# HandPunch 50E

## Manual

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# Introduction

The HandPunch 50E is a member of the Recognition Systems' line of biometric hand geometry Time and Attendance Terminals[1]. The HandPunch records and stores the three-dimensional shape of the human hand for comparison and identity verification. Upon verification, the HandPunch records the time, date, user ID number, and collected time and attendance data for collection by a host computer. The HandPunch will communicate to a host computer via Ethernet.

The HandPunch provides proof-positive employee identification combined with the sophisticated operating features one expects in a modern Time and Attendance Terminal. Because of this unique combination of capabilities, the HandPunch provides the most accurate Time and Attendance data collection terminal available. The key features of the HandPunch include:

- Ethernet Communications
- Transaction Buffer
  - 5,120 event capacity
- Programmable Clock and Date Formats and Daylight Savings Switch-ove

**Biometrics**    Biometrics is a term describing the automatic measurement and comparison of human characteristics. While its origins are ancient, the evolution of advanced scanning and microprocessor technology brought biometrics into everyday life. Electronic hand geometry technology first appeared in the 1970s. Recognition Systems Inc., founded in 1986, built the first mass-produced hand geometry readers and made biometric technology affordable for the commercial market. Today, Recognition Systems' products are in use in every imaginable application from protecting cash vaults to verifying employee attendance in hospitals.

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1. For the sake of using a consistent name throughout the manual, the HandPunch 50E terminal is referred to as the HandPunch for the remainder of this manual.

**Principle of Operation**

The HandPunch uses low-level infrared light, optics, and a CMOS (IC chip) camera to capture a three-dimensional image of the hand. Using advanced microprocessor technology, the HandPunch converts the image to an electronic template. It stores the template in a database with the user's ID number.

To gain punch, the user enters his or her ID number at the HandPunch's keypad. The HandPunch prompts the user to place his or her hand on the HandPunch's platen[1]. The HandPunch compares the hand on the platen with the user's unique template. If the images match, the HandPunch records the transaction for processing.

**The HandPunch Terminal**

The HandPunch is a time and attendance terminal designed for use with time and attendance software.

Refer to Figure 1-1 on page 5 when reviewing the information in this section.

The HandPunch has an integrated keypad for ID entry (see Figure 1-1). The $\boxed{\textbf{CLEAR}}$ and $\boxed{\textbf{ENTER}}$ keys are used for data entry and programming.

Four different features assist the user with hand placement and read verification.

1. A light emitting diode (LED) hand placement display on the Hand-Punch's top panel assists users with hand placement on the platen.
2. A liquid crystal display (LCD) shows operational data and programming menus.
3. "Red light/Green light" verification LEDs quickly inform users if their verification attempts were rejected or accepted.
4. An internal beeper provides audible feedback during keypad data entry and user verification.

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1. The Platen is the flat surface at the base of the HandPunch (see Figure 1-1). This is where users place their hands for enrollment and verification. It has guide pins to assist positioning the fingers during use.

HAND
PLACEMENT
DISPLAY

VERIFICATION
LIGHTS

LCD DISPLAY

NUMERICAL
KEYPAD

PLATEN AND GUIDE PINS

Figure 1-1: The HandPunch 50E

**Specifica-
tions**

### Table 1: Specifications

| Size: | 8.85 inches wide by 11.65 inches high by 8.55 inches deep |
|---|---|
| | 22.3 cm wide by 29.6 cm high by 21.7 cm deep |
| Power: | 12 to 24 VDC or 12 to 24 VAC   50-60 Hz, 7 watts |
| Weight: | 6 lbs (2.7 kg) – 7 lbs (3.2 kg) with optional backup battery |
| Temperature: | -10°C to +60°C – non-operating/storage (14°F to 140°F)<br>5°C to 40°C – operating (40°F to 110°F) |
| Relative Humidity Non-Condensing: | 5% to 95% – non-operating/storage (non-condensing)<br>20% to 80% – operating |
| Verification Time: | 1 second or less |
| Memory Retention: | 5 years using a standard internal lithium battery |
| Transaction Buffer: | 5,120 transactions |
| ID Number Length: | 1 to 10 digits |
| RS-232 Baud Rate: | 300 to 28.8 K bps |
| Communications: | Ethernet |
| User Capacity: | 50 users |

**Options**   The HandPunch has the following options available.

- Backup Battery Support         See Technical Note 70200-0012 –
  Rev. D

**Recommended European Power Supply:**

Ault, Inc.
7300 Boone Ave. North
Minneapolis, MN 55428 USA
PH: 612-493-1900
E-mail: info@ault.com

Part number: D48-121000-A040G
230 VAC Input, 12 VDC @ 1Amp output (unregulated)
Ault style #41 connector (barrel plug)

CE approved

recyclable

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# Planning an Installation

**Site Preparation**

Before you begin installation, check the site blueprints, riser diagrams, and specifications for important information about HandPunch location and for other systems that connect to the HandPunch. Look for any existing wall preparations and wiring that other contractors may have installed for the HandPunch. A wire routing layout diagram (see Figure 3-2 on page 15) is provided to assist in planning wire routing.

**HandPunch Placement**

The recommended height for the HandPunch platen is 40 inches[1] (102 cm) from the finished floor. The HandPunch should be out of the path of pedestrian and vehicular traffic. Avoid placing the HandPunch where users must cross the swing path of a door. The HandPunch should be in an area where it is not exposed to excessive airborne dust, direct sunlight, water, and/or chemicals.



40 in. (102 cm.)
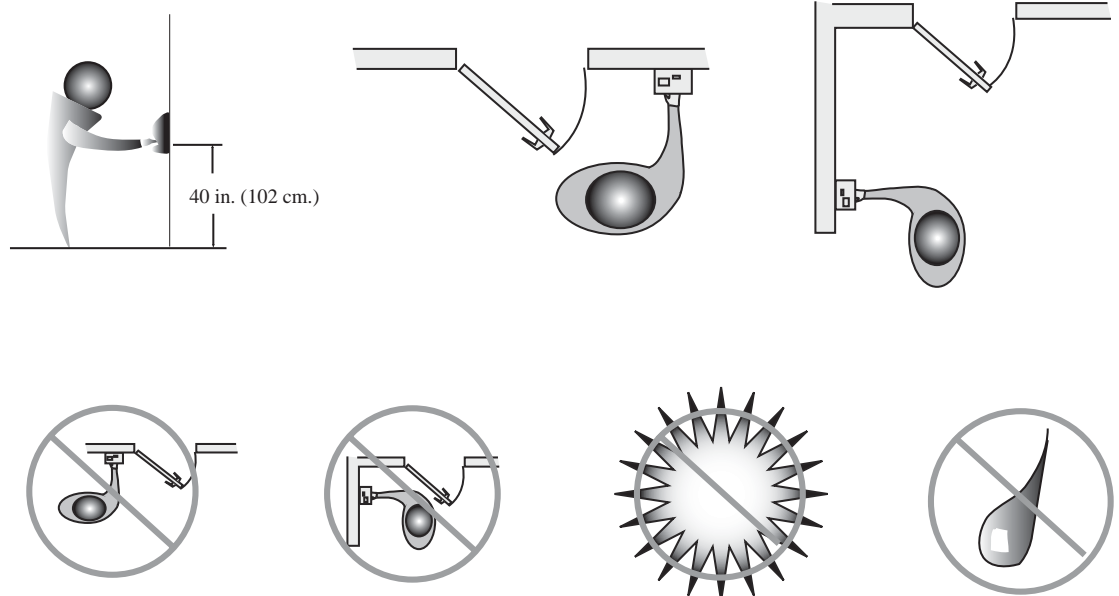
Figure 2-1: HandPunch Placement Rules

**NOTE** *For the following sections, Recognition Systems does not supply hardware items such as power or communications wiring.*

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1. This height conforms to ADA standards.

