



HandKey II

Installation and Operation Manual

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the Installation Manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Introduction

HandKey II

The HandKey II is Recognition Systems' fourth generation biometric access control Hand Reader¹. The Hand Reader records and stores the three-dimensional shape of the human hand for comparison and identity verification. Upon verification, the Hand Reader produces an output that can unlock a door, send card format data to an access control panel, or communicate with a host computer. The Hand Reader also has auxiliary inputs and outputs that can be used to control other systems such as CCTV cameras and alarms.

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 parents in obstetric wards.

Principle of Operation

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

To gain access, the user enters his or her ID number at the Hand Reader's keypad or uses an external card reader. The Hand Reader prompts the user to place his or her hand on the reader's platen². The Hand Reader compares the hand on the platen with the user's unique template. If the images match, the Hand Reader unlocks the door or sends the user's ID number to a third-party access control panel for processing.

The HandKey II Reader

The Hand Reader is an intelligent access control system that can operate as a stand-alone unit, in a network with other Hand Readers, or in a network with a host computer. Refer to Figure 1-1 when reviewing the information in this section.

-
1. For the sake of using a consistent name throughout the manual, the HandKey II is referred to as the Hand Reader for the remainder of this manual.
 2. The Platen is the flat surface at the base of the Hand Reader (see Figure 1-1). This is where users place their hands for enrollment and verification. It has guide pins to position the fingers during use.

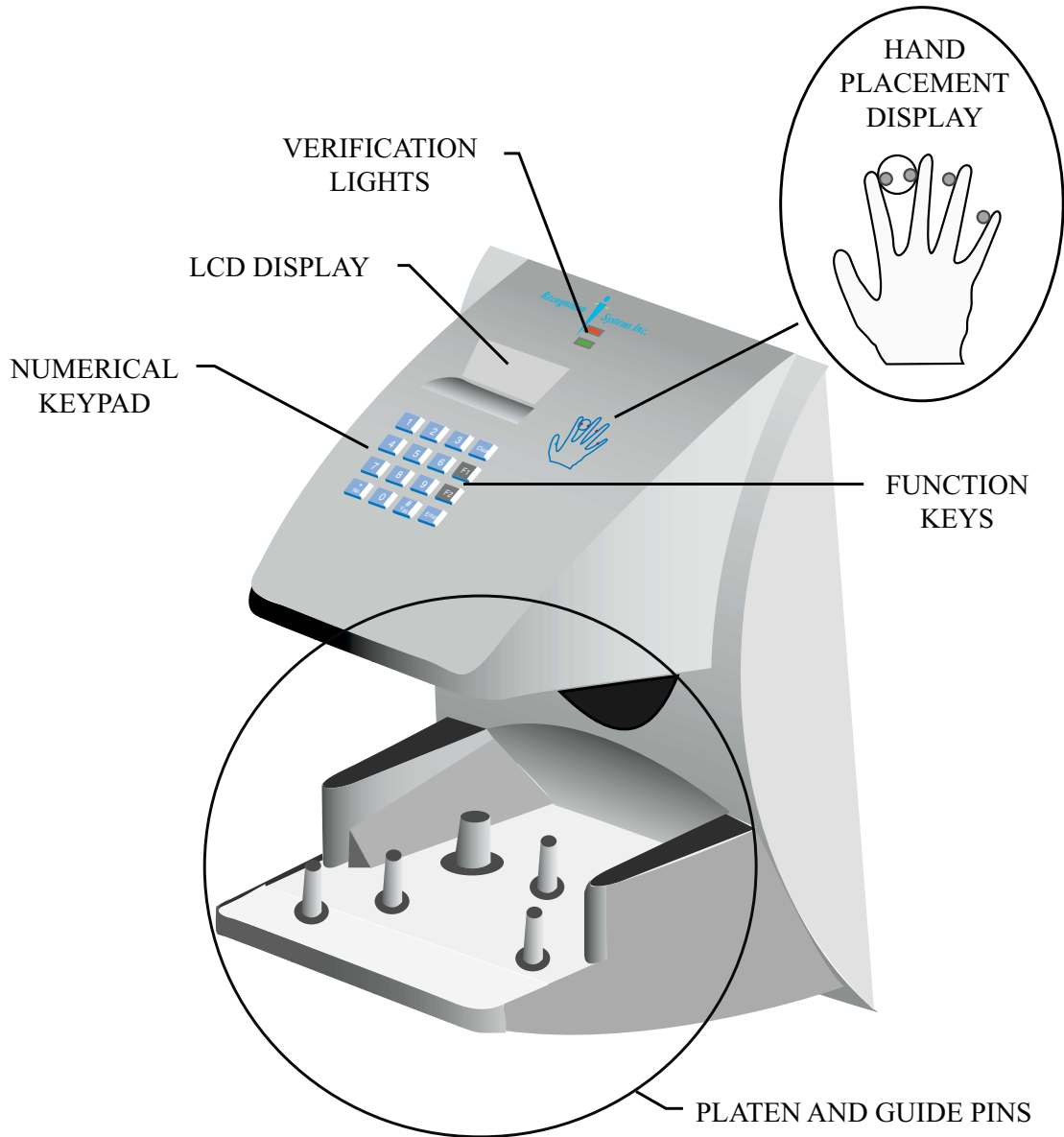


Figure 1-1: The HandKey II

The Hand Reader has an integrated keypad for ID entry and reader programming. It has two function keys (F1 and F2) that can be set to activate external devices such as a doorbell or an automatic door. The **CLEAR** and **ENTER** keys assist in 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 reader'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 accepted or rejected.
4. An internal beeper provides audible feedback during keypad data entry and user verification.

Specifications

Table 1: Specifications

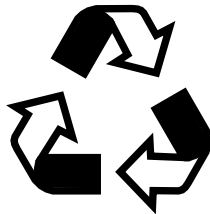
Size:	8.85 inches wide by 11.65 inches high by 8.55 inches deep (22.3 cm)
	22.3 cm wide by 29.6 cm high by 21.7 cm deep
Power:	12 to 24 VDC or 12 to 24 VAC 50-60 Hz, 7 watts
Weight:	6 lbs (2.7 kg)
Wiring:	2 twisted-pair, shielded, AWG 22 or larger (such as Belden 82732)
Temperature:	-10C to +60C – non-operating/storage (14F to 140F)
	0C to 45C – operating (32F to 113F)
Relative Humidity Non-Condensing:	5% to 85% – non-operating/storage 20% to 80% – operating
Verification Time:	1 second or less
Memory Retention:	5 years using a standard internal lithium battery
Transaction Buffer:	5187 transactions
ID Number Length:	1 to 10 digits
Baud Rate:	300 to 28.8 K bps
Communications:	RS-232, RS-485 4-wire (RS-422), RS-485 2-wire, optional Ethernet, optional Modem
User Capacity:	512 users expandable to 32,512
Card Reader Input:	Proximity, Wiegand, Magnetic Stripe, Bar Code
Card Reader Output:	Wiegand, Magnetic Stripe, Bar Code
Duress Code:	1 leading digit, user definable
Door Controls:	Lock output (open collector, sinks to ground, 100 mA max), Request to Exit input, Door Switch input
Alarm Monitoring:	Tamper, Door Forced, Duress
Event Monitoring:	There is a variety of monitoring options including events such as: Invalid ID, Time Zone Violation, ID Refused, Try Again, Power Failure
Time Zones:	62 total – 2 fixed, 60 programmable
Auxiliary Outputs	3 user definable (open collector, sinks to ground, 100 mA max)

Recommend 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)

 approved.



recyclable

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Wiring

Four basic circuits typically connect to the Hand Reader:

- Power Input
- Door Control Inputs and Outputs
- Networking and Communications
- Card Reader Input and Emulation Output

Power Input

The Hand Reader requires 12 to 24 volts DC (600 mA) or 12 to 24 volts AC (7 watts). Power can be connected either to terminals 1 and 2 on the terminal strip or through barrel jack J12.

