

10. Press the Option Board back onto the nylon standoffs

11. Reinstall the rear housing and fasten the hardware removed in steps 3 - 5.

12. Use the remote display utility (similar to how Ethernet parameters were set in section 2.0.3.1.2, Setup Utility) to reset the clock using the Microsoft Windows Control Panel in \Start\Settings\Control Panel to select the Date/Time icon. Reset the clock and click the Apply button. Alternatively, the same thing can be accomplished by double-clicking on the system time icon in the system tray.
You can also use the Time Synchronization program or the Monitor program to reset the clock (see 855M531 LANpoint PLUS Developer's Manual, for more information).

6.0.3 Replacing the Optional Backup Battery Pack

To replace the battery pack when it no longer holds a charge, remove the old battery pack and follow the appropriate instructions in section 3.0.3.3, Backup Battery Pack.
Appendix A  Hardware Location Diagrams

A.1 Optional Card Slots - Option Board Models Only

This rear view of the terminal with housings removed shows the locations, on Option Board models only, of the PCMCIA and Compact Flash (CF) slots.

The connectors affixed in the plate at the top of the diagram are all accessible inside the enclosure of the terminal (this is the factory delivered standard configuration).

The terminal must be removed from the enclosure and the rear inner housing must be removed to access the Compact Flash (CF) slot.

The PCMCIA slot is accessed by removing the access panel on the rear of the inner housing. The terminal does not need to be removed from the enclosure to remove the access panel.

FIGURE A-1 LANpoint TIME removed from the enclosure and shown face down with the rear inner housing removed. Note external connector locations and the PCMCIA & Compact Flash slots with 3rd-party cards shown partially removed
A.2 Hardware Location Diagram

This rear view of the terminal's motherboard shows the connectors that can both 1) be accessed at the rear of the terminal when the rear inner housing is in place, and 2) jumpers and other hardware features that are accessible only with the rear inner housing removed. A description of the connector pinouts and other hardware items follows.

FIGURE A-2 LANpoint TIME Motherboard Hardware Location Diagram
A.3 Connector Pinout Diagrams and Jumper Settings

A.3.1 External Power Input

The LANpoint TIME terminal has one 12 VDC external power input. It is located on the back of the terminal at location JP6 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Connector</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>+12 VDC</td>
</tr>
<tr>
<td>Sleeve</td>
<td>Ground</td>
</tr>
</tbody>
</table>
A.3.2 External Keyboard Connector

The LANpoint TIME terminal has one external keyboard connector located on the back of the terminal at location J2 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Keyboard data</td>
</tr>
<tr>
<td>2</td>
<td>No connect</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>+5 V</td>
</tr>
<tr>
<td>5</td>
<td>Keyboard clock</td>
</tr>
<tr>
<td>6</td>
<td>No connect</td>
</tr>
</tbody>
</table>
A.3.3 COM1, COM2 and COM3 Ports

The LANpoint TIME terminal has three COM ports, COM1, COM2, and COM3, located on the back of the terminal at locations P4, P5, and P6 on the connector diagram shown in Section A.2. Each COM port also has an associated jumper, JP1, JP2, and JP3, respectively. This jumper configures pin 9 of the associated DB9 connector to be RI (Ring Indicator, standard RS232; factory default setting) or +5 VDC for powering serial scanners and other serial devices*.

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD</td>
</tr>
<tr>
<td>2</td>
<td>RX</td>
</tr>
<tr>
<td>3</td>
<td>TX</td>
</tr>
<tr>
<td>4</td>
<td>DTR</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
</tr>
<tr>
<td>8</td>
<td>CTS</td>
</tr>
<tr>
<td>9</td>
<td>RI or +5 VDC*</td>
</tr>
</tbody>
</table>

*
A.3.4 Wired Ethernet

The LANpoint TIME terminal has one Ethernet 10/100 Base-T Connector at location P3 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
</tr>
<tr>
<td>4, 5, 7, 8</td>
<td>Not used</td>
</tr>
<tr>
<td>6</td>
<td>RX-</td>
</tr>
</tbody>
</table>
A.3.5 Backup Battery Connector

The LANpoint TIME terminal has a backup battery connector on the back of the terminal at location JP7 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Backup Battery JP7</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>V+</td>
</tr>
<tr>
<td>Pin 2</td>
<td>V-</td>
</tr>
</tbody>
</table>
A.3.6 Accessory Power Output

In addition to having +5 volts available via jumper selection on each of the COM ports, the LANpoint TIME terminal has an accessory power output connector on the back of the terminal at location JP8 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Power Output JP8</th>
<th>DC Voltage</th>
<th>Total Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>+3.3 V</td>
<td>0.5 A</td>
</tr>
<tr>
<td>Pin 2</td>
<td>+5 V</td>
<td>2.0 A</td>
</tr>
<tr>
<td>Pin 3</td>
<td>+12 V</td>
<td>0.75 A</td>
</tr>
<tr>
<td>Pin 4</td>
<td>GND</td>
<td>GND</td>
</tr>
</tbody>
</table>