**Wiring**           Two basic circuits typically connect to the HandPunch:
- Power Input
- HandPunch to Host Computer
  - Ethernet

The minimum wire size for these circuits is AWG 22; the maximum is AWG 18.

**Power Input**      The HandPunch comes with a 120 VAC to 13.5 VDC power supply (Class 2, Model No. P48131000A010G – 120 VAC, 60 Hz, 21 W, 13.5 VDC output @ 1000mA). An optional 220 VAC to 13.5 VDC power supply is also available.

To power the HandPunch with this power supply, a 120 VAC (or 220 VAC as applicable) duplex outlet must be within 5 feet of the HandPunch. The power supply has a 6-foot cable to provide a comfortable reach between power outlet and HandPunch. The barrel jack at the end of the power supply's cable is connected to J12 on the HandPunch PCB.

The HandPunch can also accept input voltages from 12 to 24 VDC or 12 to 24 VAC at 50 to 60 Hz. A UL 294 class 2 power suplly can be used for this case.

**WARNING** *Do not connect a HandPunch's power supply to a switched duplex outlet. The HandPunch must have a constant source of power for proper operation.*

**Battery Backup Operation**      An optional power-fail protection circuit board can be attached to the main circuit board to provide and control battery backup. The battery backup option uses a 12 volt 800 ma/hour sealed lead acid battery to provide backup battery power. This battery is located immediately inside the rear panel of the HandPunch and plugs into jack J4 on the keypad control circuit board located in the top of the chassis.

The design of the HandPunch's internal power supply is such that any range of the above input voltages may be used and still provide proper battery charge voltage and battery backup operation. Switch-over to battery power is automatic and occurs when the input voltage falls to approximately 10.5 volts. At that time the backup battery charger is disabled to save power, and uninterrupted operation continues on battery power.

When input power is restored, the HandPunch switches off of battery operation and the battery charger is re-enabled to recharge the battery.

Battery charge voltage is set at approximately 13.65 volts, and battery charge current is limited to approximately 50 mA. A fully discharged battery requires approximately 12 hours of charge to fully recover. Additional options installed and specific configurations within the HandPunch make it difficult to predict precisely how long battery support will last, but in general two hours of battery operation can be expected. While operating on battery backup due to loss of main input power, the battery output voltage is constantly monitored by internal circuitry. If the battery voltage reaches approximately 9.5 volts the HandPunch automatically shuts down. This is done to prevent full exhaustion of the battery. A yellow indicator on the top panel illuminates to indicate that the HandPunch is running on battery power. This indicator turns off when main input power is restored.

Shunt J7, which is located immediately in front of the DIP switches on the main logic board (see Figure 4-1 on page 17), enables or disables battery operation on those HandPunches equipped with optional battery backup. If a HandPunch does not have the optional battery backup package installed, J7 is not used. On HandPunches equipped with the battery backup option, J7 allows service personnel a mechanism for disabling battery backup operation before removal of main input power.

To fully power down a HandPunch equipped with battery backup, remove or reposition shunt J7 so that the two pins protruding up from the main logic board are not connected to each other. This effectively opens the circuit, removing the battery from any internal circuitry. Main input power can then be removed and the HandPunch will fully shut down. Once the HandPunch has fully shut down, shunt J7 may be reinstalled.

The design of the power supply is such that main input power must be reapplied to re-enable the battery protection mechanism. If shunt J7 is not properly installed, the internal backup battery will not be charged, and in the event of a main input power loss, the HandPunch will shut down.

**Ethernet to Host Computer Connection**

To make the Ethernet connection, a data jack must be installed on or in the wall behind the HandPunch terminal. Position the RJ-45 jack location using the template provided in this manual (see Figure 3-2 on page 15).
Figure 4-3 on page 19 a wiring diagram for a Ethernet to host computer connection.

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# Mechanical Installation

Select an installation location based on the guidelines provided in the
Planning an Installation section beginning on page 9.

## Wall Plate Installation

### Wall Preparation

**WARNING** *For the following procedure protect the HandPunch from the dust and debris generated during the wall plate installation process.*

1. Remove the wall plate from the packing carton. Refer to Figure 3-1 for all wall plate references in the following section.
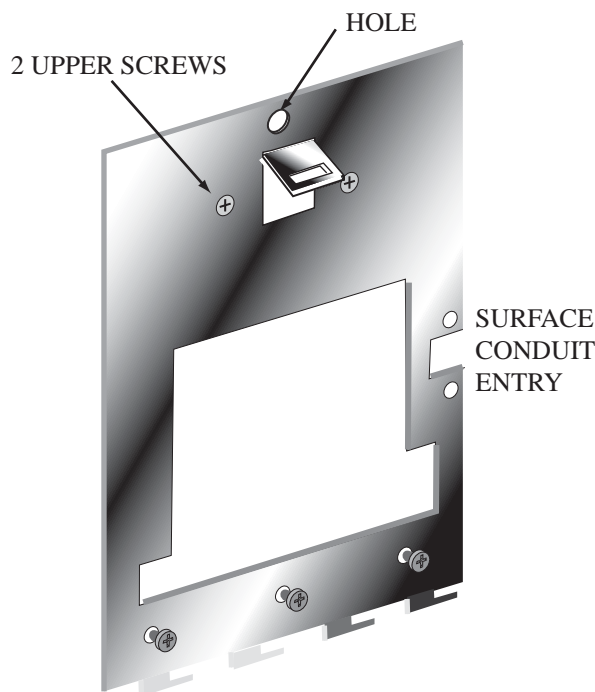


Figure 3-1: Wall Plate

2. Measure and mark a point 48 1/2 inches (123 cm) from the surface of the finished floor. This point will correspond to the Leveling Hole where the top-center point of the HandPunch should be mounted.
3. For a hollow wall, drive a small nail into the wall at the mark and hang the wall plate from the Leveling Hole located near the top of the wall plate.
4. For a solid wall, hold the wall plate against the wall, centering the Leveling Hole over the mark in the wall.

5.  Align a bubble level with the top edge of the wall plate and gently rotate the wall plate until the bubble level shows that the top edge of the wall plate is level.
6.  Secure the plate to the wall using heavy masking tape.
7.  Using the wall plate as a template, mark the locations of the two upper screw holes and the three lower screw holes.
8.  For a concealed wiring connection, trace the outline of the open area in the center of the wall plate. Identify and mark a 1/2 inch hole through which the HandPunch's wiring will be mounted.
9.  For a surface conduit wiring connection, mark the two conduit clamp holes at the right side of the wall plate.
10. Remove the wall plate, masking tape, and the nail (if used).

**Mounting the Wall Plate**

1.  For a hollow wall, use the provided hardware to mount the wall plate. Use the two auger style fasteners for the upper two mounting holes. Use the toggle bolts for the three lower mounting holes.
2.  For a solid wall, use expansion bolts to mount the wall plate. For all five mounting holes, drill a 1/4 inch diameter hole, 1/4 of an inch deeper than the length of the expansion anchor.

**Routing the Wiring**

1.  Refer to Figure 3-2 on page 15 for a template diagram to assist in routing wiring.
2.  For a concealed wiring connection, drill a 1/2 inch hole in a convenient location within the open area of the wall plate. Pull the wiring to enter the HandPunch through this hole in the open area.
3.  For a surface conduit wiring connection, drill a 1/4 inch diameter hole, 1/4 of an inch deeper than the length of the expansion anchor for each of the two conduit clamp holes. Route 1/2 inch, flexible conduit to the HandPunch, ending the conduit between the two conduit clamp holes. Pull the wiring to enter the HandPunch through the conduit. Pull 18 inches of wire past the end of the conduit to allow enough space for final connection to the HandPunch.
4.  Clear all dust and debris away from the HandPunch mounting location.