!NOTE *Terminal 1 and the center pin of jack J12 are connected together. Terminal 2 and the sleeve of jack J12 are connected together.*

A full-wave bridge rectifier input structure is used in the power supply of the Hand Reader, making the polarity of terminals 1 and 2 irrelevant. Recognition Systems recommends using terminal 1 for positive (+) voltage and terminal 2 for common (-) for consistency. If J12 is used to attach power with the optional Recognition Systems wall-mount power supply, terminal 1 will reflect +13.8 VDC (unregulated) and terminal 2 will be power supply common.

!NOTE *Neither terminal 1 or terminal 2 is connected to the Hand Reader ground.*

It is not necessary to use a regulated external power supply to provide power to the Hand Reader. AWG 18 wiring is recommended. Suitable wall mount power supplies are available from Recognition Systems with either 110 VAC or 220 VAC input ranges.

Grounding

Recognition Systems recommends that all Hand Readers be grounded with a solid, reliable earth ground connection. This can be accomplished by attaching a separate wire no smaller than AWG 18 between any of the Hand Reader's terminal strip ground connections and a good, solid, earth ground source.

!NOTE *Terminal 2 is NOT directly connected to ground within the reader. Do NOT use this pin to establish earth ground. Use any one of the following ground terminals: 8, 10, 12, 14, 18, 20, 22, 24, or 26.*

This connection establishes a common ground return point used to protect internal semiconductor devices from ElectroStatic Discharge (ESD) and from external signal line transients. It also provides a common signal level reference point between externally networked Hand Readers. Recognition Systems recommends that the earth ground source be identified by a qualified electrician familiar with electrical codes as well as wiring and grounding techniques.

Battery Backup Operation

The Hand Reader uses an internal switching regulator to obtain internal operational power. It accepts input voltages from 12 to 24 VDC or 12 to 24 VAC at 50 to 60 Hz. An optional power-fail protection circuit board can be attached to the main circuit board to provide and control battery backup. The design of the 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 internal battery charger is disabled to save power and uninterrupted operation continues on battery power.

When input power is restored, the Hand Reader 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 Hand Reader 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 Hand Reader 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 Hand Reader is running off of battery power. This indicator extinguishes 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 3-3) enables or disables battery operation on those Hand Readers equipped with optional battery backup. If a Hand Reader does not have the optional battery backup package installed, J7 is not used. On Hand Readers 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 Hand Reader 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 Hand Reader will fully shut down. Once the Hand Reader 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 Hand Reader will shut down.

The Hand Reader with 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 Hand Reader and plugs into jack J4 on the keypad control circuit board located in the top of the chassis.

Door Control Output

The Hand Reader can operate a door in two different modes: lock output and card reader emulation. The wiring for each mode is significantly different.

Lock Output Mode

In the lock output mode, the Hand Reader acts as an intelligent access reader signaling a lock relay or controller to unlock the door. It also monitors the status of the door. The decision to unlock the door is made by the Hand Reader after a valid verification. Users may be assigned time restrictions to limit access during specified hours or days.

Card Reader Emulation Mode

In card reader emulation mode, the Hand Reader outputs Wiegand, magnetic stripe, or some other card reader signal, typically to an access control panel when a user successfully verifies. This mode makes integrating with existing access control systems fast and simple. On retrofit applications, the existing card reader wiring can be used to connect the Hand Reader to the panel if it has AWG 22 or larger conductors and is in good condition.



The standard Hand Reader emulation format is for a 26-bit Wiegand card using an 8-bit facility code. Other formats and card reader technology emulations are available. Consult the factory for formats other than 26-bit Wiegand.

The ID number may be entered via the integrated keypad or an external card reader.

- If the user enters the ID number from the keypad, the Hand Reader sends the ID number to the access panel in the specified card format with a pre-programmed facility code.
- If the ID number is entered via the card reader, the Hand Reader stores the card data and then sends the data, unmodified, to the access panel when the user successfully verifies.

Inputs and Outputs

In addition to the Lock and Auxiliary Output and the Card Reader Emulation Output, the Hand Reader has additional inputs and outputs for use with alarms and other controllers.

- Three Programmable Auxiliary Outputs
- Door Monitor Switch Input
- Request to Exit Input
- Card Reader Input for Wiegand or Magnetic Stripe
- Two Auxiliary Inputs

An open collector transistor driver drives each one of these outputs. Open collector refers to a transistor configuration capable of sinking current (by “pulling down” one side of a load to ground) but not able to source current – e.g. the transistor output is incapable of supplying current to drive up the output voltage and must rely on an external voltage source to accomplish this.

Hand Reader outputs, when measured to ground, generally show around 4.5 volts when they are inactive and no load is attached. This voltage is developed by a combination diode and series resistor pull up to the internal +5 volt supply of the Hand Reader. These outputs are pulled up internally to insure that they remain in a known condition if used to output Wiegand or magnetic stripe data to some external device.

If one of the outputs is shorted to ground, there will be approximately 5 mA of current flowing through the short, but no damage will occur. Because of the open collector structure of the outputs, each output is free to float to whatever external voltage is applied (when inactive). For example, if one side of a relay coil is connected to an external +12 volt power source and the other side of the relay coil is measured with respect to the ground of the external power source, the measurement will be +12 volts.

If the ground of the external power source (+12 volt return) is tied to the ground of the Hand Reader, and the free relay coil wire connected to the LOCK output, the LOCK output pin will read +12 volts also (when inactive). This is because the LOCK output is not active and free to “float” to whatever external voltage is applied. When a hand is verified, the LOCK output becomes active and essentially looks like a short to the Hand Reader ground. This “short” causes the full +12 volts of the external power source to be placed across the relay coil, energizing the relay. The ground of the external +12 volt source must be tied to the Hand Reader ground to make a complete circuit path.

All Hand Reader outputs are rated at +24 volts DC maximum with a maximum current draw of 100 mA. This means that it is acceptable to use up to a +24 volt DC external power supply to energize external devices. Whatever external relay is used should be chosen to match the external power supply voltage. For example, if the external relay

coil is rated at 15 volts, a 15 volt external power supply should be used. In no case should the external voltage be higher than +24 VDC.

Each Hand Reader has a protection mechanism built in to protect against voltage transients (spikes) coming back into the Hand Reader from an external relay coil. Transients from an “opening” or de-energizing relay coil can reach several hundred volts. This protection is on all Hand Reader outputs and will limit reverse spikes to approximately 28 volts to protect the open collector transistor driver. Hand Reader outputs are NOT designed to switch AC voltages. DC voltages MUST be used and the correct polarities MUST be maintained.

!NOTE *Relays or devices connected to the lock and auxiliary outputs must not exceed 0.1 A current draw.*

Networking and Communications

Hand Reader networking and communications can be configured in one of five ways:

- as a stand-alone Hand Reader
- as a master or remote Hand Reader in a Hand Reader network
- as a remote Hand Reader in a Hand Reader network connected to a host PC
- as a remote network connected via optional Modem to host PC
- remote network connected via optional Ethernet to host PC

Stand-alone Hand Reader

When installed as a stand-alone access control system there is no communication wiring to other Hand Readers or to a host computer. Power input and control output wiring are all that are required. An RS-232 serial printer output is available for event logging (refer to the [Printer](#) section on page 13). Recognition Systems highly recommends using Backhand™ software to backup template information stored in the Hand Reader.