To use this power from this connector, the customer will build a cable using a 4-pin connector shell (Molex 6471 Series, part number 22-01-2045 or equivalent), plus sockets (Molex part number 08-56-0110, or equivalent). An alternate method is to use a shell with wire insulation displacement pins already installed, such as Methode part number 1380-104-424 or equivalent.
A.3.7 Digital Input-Output Connector

The LANpoint TIME terminal has a connector for discrete digital input and output signals on the back of the terminal at location J3 on the connector diagram shown in Section A.2.

<table>
<thead>
<tr>
<th>Description</th>
<th>Pin</th>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>digital ground</td>
<td>1</td>
<td>2</td>
<td>V+external; apply 12VDC nominal</td>
</tr>
<tr>
<td>digital ground</td>
<td>3</td>
<td>4</td>
<td>DO channel 0 + (used to drive the external beeper on LANpoint TIME models with that option)</td>
</tr>
<tr>
<td>digital ground</td>
<td>5</td>
<td>6</td>
<td>DO channel 1 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>7</td>
<td>8</td>
<td>DO channel 2 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>9</td>
<td>10</td>
<td>DO channel 3 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>11</td>
<td>12</td>
<td>DO channel 4 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>13</td>
<td>14</td>
<td>DO channel 5 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>15</td>
<td>16</td>
<td>DO channel 6 +</td>
</tr>
<tr>
<td>digital ground</td>
<td>17</td>
<td>18</td>
<td>DO channel 7 +</td>
</tr>
<tr>
<td>DI channel 0 -</td>
<td>19</td>
<td>20</td>
<td>DI channel 0 +</td>
</tr>
<tr>
<td>DI channel 1 -</td>
<td>21</td>
<td>22</td>
<td>DI channel 1 +</td>
</tr>
<tr>
<td>DI channel 2 -</td>
<td>23</td>
<td>24</td>
<td>DI channel 2 +</td>
</tr>
<tr>
<td>DI channel 3 -</td>
<td>25</td>
<td>26</td>
<td>DI channel 3 +</td>
</tr>
<tr>
<td>DI channel 4 -</td>
<td>27</td>
<td>28</td>
<td>DI channel 4 +</td>
</tr>
<tr>
<td>DI channel 5 -</td>
<td>29</td>
<td>30</td>
<td>DI channel 5 +</td>
</tr>
<tr>
<td>DI channel 6 -</td>
<td>31</td>
<td>32</td>
<td>DI channel 6 +</td>
</tr>
<tr>
<td>DI channel 7 -</td>
<td>33</td>
<td>34</td>
<td>DI channel 7 +</td>
</tr>
</tbody>
</table>
Attach wiring via factory-installed Digital I/O termination panel (included on models of the LANpoint TIME that include the external beeper option), or the add-on accessory LPA078 Digital I/O termination panel, or custom build using standard AMP connector 746288-8 or equivalent.

**A.3.7.1 JP21 Digital I/O EEPROM Write Protect Jumper**

Each of the LANpoint TIME terminal’s Digital Output signals can be configured to be asserted or not asserted within milliseconds of the terminal powering up. Each time the terminal reboots, the settings are read from EEPROM, and the channels are set appropriately. The settings are configured by application software, and once set, the power-up status is stored in EEPROM memory.

To ensure that the power-up setting is not changed, the terminal has a write-protect jumper at location JP21 on the connector diagram shown in Section A.2. The jumper is shipped from the factory in the "WE" (Write Enabled) position, and can be moved to the "WP" (Write Protected) position to inhibit changes from being reset in the EEPROM memory.

On option board models, the terminal rear housing and the option board must be removed to gain access to this jumper. If the option board is not installed, the jumper can be accessed by removing the access door on the rear housing.

Use proper ESD grounding procedures when handling electronics.
A.3.7.2 Digital Input Schematic

Digital Inputs
A.3.7.3  Digital Output Schematic
A.3.8 JP13 Bootup Registry Jumper

The LANpoint TIME terminal has a jumper, at location JP13 on the connector diagram shown in Section A.2, that can be removed to force the terminal to boot with the factory default registry. With this jumper in place, the current registry settings are used during boot. When removed, the factory default registry is used during reboot.

This jumper does NOT inhibit registry updates; if the unit is rebooted with the jumper removed and CEFLUSH.EXE is executed, the current registry is overwritten with the factory default registry, resetting all registry values.

On option board models, the terminal rear housing and the option board must be removed to gain access to this jumper. If the option board is not installed, the jumper can be accessed by removing the access door on the rear housing.
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