Wall Plate

SURFACE
CONDUIT
ENTRY POINT

50" Reference
(127 cm)
to Top of
Wall Plate

42.75"
(108.6 cm)

42.5"
(108 cm)

$\mathcal{C}_L$ HandPunch

Finished Floor
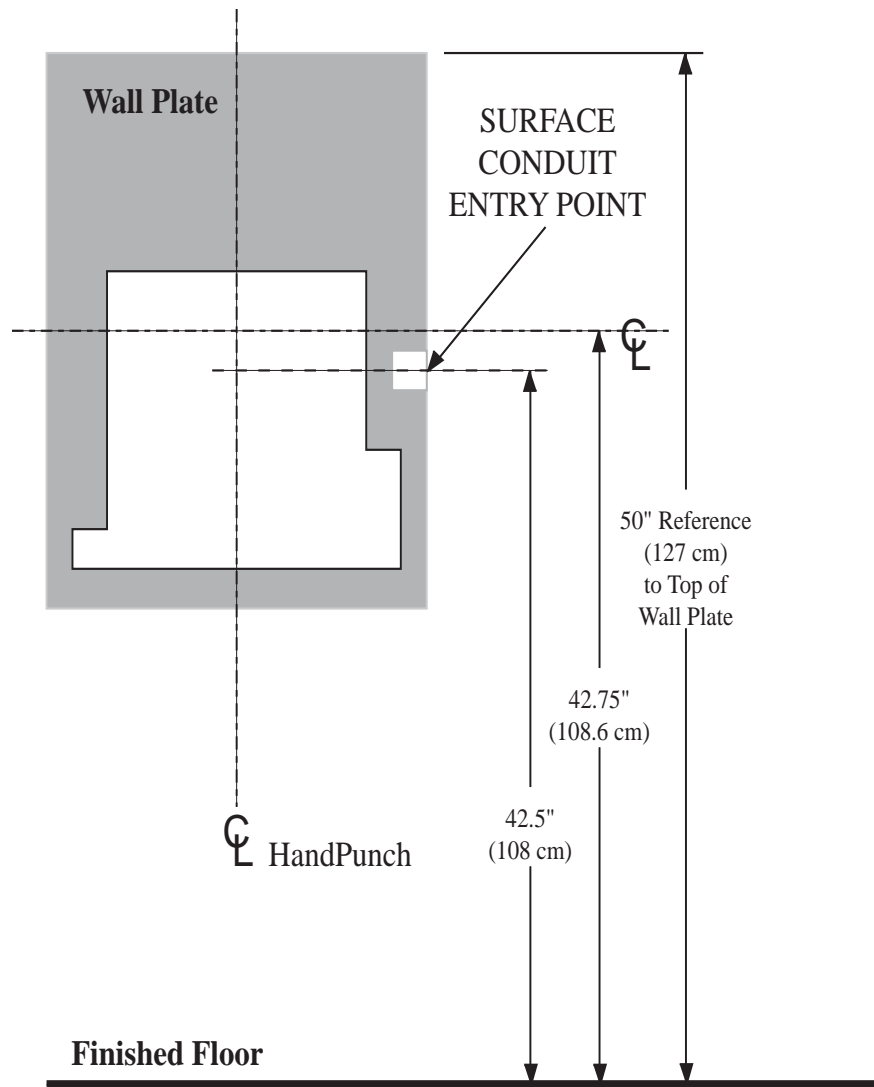
Figure 3-2: HandPunch Wire Routing Layout

**NOTE** *Dust and debris surrounding the HandPunch can drastically affect the terminal's operation. It is important to ensure the HandPunch mounting location is free from dust and debris.*

**Attaching the HandPunch**

1  Remove the HandPunch from its carton.
2.  Align the sleeves of the back plate with the pins of the wall plate and slide the HandPunch to the left as shown in Figure 3-3.
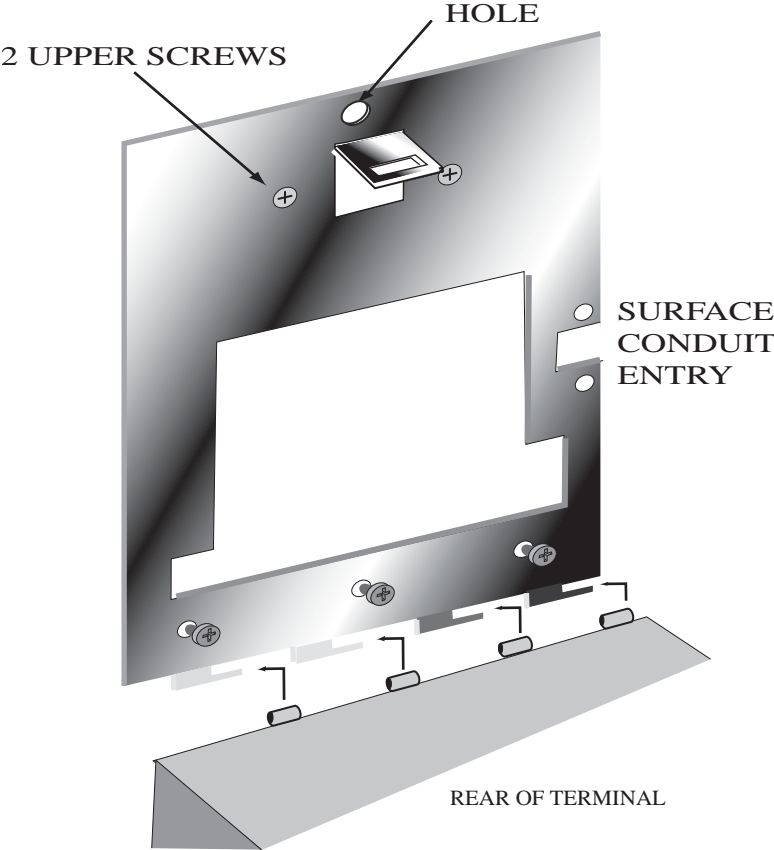
Figure 3-3: Attaching the HandPunch to the Wall Plate

# Wiring Connections

Once the HandPunch is attached to the wall plate the wiring connections to the HandPunch can be made (see Figure 4-1).
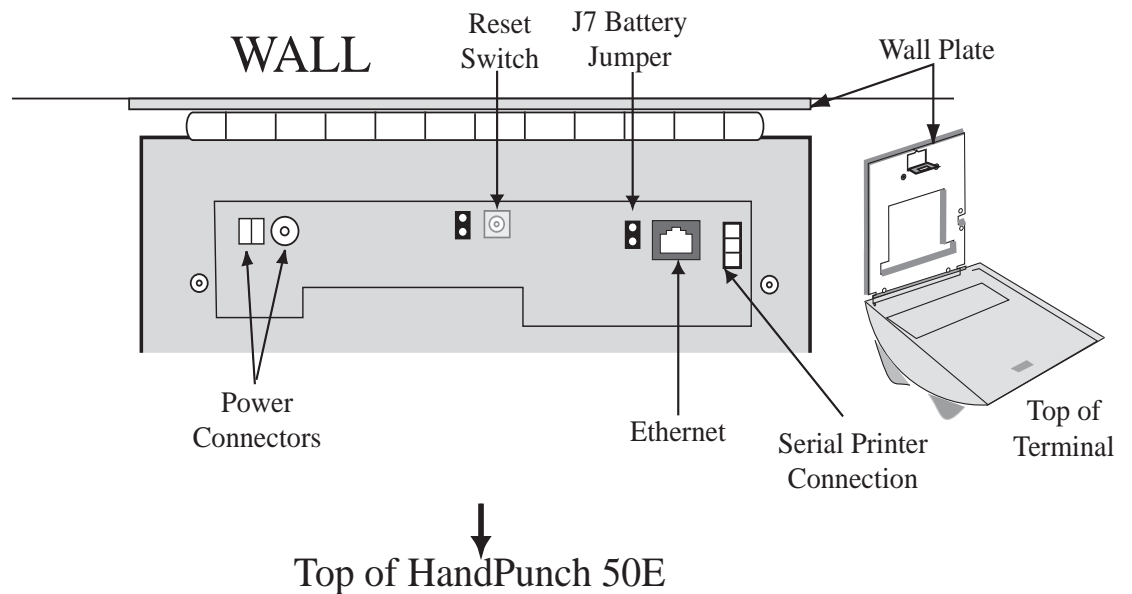