Master or Remote Hand Reader in a Hand Reader Network

Multiple Hand Readers can be linked together in a Hand Reader network.

- Up to 32 Hand Readers can be linked together on a 2-wire RS-485 or 4-wire RS-422 network (see Figure 3-1).
- Two twisted-pair, shielded, AWG 22 (or larger) wire should be used (Recognition Systems recommends Belden 82732 or its equivalent).
- The wiring must be a “daisy chain” network from Hand Reader to Hand Reader and must not exceed 4,000 feet (1220 meters) in total length.

The master/remote network requires user enrollment at the “master” Hand Reader. The master Hand Reader distributes hand template data with ID numbers and time restrictions (if any) to the other Hand Readers in the network. Users removed at the master Hand Reader are automatically removed from the remote readers. A printer connected to the master Hand Reader will report transactions from all Hand Readers on the network.

The master/remote network is highly effective with systems using card reader emulation mode for user populations smaller than 500 people since it does not require a host computer to manage the Hand Reader template database. Recognition Systems highly recommends using Backhand™ software to backup template information stored in the Hand Reader.

Remote Hand Reader in a Hand Reader Network Connected to a Host PC

Multiple Hand Readers can be linked to a personal computer (PC) for an integrated access control network. Real time monitoring of door status and a variety of alarm types can be done with Recognition Systems’ HandNet for Windows™ (Recognition Systems model number HN-300) software. To run HandNet for Windows™ the computer must be PC compatible, using a Pentium™-166 or faster microprocessor and it must have a CD-ROM.

- The HandNet software can monitor over 1,000 Hand Readers simultaneously.
- An unlimited number of sites can be created with up to 32 Hand Readers per site.
- The Hand Readers report all transactions to the PC. The HandNet software records all transactions and displays a variety of reports generated from this information.
- Template management is handled automatically.
- Users may enroll at any Hand Reader in the system. The PC collects the data and distributes it to other Hand Readers in the network.
- Access may be restricted by time and by Hand Reader via HandNet’s access profiles and by the use of time zones.

Typically, Hand Reader networks link to a PC using a 4-wire RS-485 (RS-422) connection. These networks have the following requirements.

- Two twisted pair, shielded, AWG 22 wire or larger should be used (Recognition Systems recommends Belden No. 82723 or equivalent cable).
- Hand Readers must be wired together in a “daisy chain” network from Hand Reader to Hand Reader and then to the host PC. The total length of the wiring must not exceed 4,000 feet per network.
- The network requires an RS-485(422) to RS-232 converter (Recognition Systems P/N DC-102) at the PC.

Recognition Systems' optional HandNet for Windows™ software allows programming of most of the remote Hand Reader setups from the computer. However, each Hand Reader on the network requires the setting of an address. Hand Reader addresses may be repeated, but only on different sites. Display language, date format changes, and the communication mode must also be set at the Hand Reader.

Remote Hand Reader Connected to a Host PC via Optional Modem

An optional, internal “answer only” 14.4 bps modem is available for Hand Readers. This modem is designed for operation with United States phone systems. Site wiring should conform to standard telephone wiring standards and terminate at the Hand Reader with a standard RJ-11 modular phone jack. Each Hand Reader with a modem includes a 12-inch (30 cm) cable for the final connection between the phone jack and the Hand Reader modem. Modem Hand Readers may be networked with up to 31 non-modem Hand Readers using RS-485 4-wire (RS-422) wiring. Refer to the Using a Modem in a HandKey Network Application Note (available from Recognition Systems) for detailed information.

Remote Hand Reader Connected to a Host PC via Optional Ethernet

The Hand Reader is available with an optional, internal Ethernet communications module for TCP/IP communications. The wiring must conform to 10BaseT standards. Typically, network wiring terminates at the Hand Reader with a standard RJ-45 modular jack. The cable from the jack to the Hand Reader is not provided with the Ethernet option. The IP address and Gateway are entered at the Hand Reader in the SET SERIAL menu. The Subnet Mask is automatically calculated based on the class of the IP address. Ethernet Hand Readers may be networked with up to 31 non-Ethernet Hand Readers using RS-422 twisted pair cable. Refer to the Using an Ethernet HandKey Network Application Note (available from Recognition Systems) for detailed information.

Printer

You can connect a serial printer to a Hand Reader. A printer connected to the master Hand Reader (in a master-remote application) will print every event as it occurs. A printer connected to a remote Hand Reader will print only the events that occur at that Hand Reader. Recognition Systems Inc. does not supply serial printers. Refer to the Printer String Information Application Note (available from Recognition Systems) for detailed information.

Mechanical Installation

Select an installation location based on the guidelines provided in the Planning an Installation section beginning on page 13.

Wall Plate Installation

Wall Preparation

NOTE For the following instructions protect the Hand Reader 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.

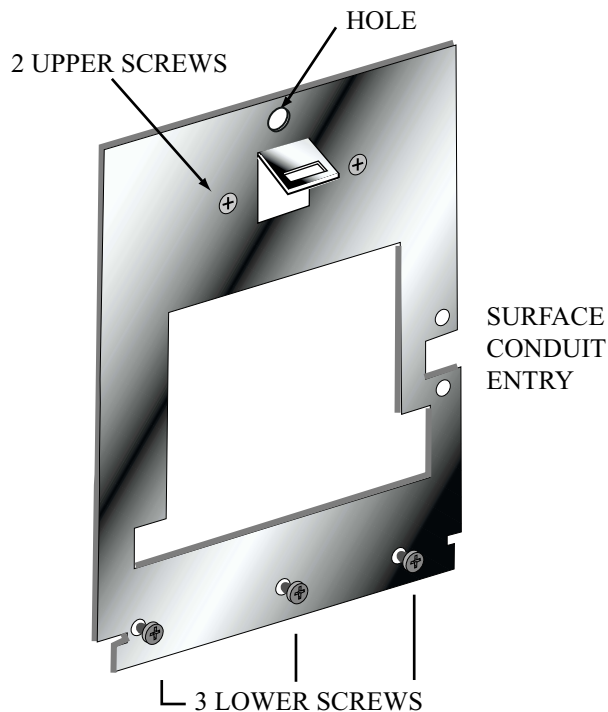


Figure 3-1: Wall Plate

2. Measure and mark a point 48 1/2 inches (123 cm) from the surface of the finished floor. This point will correspond to where the top-center point of the Hand Reader 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 Hand Reader'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. 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 Hand Reader through this hole in the open area.
2. 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 conduit to the Hand Reader, ending the conduit between the two conduit clamp holes. Pull the wiring to enter the Hand Reader through the conduit.

Attaching the Hand Reader

1. Loosen the three bottom mounting screws until there is approximately 1/8 inch (3 mm) clearance between the screw head and the wall plate.
2. Remove the Hand Reader from its carton.
3. At the base of the Hand Reader is a piano hinge with three keyhole shaped slots that correspond with the three lower mounting screws. Align and hang the Hand Reader from the three lower mounting screws (see Figure 3-2).