Figure 4-1: Board Layout

**Wiring Examples**

Table 2 on page 18 provides the pinouts for the RS-232 Serial Printer Connection.

Figure 4-2 on page 18 provides a diagram of the RS-232 Connector.

Figure 4-3 on page 19 provides a Host PC to HandPunch Ethernet Network wiring diagram.

**Table 2: RS-232 Serial Connection**

| J8 Pin | Signal | Connection |
|--------|--------|------------|
| 1 | GND | Ground |
| 2 | RXD | Receive Data Input (from external device) |
| 3 | TXD | Transmit Data Output (to external device) |

RS-232 Pins
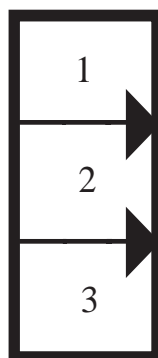


Figure 4-2: J4 - RS-232 Jack Pinout
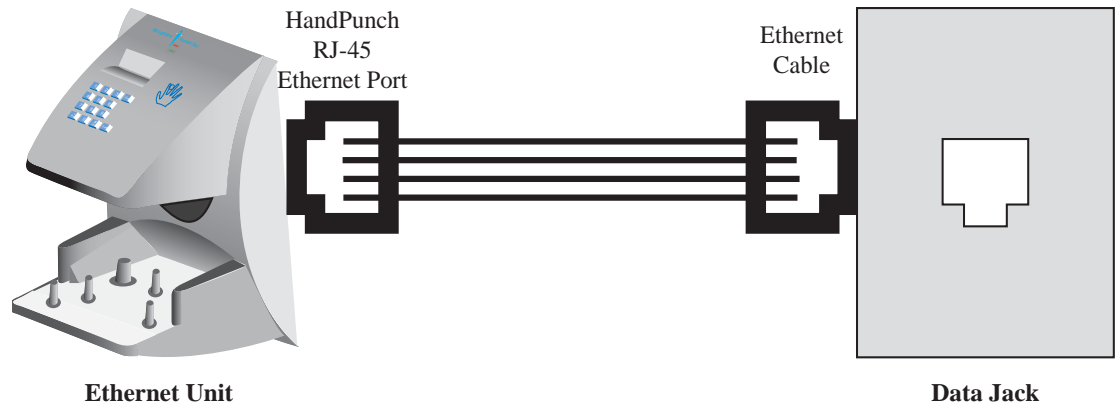
**Ethernet Unit**

**Data Jack**

Figure 4-3: Host PC to HandPunch Ethernet Connection

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# Erasing the Memory

The erase memory function allows a HandPunch's setup and/or user database to be erased.

There are two options when erasing the memory from the HandPunch.

1. Setup
2. All

Choosing the erasing of the setup will set the HandPunch's address, passwords, etc. back to factory defaults.

Choosing the All option will take the HandPunch's setup back to factory defaults plus erase all user databases and datalogs. This action can not be undone. If there is a software that is managing the system then the users can be downloaded back to the HandPunch if needed.

**Erasing HandPunch Memory**

Perform the following steps to erase the setup programs but retain the user database.

1. With system power OFF, depress reset switch. (See figure 4-1 on page 17 to locate switch.)
2. Turn system power ON and wait 5 seconds.
3. LCD screen will display

| ERASE | :1 SETUP |
| --- | --- |
| | :9 ALL!!! |

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# Closing the HandPunch

Before closing the HandPunch clear all dust and debris away from the HandPunch. With the wall mount latch in the unlocked position, swing the body of the HandPunch up and lock the latch into place with the key provided. (see Figure 6-1).

**❗NOTE** *Dust and debris can drastically affect the HandPunch's operation. It is important to ensure the HandPunch is free from dust and debris before closing the terminal.*

**❗NOTE** **Do not force or slam the HandPunch onto the wall mount latch when the latch is in the locked position. This will damage the locking mechanism.**
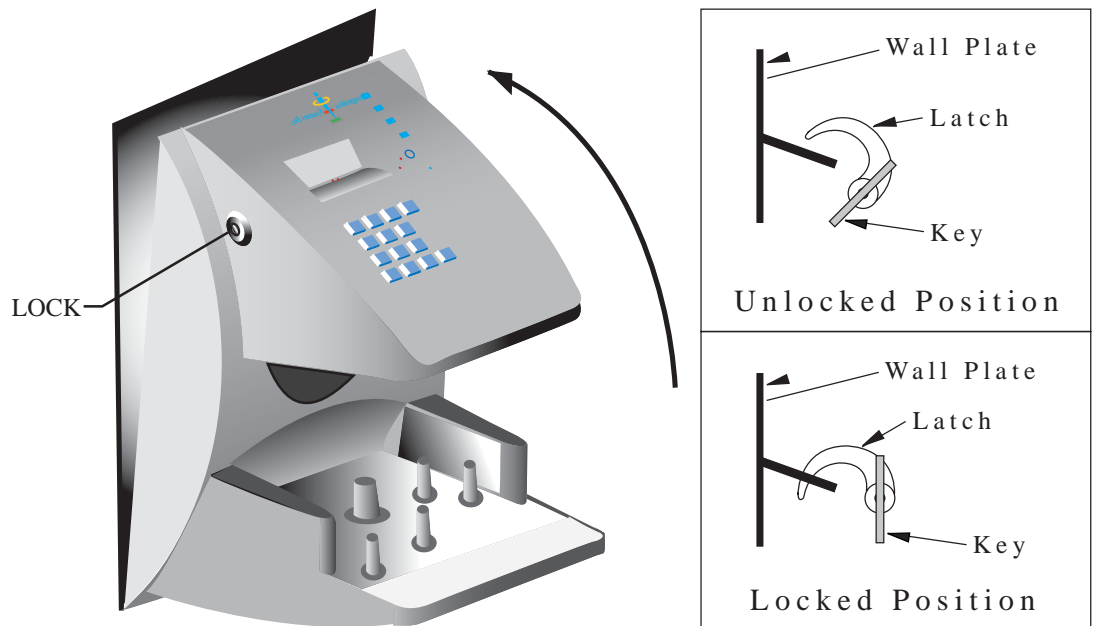


Figure 6-1: Closing the HandPunch

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# Enter Command Menu

Press the CLEAR and ENTER keys simultaneously to enter a command menu.

**If No One is Enrolled in the HandPunch**

1. The display appears as follows.

> **ENTER PASSWORD**

2. Press the default password for the menu you wish to enter.

Press 1 for the Service Menu.

Press 2 for the Setup Menu.

Press 3 for the Management Menu.

Press 4 for the Enrollment Menu.