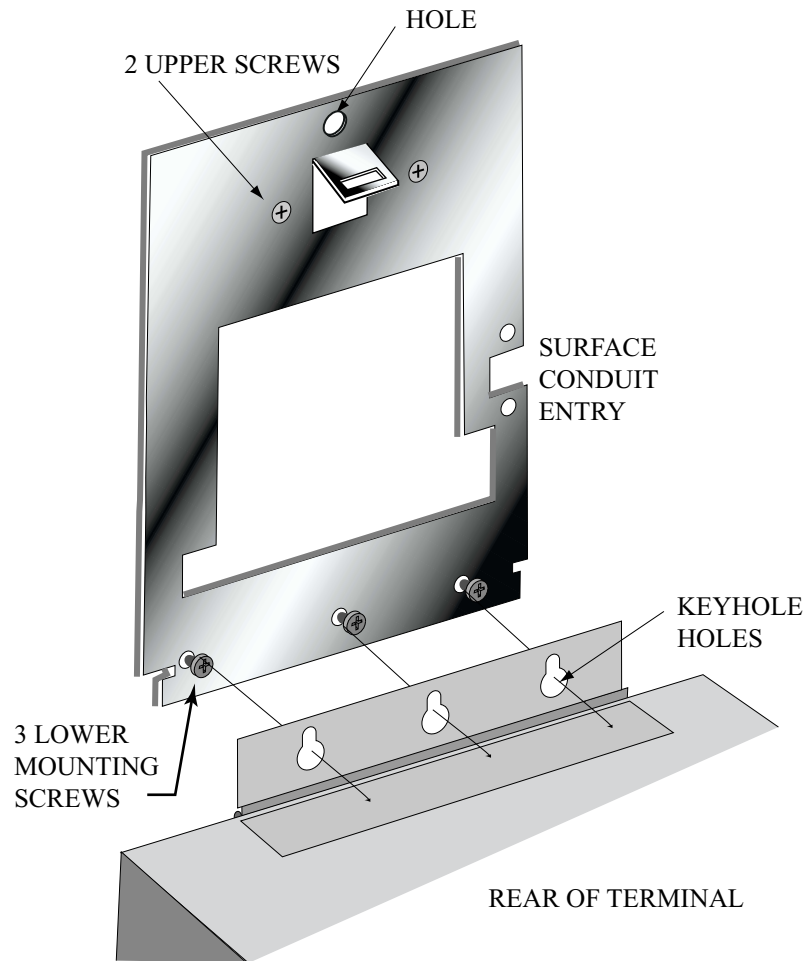


Figure 3-2: Attaching the Hand Reader to the Wall Plate

4. Tighten all three lower mounting screws.
5. The Hand Reader is now ready for its wiring connections.

Wiring Connections

Once the Hand Reader is attached to the wall plate the wiring connections to the Hand Reader can be made (see Figure 3-3).

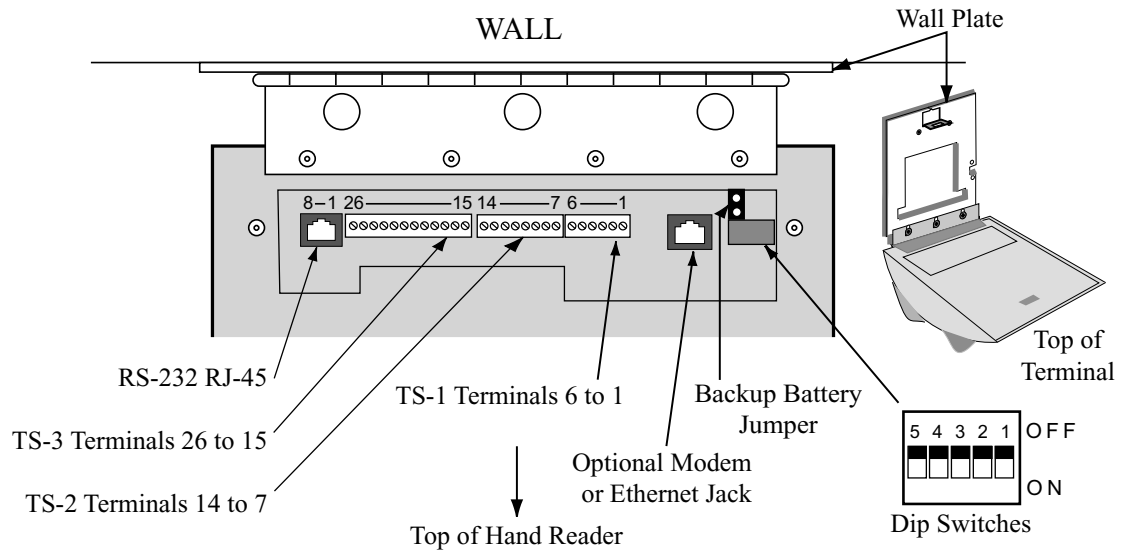


Figure 3-3: Wiring Connections and Dip Switches

Wiring Examples

The following Tables provide the pin outs for the terminal strips on the Hand Reader.

- Table 2 on page 25 provides the pin outs for TS-1: Power and Communication Connections.
- Table 3 on page 25 provides the pin outs for TS-2: Input Connections.
- Table 4 on page 26 provides the pin outs for TS-3: Card Reader and Output Connections.

The following Figures provide typical Hand Reader wiring diagrams.

- Figure 3-4 on provides a typical Lock Output wiring diagram.
- Figure 3-5 on provides a typical Auxiliary Output wiring diagram.
- Figure 3-6 on provides a typical Card Reader Emulation Mode wiring diagram.
- Figure 3-7 on provides a typical RS-485 4-Wire Master/Remote Network System wiring diagram.
- Figure 3-8 on provides a typical RS-422 2-Wire Master/Remote Network System wiring diagram.
- Figure 3-9 on provides a typical Host PC Network System wiring diagram.
- Figure 3-10 on provides a typical Printer to Hand Reader wiring diagram.

Table 2: TS-1 - Power and Communication Connections

Terminal	Connection
1	Power Input 12 to 24 VDC/VAC
2	Power Return
3	RS-422 Rx- or RS-485 Rx-/Tx-
4	RS-422 Tx- or RS-485 Rx+/Tx+
5	RS-422 Rx+
6	RS-422 Tx+

Table 3: TS-2 - Input Connections

Terminal	Connection
7	Request to Exit Input
8	Ground
9	Door Monitor Switch Input (NC Standby)
10	Ground
11	Auxiliary Input 1
12	Ground
13	Auxiliary Input 2
14	Ground

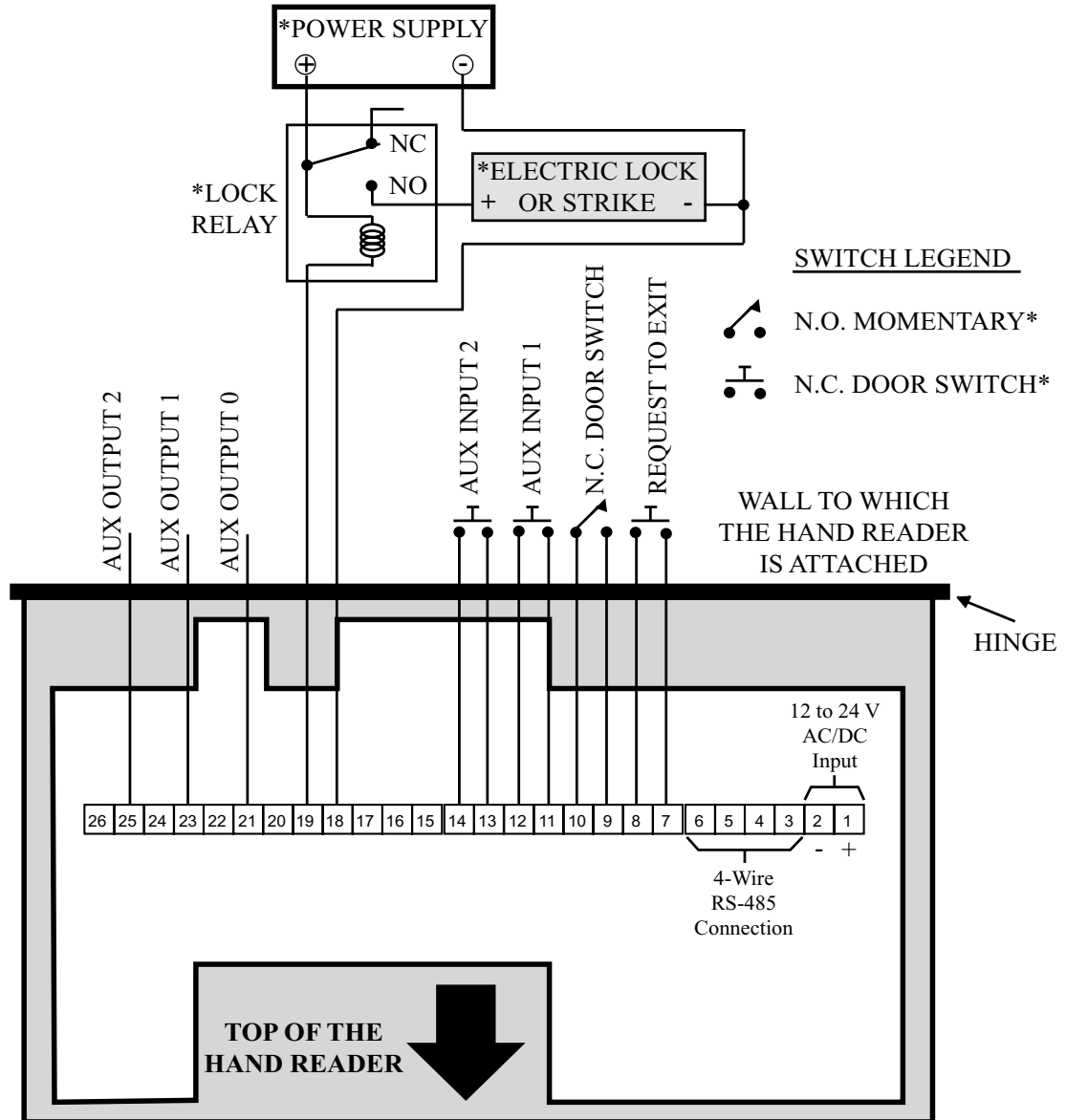
Table 4: TS-3 - Card Reader and Output Connections

Terminal	Connection
15	+5 VDC @ 400 mA Max. Output for External Card Reader
16	Card Reader: Wiegand D0 or Magnetic Stripe Data Input
17	Card Reader: Wiegand D1 or Magnetic Stripe Clock Input
18	Card Reader Ground
19	Lock Output or Wiegand D1 or Magnetic Stripe Clock Output
20	Ground
21	Auxiliary Output 0 or Wiegand Data 0 or Magnetic Stripe Data Output
22	Ground
23	Auxiliary Output 1
24	Ground
25	Auxiliary Output 2
26	Ground

Table 5: RJ-45 Serial RS-232 Connection

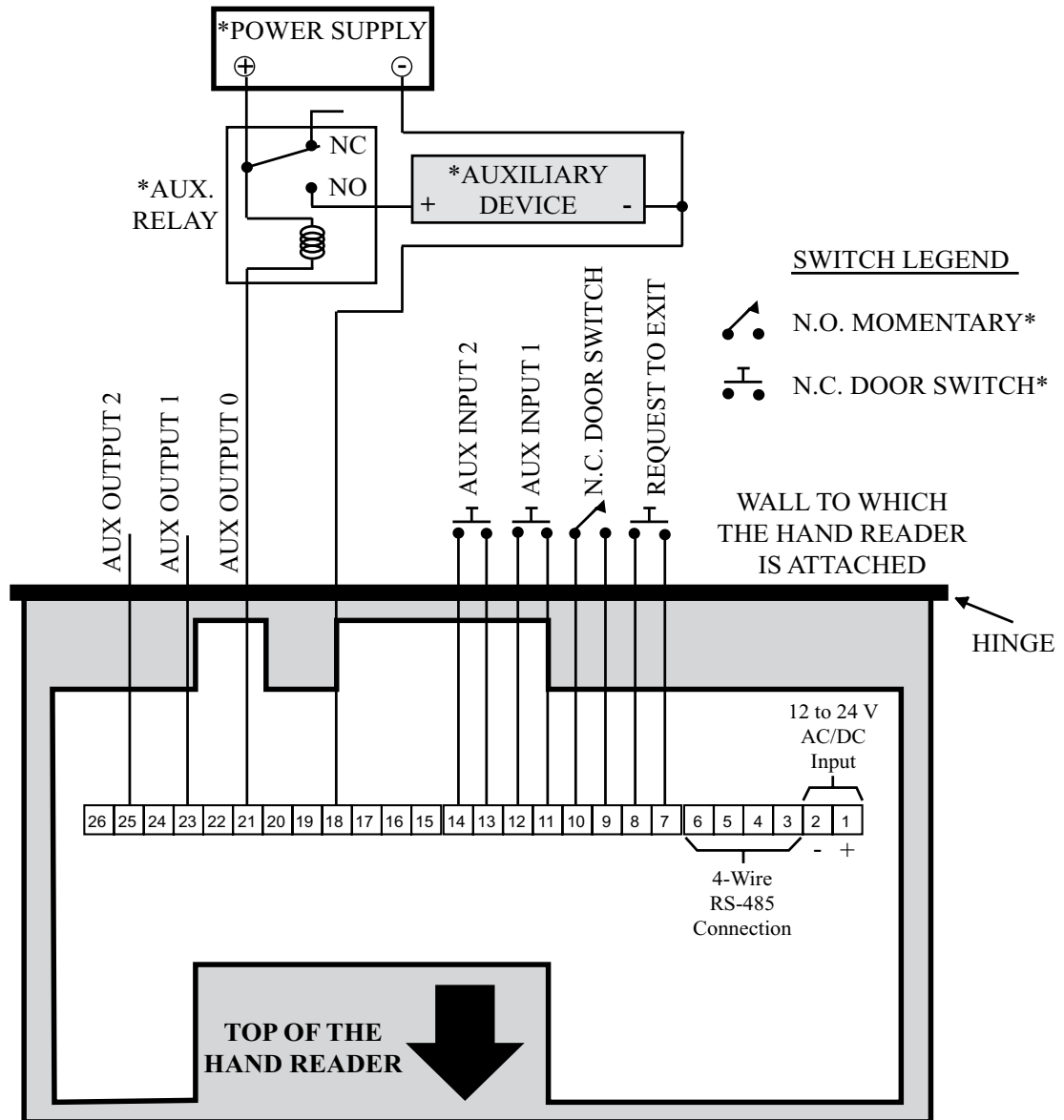
Pin	Signal	Connection
1	RI	* Ring Indicator Input (from external device)
2	CD	* Carrier Detect Input (from external device)
3	DTR	* Data Terminal Ready Output (to external device)
4	GND	Ground
5	Rx Data	Receive Data Input (from external device)
6	Tx Data	Transmit Data Output (to external device)
7	CTS	* Clear to Send Input (from external device)
8	RTS	* Ready to Send Output (to external device)

* These signals are not currently supported.