Press 5 for the Security Menu.

3. Press ENTER and the first command option in the selected menu appears.

**If Users are Enrolled in the HandPunch**

1. The display appears as follows.

> **ENTER ID**
> **\*:**

2. Enter your ID number on the keypad and place your hand on the platen for verification.
3. If verification is successful, the display appears as follows.

```
┌─────────────────────────────────────────┐
│                                          │
│            ENTER PASSWORD                │
│                                          │
│                                          │
└─────────────────────────────────────────┘
```

4. Enter the password for the menu you wish to enter. The default passwords are as follows.

Press ⸢1⸥ for the Service Menu.

Press ⸢2⸥ for the Setup Menu.

Press ⸢3⸥ for the Management Menu.

Press ⸢4⸥ for the Enrollment Menu.

Press ⸢5⸥ for the Security Menu.

5. Press ⸢ **ENTER** ⸥.
6. If you are authorized to use this command the first command option in the selected menu appears.
7. If you are not authorized to enter this command the display will go back to the ENTER ID prompt.

```
┌─────────────────────────────────────────┐
│                 ENTER ID                 │
│         12:00          3/15/05           │
│                                          │
└─────────────────────────────────────────┘
```

**❗NOTE** *Access to the command menus will be granted to all that are enrolled, until a person(s) is enrolled in the system as a supervisor. If you are blocked from the supervisory menus, verify your access rights with management personnel. If enrollment information has been incorrectly changed and you must have supervisory access to all menus, make these changes through software.*

**❗NOTE** *It is possible to physically reset the HandPunch's memory, however resetting memory sets all the HandPunch's parameters back to the factory default values. Resetting memory allows access to all menus everyone until the first person is enrolled (as if it is a new system installation), but this means that **all employee information programmed into the HandPunch is lost and must be re-entered manually**. Be sure you need to reset memory before performing this*

*function. To reset memory, refer to the Erasing HandPunch Memory section on page 21.*

**Navigating Command Menus**

Once you have entered a command menu, there are three options available for navigating the command menu system.

- Press ⌗ to enter the command shown on the display.

- Press ✳ to step to the next command in the menu.

- Press ⌈CLEAR⌉ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, you may have to press ⌈CLEAR⌉ multiple times to completely exit the command menu.

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# Programming the HandPunch

The HandPunch is programmed via a series of command menus. A summary of the menus and commands is given in Table 3.

**Table 3: Basic Command Mode Structure**

| Service Menu | Setup Menu | Management Menu | Enrollment Menu | Security Menu |
|---|---|---|---|---|
| Password 1 | Password 2 | Password 3 | Password 4 | Password 5 |
| Calibrate | Set Language | List Users | Add Employee | Special Enroll |
| Status Display | Set Date Format | Set User Data | Add Supervisor | |
| | Set Time and Date | | Remove User | |
| | Set ID Length | | | |
| | Set Serial | | | |

To control access to the command menus, each menu has a unique password. This password is requested as a part of the process for accessing each menu. A supervisor must enter the correct password for that menu to access that menu. The default menu passwords are given in Table 3.

To increase the security of the HandPunch, Recognition Systems recommends changing the passwords for the command menus to new numbers. These password numbers can be up to 10 digits long. This is done through the software.

## Authority Level

A second method for controlling access to the command menus is through the use of Authority Levels. Authority Levels control whether or not a user has access to the command menus.

- Level 0 is for a user who does not need access to any of the command menus.
- Level 5 is assigned to Supervisors who need access to all of the command menus.

The HandPunch automatically assigns Authority Level 0 to users enrolled by the Add Employee command. Authority Level 5 is

automatically assigned to users enrolled by the Add Supervisor command.

**◗NOTE** *Until a user has been assigned to Supervisor, every user can access every menu. Once a user has been enrolled using the Add Supervisor (designated as a supervisor), all further user authority levels are assigned. The first person enrolled should be enrolled using the Add Supervisor command. This protects the integrity of the system. Recognition Systems strongly recommends enrolling at least two users as supervisors to ensure that more than one person has the authority to access all menus and all commands.*

# Programming Order

When setting up HandPunch operations there is a general programming/operations order that should be followed.

Set HandPunch Site Parameters – Set the HandPunch site parameters to meet site-specific needs and usage: change the language used by the display, set the HandPunch's IP address, and set the serial communication baud rate.

Enroll Supervisory Staff – Enroll yourself and the supervisors who will have responsibility for HandPunch management. This is done through the Enrollment Menu (see Supervisor Enrollment on page 44).

**◗NOTE** *The time, date, and ID number length are normally set by the host computer. However, a supervisor can change these parameters at a HandPunch after setup information has been downloaded from the host computer.*

These tasks are done through the Setup Menu. The instructions for reader setup parameters begin on page 34.

Train and Enroll Users – Train each user regarding HandPunch usage and then Enroll each user. This is done through the Enrollment Menu. The instructions for employee enrollment begin on page 42.

Special enrollment allows you to enroll people with disabilities that prevent them from using the HandPunch properly. Employees with special enrollment ID numbers can punch in without biometric verification.

**◗WARNING** *This means that anyone who knows a special enrollment ID number can punch in. This function should only be used if absolutely necessary. The instructions for special enrollment begin on page 45.*

# System Management

Once a HandPunch system is in operation the following commands are used for system management.

<u>List Users</u> – List the Users authorized to use a HandPunch. This is done through the Management Menu. The instructions for listing employees begin on page 39.

<u>Set User Data</u> – Set a user's reject threshold (adjusting the sensitivity applied when a HandPunch reads a hand) this task is done through the Management Menu. The instructions for setting user data begin on page 39. *Will be overwritten if User Data is controlled by the software!*

<u>Remove User</u> – Remove employees (and supervisors) from a HandPunch. This is done through the Enrollment Menu. The instructions for removing employees begin on page 44. *Chances are this should be done through the host software!*

# Service Menu

The Service menu commands provide information that help you determine if the HandPunch is performing within normal operating parameters and identify the status of the unit's inputs and outputs. The following section provides a brief summary of the Service Menu commands.

**NOTE** *There are no user serviceable parts inside the HandPunch.*

**Navigating the Serice Command Menu**

Enter the appropriate password to enter the Service command menu. Once you have entered the command menu, there are three options available for navigating the command menu system.

- Press ⊞ to enter the command shown on the display.
- Press ⁎ to step to the next command in the menu.
- Press ⎐CLEAR⎐ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, press ⎐CLEAR⎐ multiple times to completely exit the command menu.

**Service Commands**

There are two commands available from the Service command menu.

- Calibrate
- Status Display

Refer to Table 4 and identify the command you need to perform. Step through all previous commands until you reach the desired command.

**Table 4: Service Command Menu**

| Service Menu |
| --- |
| Password = 1 |
| Calibrate |
|     Recal (Y/N) |
| Status Display |
|     On/Off (Y/N) |

**Calibrate**     The Calibrate command displays the HandPunch's exposure values, allowing you to verify these values are within normal operating parameters. The standard operating parameters are shown in Table 5.

**Table 5: Normal Operating Parameters**

| Parameter | Normal Range |
|-----------|--------------|
| Row "r" | 0 +/- 2 |
| Column "c" | 0 +/- 2 |
| Exposure "e" | 100 +/- 20 |

**Status Display**     The status display command allow you to enable or disable the displaying of the following information.

• the status values of HandPunch inputs and outputs
• the hand read score of the last user to verify on the system

When the status display is enabled, Figure 8-1 identifies each status display field value.

```
         -   ENTER ID    -
        O C O C O  H L H L  NN
```

```
O  C  O  C  O    H  L  H  L    NN
```
Last Hand Read Score
Aux Out 2
Aux Out 1
* Aux Out 0
* Lock
Aux In 2
Request to Exit
Aux In 1
Door Monitor Switch
Tamper

These Input/Output values do not apply to the HandPunch 50E

* These status values are inactive if the reader is in Card Reader Output Mode.