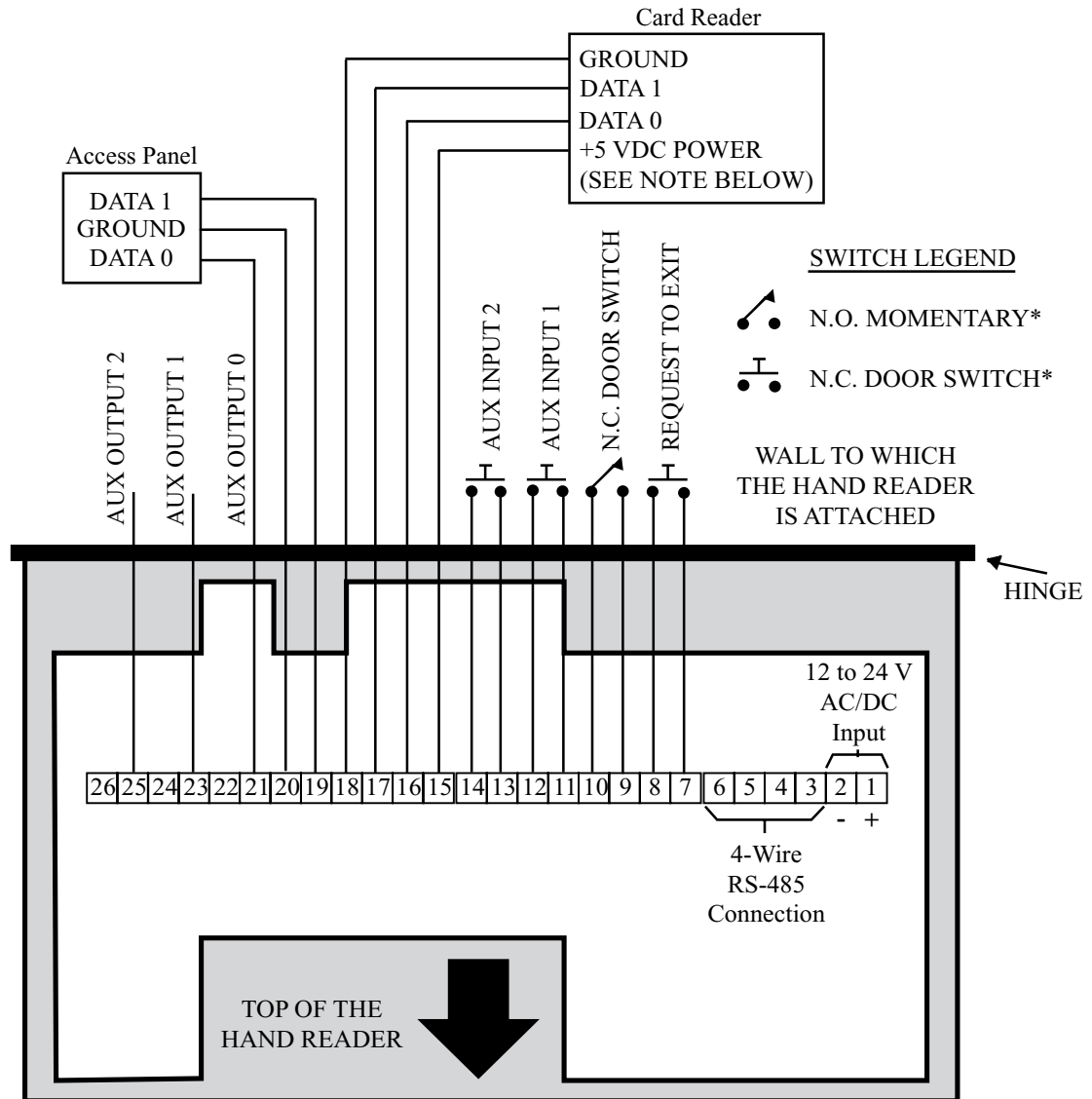
* These components are not supplied by Recognition Systems, Inc.

Figure 3-4: Lock Output Wiring Diagram



* These components are not supplied by Recognition Systems, Inc.

Figure 3-5: Auxiliary Output Wiring Diagram



* These components are not supplied by Recognition Systems, Inc.

NOTE: For +12 VDC readers, connect power supply +12 VDC to card reader.