O = Circuit Open     H = Output is OFF (High)
C = Circuit Closed     L = Output is ON (Low)
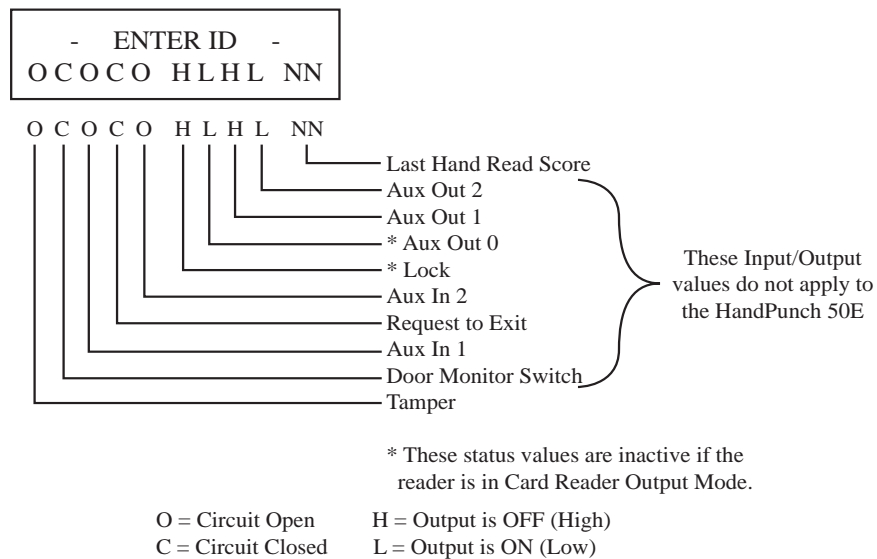
Figure 8-1 Status Display Chart

# Setup Menu

The Setup menu commands allow you to set the basic operating parameters for the HandPunch unit. The following section provides a brief summary of all the parameters that may be set on a HandPunch unit. *In most cases only the Ethernet Setup needs to be done in this menu.*

**❗NOTE** *Once in the Command Menu, you can step through and set the parameters for each command sequentially. You do not have to exit command mode after setting any individual command.*

**Navigating the Setup Command Menu**

Enter the appropriate password to enter the Setup command menu. Once you have entered the command menu, there are three options available for navigating the command menu system.

- Press ⃞# to enter the command shown on the display.

- Press ⃞* to step to the next command in the menu.

- Press ⃞CLEAR⃞ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, press ⃞CLEAR⃞ multiple times to completely exit the command menu.

**Setup Commands**

There are six commands available from the Setup command menu.

- Set Language
- Set Date Format
- Set Date and Time
- Set ID Length
- Set Serial

Refer to Table 6 on page 35 and identify the command you need to perform. Step through all previous commands until you reach the desired command.

**Table 6: Setup Command Menu**

| Setup Menu |
| --- |
| Password = 2 |
| Set Language |
| Select Language |
| Set Date Format |
| Select Date Format |
| Set Time and Date |
| Month (MM) |
| Day (DD) |
| Year (YY) |
| Hour (HH) |
| Minute (MM) |
| Set ID Length |
| New ID Length |
| Set T & A Mode |
| Set Serial |
| IP Address |
| Gateway Address |
| Host Bit |

**Set Language**    The Set Language command allows the language shown on the
                    HandPunch's display to be "localized" for a variety of countries.

|   |   |
|---|---|
| - English | - German |
| - Japanese | - Russian |
| - French | - Indonesian |
| - Italian | - Portuguese |
| - Spanish | - Polish |

**Set Date Format**    The Set Date Format command allows the date format shown on the
                       HandPunch's display to be "localized" for a variety of countries.

|   |   |
|---|---|
| - mm/dd/yy | - mm-dd-yy |
| - dd-MMM-yy | - MMM dd,yy |
| - dd-mm-yy | - ddMMMyyyy |
| - dd/mm/yy |   |

**Set Time and Date**    The Set Time and Date command allows the HandPunch's time and
                         date to be set. This is normally not necessary as the HandPunch's time
                         and date are set by the host computer.

**Set ID Length**    The Set ID Length command allows you to reduce the number of
                     keystrokes required to enter the ID number by eliminating the use of the

  ENTER   key to complete an ID number entry. Once the ID Length is
set, the HandPunch will automatically accept an ID number entry once
the correct number of characters have been entered.

Once the ID Length is set, the T & A Mode Set command appears,
allowing you to configure the HandPunch to prepare punch data for time
and attendance software.

**Set Serial**    The Set Serial command allows for the programming of the IP Address,
                  Gateway Address, and Host Bits (Subnet Mask).

The HandPunch does not have the ability to communicate with a DHCP
server, because of this the IP address needs to be permantly leased
from the DHCP Server.

Port 3001 must be open on all switches and or routers to communicate
between the HandPunch and the Computer.

Input leading zeros for example 001.001.012.012. Once the IP address
is input the screen will change to Gateway Address. If a mistake is
made press the # key to get back to Set Serial and start over.

Input the Gateway Address the same way as the IP Address. Fill address with 0 if no Gateway is used.

To save space in the HandPunch's firmware Host Bits are used instead of the Subnet Mask. Use table 7 to find the site's Subnet Mask and find the referenced Host Bit number and enter that number. If no Host Bit is used enter 0 for the Host Bit.

**Table 7: Subnet Mask to Host Bit**

| Subnet Mask | Host Bit |
|---|---|
| 255.255.255.255 | 0 |
| 255.255.255.254 | 1 |
| 255.255.255.252 | 2 |
| 255.255.255.248 | 3 |
| 255.255.255.240 | 4 |
| 255.255.255.224 | 5 |
| 255.255.255.192 | 6 |
| 255.255.255.128 | 7 |
| 255.255.255.0 | 8 |
| 255.255.254.0 | 9 |
| 255.255.252.0 | 10 |
| 255.255.248.0 | 11 |
| 255.255.240.0 | 12 |
| 255.255.224.0 | 13 |
| 255.255.192.0 | 14 |
| 255.255.128.0 | 15 |
| 255.255.0.0 | 16 |
| 255.254.0.0 | 17 |
| 255.252.0.0 | 18 |
| 255.248.0.0 | 19 |
| 255.240.0.0 | 20 |

**Table 7: Subnet Mask to Host Bit**

| Subnet Mask | Host Bit |
|:-----------:|:--------:|
| 255.224.0.0 | 21 |
| 255.192.0.0 | 22 |
| 255.128.0.0 | 23 |
| 255.0.0.0 | 24 |

# Management Menu

The Management menu commands allow you to manage employee data stored in a HandPunch unit. The following section provides a brief summary of the employee data that may be manipulated on a HandPunch unit.

**Navigating the Setup Command Menu**

Enter the appropriate password to enter the Setup command menu. Once you have entered the command menu, there are three options available for navigating the command menu system.

- Press $\boxed{\#}$ to enter the command shown on the display.
- Press $\boxed{*}$ to step to the next command in the menu.
- Press $\boxed{\textbf{CLEAR}}$ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, press $\boxed{\textbf{CLEAR}}$ multiple times to completely exit the command menu.

**Management Commands**

There are four commands available from the Management command menu.

- List Users
- Set User Data

Refer to Table 8 and identify the command you need to perform. Step through all previous commands until you reach the desired command.