Figure 3-6: Card Reader Emulation Mode Wiring Diagram

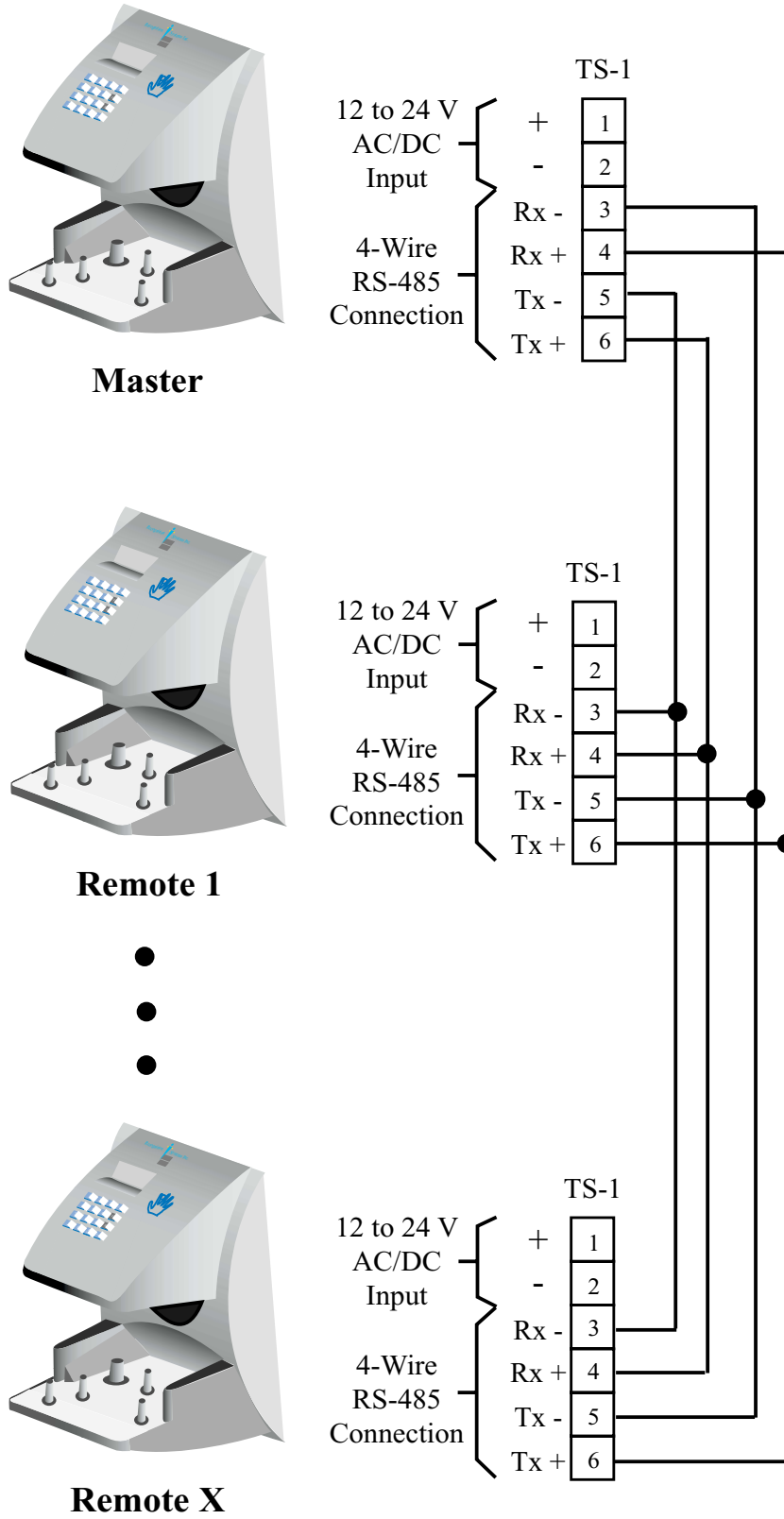


Figure 3-7: RS-485 4-Wire Master/Remote Network System Wiring Diagram

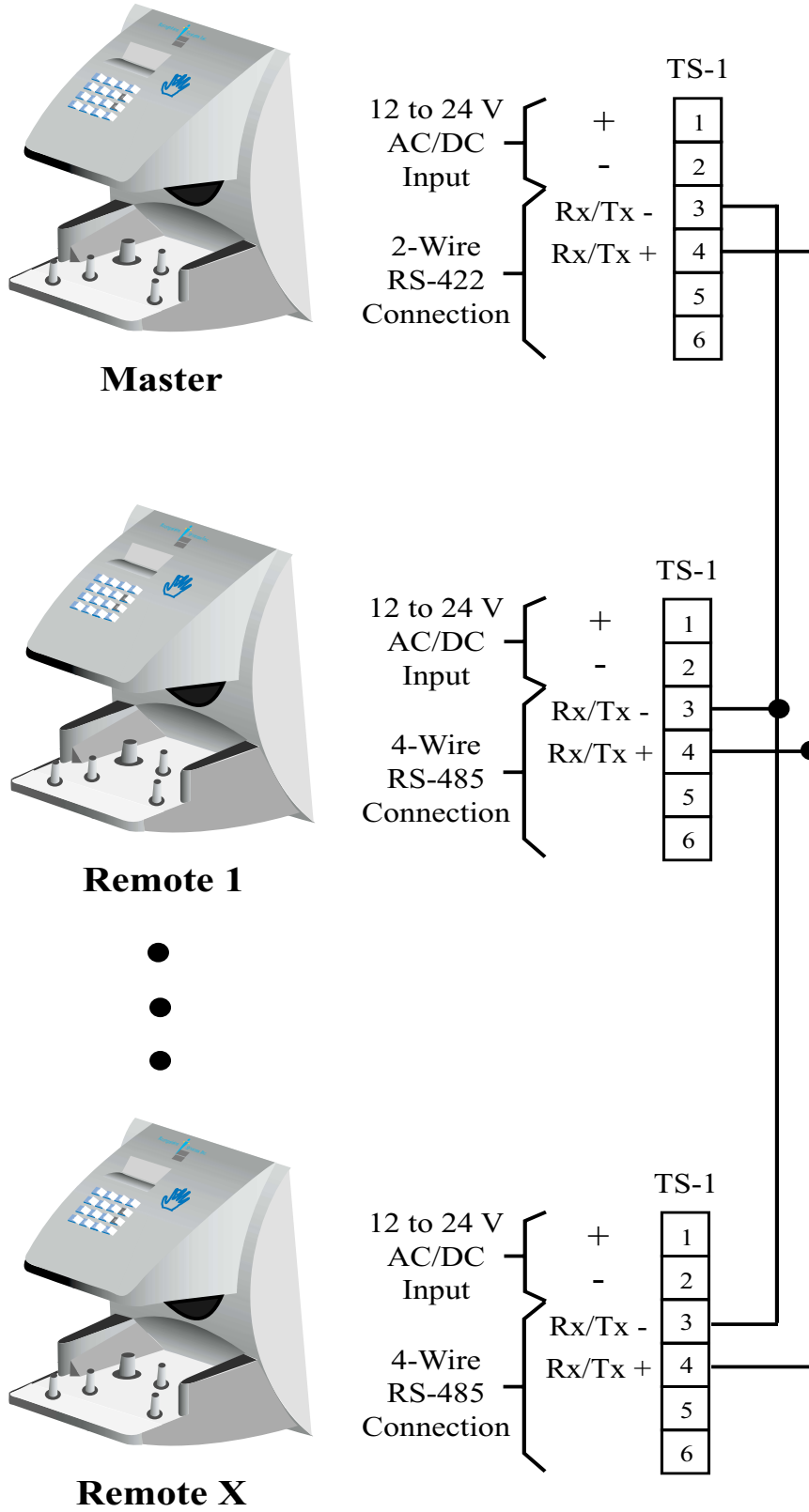


Figure 3-8: RS-422 2-Wire Master/Remote Network System Wiring Diagram

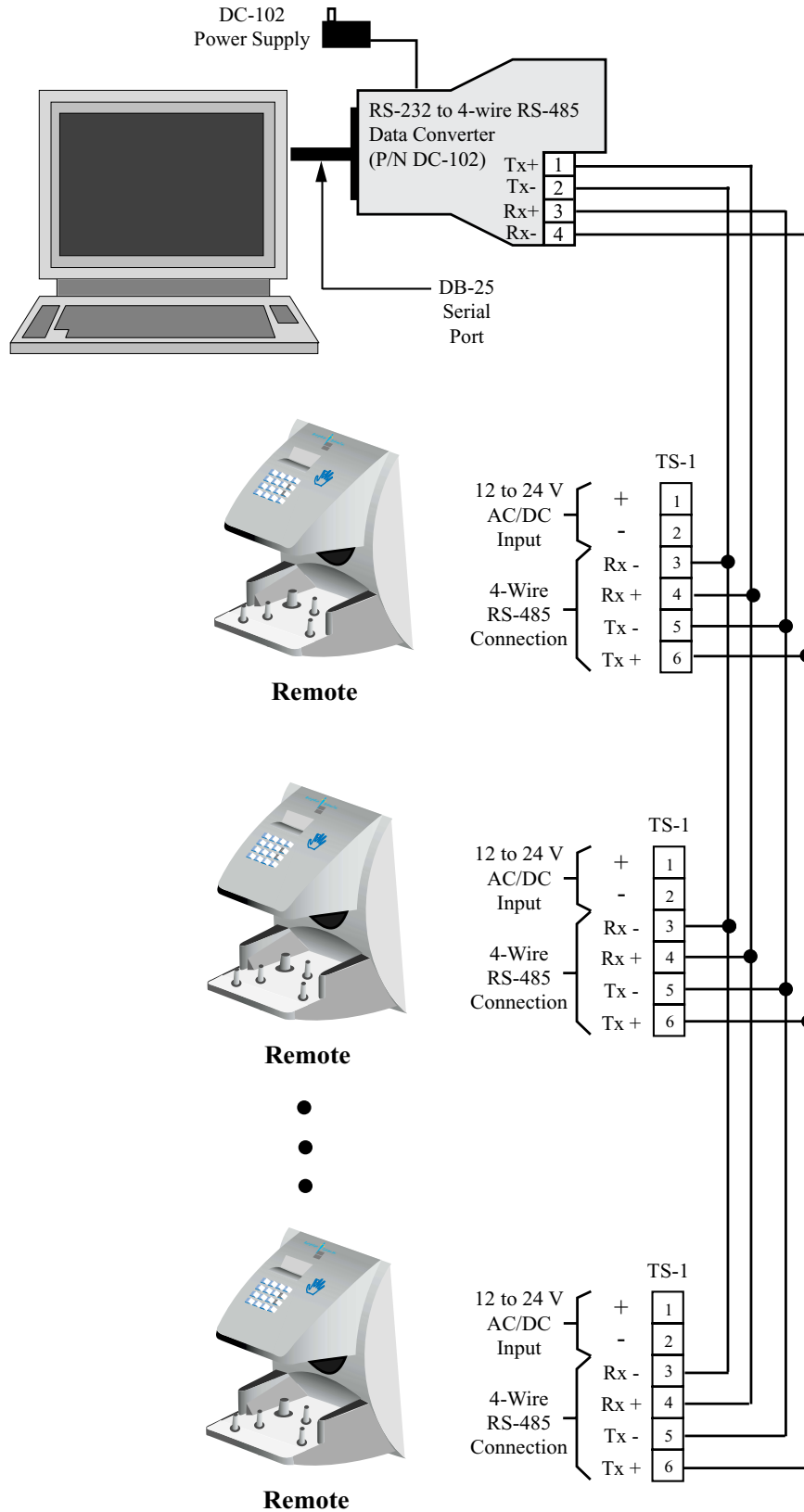
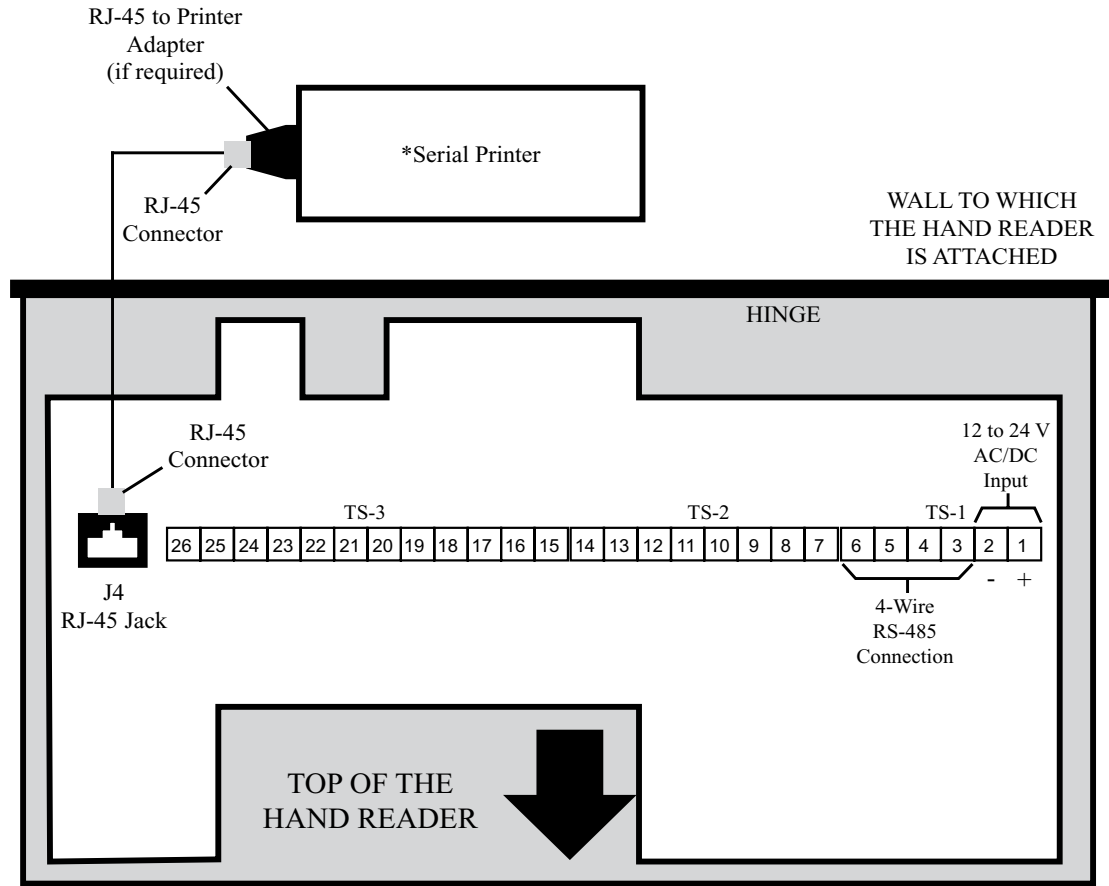


Figure 3-9: Host PC Network System Wiring Diagram



* These components are not supplied by Recognition Systems, Inc.

Figure 3-10: Printer to HandKey II Wiring Diagram

Setting the DIP Switches

DIP Switch settings perform three tasks for the Hand Reader (see Figure 3-11).

- Set End of Line (EOL) Termination to match the type of termination the network being used needs.