**Table 8: Setup Command Menu**

| Setup Menu |
| --- |
| Password = 3 |
| List Users |
| Display |
| Print |
| Set User Data |
| User Reject |

**List Users**     The List Users command allows you to display or print a list of all the employees enrolled in a HandPunch.

**Set User**      The Set User Data command allows you to set an employee's Reject
**Data**       Threshold, adjusting the hand read threshold for one employee without affecting the threshold of other employees. This task should be done through your user software, however it can be done through the Management Menu.

# Enrollment Menu

Enrollment is the process of recording a hand image and associating it with an ID number. The first person to enroll in the HandPunch has access to all command menus. This person should enroll using the Add Supervisor command (see page 42). Once a supervisor has been enrolled, all further enrollments use the following rules:

- A user enrolled through the Add Employee command (page 44) is assigned Authority Level 0. This allows the user to punch in and/or out.
- A user enrolled through the Add Supervisor command (see page 44) is assigned Authority Level 5. This allows the supervisor to punch in and/or out, and it allows the supervisor to access all command menus.

**NOTE** *Until a user has been assigned to Authority Level 5 using the Add Supervisor command, every user with Authority Level 0 can access every menu. This is done to ensure that the first person enrolled is able to access all the menus to perform all the programming required to support the HandPunch. Once a user has been enrolled using the Add Supervisor command, all further user authority levels are assigned as per the list above. This protects the integrity of the system by enacting the Authority Level rules described above. Recognition Systems strongly recommends enrolling at least two users as supervisors to ensure that more than one person has the authority to access all menus and all commands.*

Advance planning and training make enrollment fast and easy. Users should be informed on what to expect and how to place their hands on the HandPunch before you enroll them.

**Navigating the Setup Command Menu**

Enter the appropriate password to enter the Setup command menu. Once you have entered the command menu, there are three options available for navigating the command menu system.

- Press $\boxed{\#}$ to enter the command shown on the display.
- Press $\boxed{*}$ to step to the next command in the menu.
- Press $\boxed{\text{CLEAR}}$ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, press $\boxed{\text{CLEAR}}$ multiple times to completely exit the command menu.

**Preparation**  Here are a few guidelines to help you prepare for an enrollment session.

- You can enroll one person or a group of people during an enrollment session.
- Each user must have a unique personal identification (ID) number. It will save you considerable time if you assign the ID numbers in advance.
- The HandPunch will not accept two people with the same ID number.
- If you enroll people using the last four digits of their phone numbers or social security numbers, you may get duplicate numbers.
- If you are enrolling large groups of people you may consider using an enrollment trainer. It is a replica of a platen that is available through your Recognition Systems reseller.

**User Education**  The HandPunch is easy to use and non-threatening. However, most people have never used a biometric HandPunch. Training users on how the HandPunch works and how to use it will eliminate most fears and concerns before they occur. Inform the users of these facts.

- The HandPunch reads the shape of the hand, not the fingerprints or palmprints.
- It does not identify people. It confirms people's identity.
- It scans with an invisible light of the type used in TV remote controls.
- It does not transfer germs any more than a doorknob or money.
- It does not invade privacy; it guarantees it.
- The enrollment process requires three or more reads to collect enough information to create a template.

**Proper Hand Placement**  For correct, consistent hand reads it is very important that your hand is placed on the platen in the same manner every time. The following rules apply for proper hand placement on the platen also refer to Figure 8-2 below.

- If you are wearing a ring, rotate the ring so the stone faces up in its normal position.
- Slide your right hand onto the platen rather like an airplane landing at the airport.
- Slide your hand forward until the web between your index and middle finger stops against the Web Pin.
- Keep your hand flat. You should feel the surface of the platen on your palm and the underside of your fingers.
- Close your fingers together until they touch the Finger Pins and watch the hand diagram light display on the top panel.

- The lights go out when you have properly placed your fingers. If a light remains on, a finger is not in proper contact with its Finger Pin.



WEB PIN

Figure 8-2: Placing Your Hand on the Platen

**Left Hand Enrollment**   Some right hands cannot be used in the HandPunch due to disabilities such as missing fingers. You can enroll a user with the left hand facing palm side up. The techniques for left hand enrollment are the same as for standard enrollment. The user should keep the back of the hand flat against the platen and move the fingers against the web pin and the finger pins in the same manner as in standard enrollment. Users enrolled with the left hand must always verify with the left hand. Extra practice on placing the hand on the platen may be required to ensure correct, consistent hand reads.

**Read Score**   When a user uses the HandPunch the display appears as follows.

> **OKAY (USER ID)**
> **SCORE IS: (SCORE NUMBER)**

The score number on the display reflects how accurately the user's hand is placed on the platen. Scores that vary greatly between low and high numbers are indicative of inconsistent hand placement. Scores above 50 are indicative of improper hand placement or of a drastic change in the physical appearance of the hand.
When this occurs, emphasize the importance of sliding the hand onto the platen and keeping the hand flat. Re-training and practice should lower a user's score. It might be necessary to change a user's reject threshold if the user has a mild disability. Re-enrollment might be necessary to create a new user template.

**Enrollment Commands**   There are three commands available from the Enrollment command menu.

- Add Employee
- Add Supervisor
- Remove User

Refer to Table 9 to identify the command you need to perform. Step through all previous commands until you reach the desired command.

**Table 9: Enrollment Command Menu**

| Service Menu |
|---|
| Password = 4 |
| Add Employee |
|      ID # |
| Add Supervisor |
|      ID # |
| Remove User |
|      ID # |

**Add Employee**   The Add Employee command allows you to enroll a new employee into the HandPunch.

**Add Supervisor**   The Add Supervisor command allows you to enroll a new supervisor into the HandPunch.

**Remove User**   The Remove User command allows you to remove an employee or supervisor from the HandPunch.

# Special Menu

The Special menu has one command – Special Enroll. This command accommodates users with disabilities that make it difficult or impossible to use a HandPunch in its standard way. The following section provides a brief description of the Special Menu command.

**Navigating the Special Command Menu**

Enter the appropriate password to enter the Special command menu. Once you have entered the command menu, there are three options available for navigating the command menu system.

- Press ⎡#⎤ to enter the command shown on the display.

- Press ⎡*⎤ to step to the next command in the menu.

- Press ⎣ **CLEAR** ⎦ to exit the command menu (pressing any numeric key also exits the command menu). If you are in a command's sub-menu, press ⎣ **CLEAR** ⎦ multiple times to completely exit the command menu.

**Special Command**

There is one command available from the Special command menu.

- Special Enroll

Refer to Table 10 and identify the command you need to perform. Step through all previous commands until you reach the desired command.

**Table 10: Special Command Menu**

| Special Menu |
| --- |
| Password = 5 |
| Special Enroll |
|     ID # |

**Special Enroll**

The Special Enroll command allows a user to be enrolled such that the ID number is the primary criteria for determining access. A hand read is required, but is not verified against any stored identification data. A time

zone value can be applied to the Special Enrollment ID number to limit access times. The HandPunch default is for no time zone to be applied.

**NOTE** *Special Enrollment affects the integrity of the HandPunch terminal and should only be used as a last resort. <u>Anyone</u> who knows a Special Enroll ID number is granted access when the ID number is used. Before specially enrolling a user, try to alleviate verification problems by adjusting the individual user's reject threshold (see page 39) or by using left hand enrollment (see page 43).*

# HandPunch Maintenance

A minimum amount of system maintenance is required to keep HandPunchs fully functional. HandPunchs should be cleaned periodically to prevent an accumulation of dust from affecting the HandPunch's readability.

**NOTE** *There are **NO** user serviceable parts inside the HandPunch.*

Once a HandPunch system is in operation there are two commands that can assist with system maintenance. These commands are performed through the Service Menu. The instructions for these commands begin on page 32.

- Calibrate – View HandPunch exposure values.
- Status Display – Display HandPunch input/output status, the hand read score of the last user to verify on the system.

**Cleaning the HandPunch**

Inspect and clean the HandPunch regularly to maintain optimum performance. Clean the platen, side mirror, reflector, and the window above the platen using a clean cloth dampened with ordinary, non-abrasive window cleaner (see Figure 9-1). Start at the rear corners of the platen and work your way to the front.

The keypad can be cleaned in the same manor.

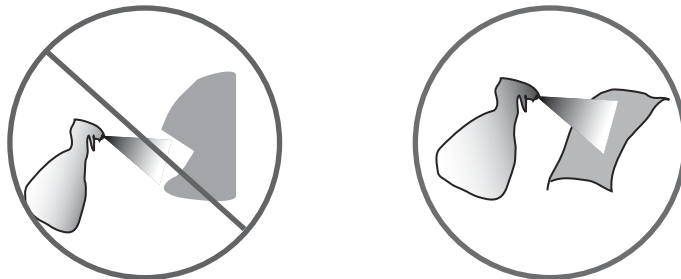**NOTE** *DO NOT SPRAY CLEANING FLUID DIRECTLY INTO OR ON THE HANDPUNCH!*



Figure 9-1: HandPunch Cleaning

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**Appendix A**

# Tips for a successful Installation

## HandPunch

- Think of the HandPunch as a camera
- Clean the HandPunch before it gets dirty
- Use non-abrasive cleaners such as glass cleaners and a clean non-abrasive cloth
- Make cleaning the HandPunch part of Janitorial program
- Do not remove the foam backing from the wall mounting plate
- Seal any holes made in the wall for wire routing, so that dust will not blow into the HandPunch

## Location

- Mount all HandPunchs in a network so that the top of the platen is 40" off of the floor
- If an enrollment HandPunch is used make sure that it is placed with the top platen 40" off of the floor and not sitting directly on top of a desk, this will help to eliminate "bad enrollments"
- Mount the HandPunch so that it is not difficult or dangerous to punch in and out.
- It is not recommended to mount the HandPunch in an area where there is airborne dust, in the path of direct sunlight, or where the HandPunch can be exposed to water or corrosive gasses

## Ethernet Communications

- Plug in Ethernet card to network before power is applied to Reader.
- Make sure that the IP address is leased from a DHCP Server.
- If the Reader can be pinged, but data cannot be sent back and forth it is most likely a configuration issue i.e. one of the addresses or Port 3001 is not open on one of the switches or routers.

## Enrollment

- Educate the Enrollee on Hand Geometry
- Explain enrollment process

- Train Enrollee on hand placement
  -Practice placing hand on platen
  -Make sure hand is flat on platen
  -Close finger towards the center of hand
  -Fingers gently touch finger pins
- Let the enrollee enter in their own ID number during the enrollment process, this forces the Enroller to step aside allowing the Enrollee to stand in front of the HandPunch helping to eliminate "bad enrollments"

**Appendix B**

# Troubleshooting Guide

## Ethernet Communications

- Make sure the Ethernet card is plugged in to the site's network before power is applied to the clock.
- Make sure IP Address is leased from DHCP Server, if used.
- Make sure port 3001 is open on all switches and routers.
- Make sure network is TCP/IP
- Can HandPunch be pinged? If yes, there is a configuration issue that can be with the Gateway Address, Subnet Mask, or port 3001 is not open on all of the switches or routers, between the HandPunch and computer. Unplug the HandPunch and run ping again to see if there is an answer. If no, make sure Ethernet Cable is good and plugged in before power is applied to HandPunch. It may be necessary to verify that the Ethernet data jack on the wall is good.

## Display Messages During Verification

Various messages can appear on the HandPunch's display during hand verification. These messages are defined in Table 11.

**Table 11: Display Messages During Verification**

| Message | Definition |
|---|---|
| PLACE HAND | The platen is ready to receive your hand for verification. |
| ID VERIFIED | You are verified, proceed. |
| REMOVE HAND | Remove your hand and place it on the platen again. Follow proper hand placement rules. |
| TRY AGAIN | Your attempt was rejected. Repeat verification following proper hand placement rules. |
| ID REFUSED | Your rejections exceeded the maximum number of tries allowed. Wait until another employee has verified and try again or call your supervisor. |

**Table 11: Display Messages During Verification**

| Message | Definition |
|---------|-----------|
| ENTER ID | You entered your ID number incorrectly or your access time is restricted. |

- If the display shows **TRY AGAIN**, you are not verified. You may have made an error in entering your ID number or in placing your hand on the platen. Re-enter your ID number and try again, taking care to follow proper hand placement rules (see page 42).

- If the display shows **TIME RESTRICTION**, you are not authorized to punch in at this time. If this seems to be in error, contact your supervisor about time restrictions.

- After a pre-programmed number of denied attempts, an ID number will no longer be accepted and the display will appear as follows.

> **ID INVALID**
> **TEMPORARILY**

This is called a "lockout." Before the rejected ID number can be used again, another employee or a supervisor must successfully verify at the HandPunch.

- If you enter your ID number, but do not place your hand on the platen, the HandPunch will time-out in about 25 seconds. You can immediately end this time-out by pressing the **CLEAR** key.

## Beeper and LED Status During Verification

The HandPunch's beeper and LED status display also display hand verification information. This information is defined in Table 12.

**Table 12: Beeper and LED Status During Verification**

| Operation | Beeps | LED | Meaning |
|-----------|-------|-----|---------|
| During Keypad Entry | 1 per Keystroke | – | Keystroke Accepted |

**Table 12: Beeper and LED Status During Verification**

| Operation | Beeps | LED | Meaning |
| --- | --- | --- | --- |
| After ID Entry | – | – | OK - Proceed |
| After ID Entry | 2 | – | ID Number Not in Database |
| After Hand Placement | 1 | Green | ID Verified |
| After Hand Placement | 2 | Red | ID Not Verified - Try Again |
| After Hand Placement | 1 Long Continuous | Red | ID Refused |

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# Limited Warranty

Recognition Systems, Inc. (the "Company") warrants to the original user the products manufactured by the Company (the "Product") to be free of defects in material and workmanship for a period of three months from the date of purchase by such user or six months from the date of shipment from the factory, whichever is sooner, provided:

1.  The Company has been notified within such period by return of any alleged defective product, free and clear of all liens and encumbrances, to the Company or its authorized dealer, transportation prepaid; and

2.  The Product has not been abused, misused, or improperly maintained and/or repaired during such period; and

3.  Such defect has not been caused by ordinary wear and tear; and

4.  Such defect is not the result of voltage surges/brownouts, lightning, water damage/flooding, fire, explosion, earthquakes, tornadoes, acts of aggression/war, or similar phenomenon; and

5.  Accessories used as integral to the Product have been approved by the Company.

The Company shall, at its option, either repair or replace, free of charge, the Product found, upon the Company's inspection, to be so defective, or if agreed upon, refund the purchase price, less a reasonable allowance for depreciation, in exchange for the Product.

THE COMPANY MAKES NO OTHER WARRANTY AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY PERIOD AS SET FORTH ABOVE.

THE COMPANY'S MAXIMUM LIABILITY THEREUNDER IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, OR SPECIAL DAMAGES OF ANY NATURE ARISING FROM THE SAME OR THE USE OF THE PRODUCT.

Recognition Systems Inc. reserves the right to make changes in the design of any of its products without incurring any obligation to make the same change on units previously purchased.

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