- Set the Communication Method to match the type of network used.
- Erase Memory to clear Hand Reader memory to all factory default values and also clear all user memory.

Refer to Figure 3-11 for the location of all DIP switches described in this section.

NOTE *If a Hand Reader is used as a stand-alone Hand Reader, the End of Line (EOL) Termination and Communication Method dip switches are not used and should be left in their default positions.*

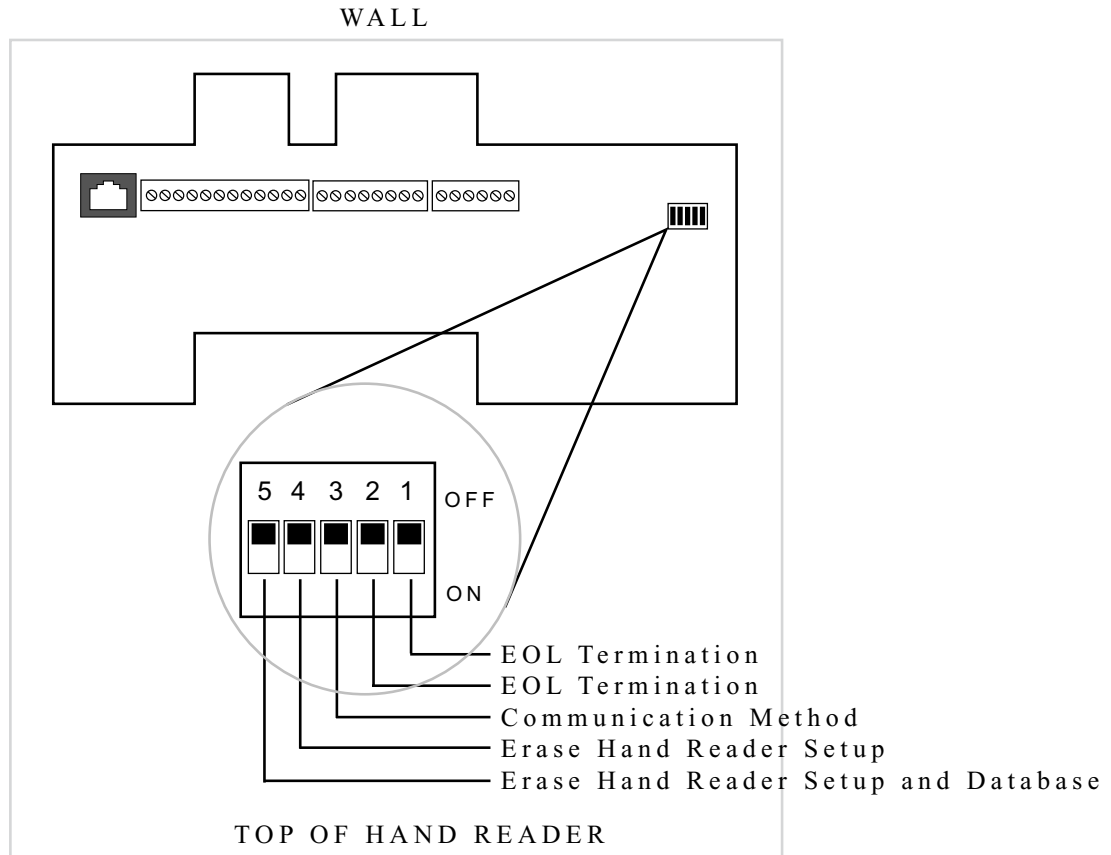


Figure 3-11: Hand Reader Dip Switches

End of Line Termination

The factory default setting is for EOL termination to be disabled – switches 1 and 2 OFF. Refer to Figure 3-11 for switch ON/OFF positioning.

- To enable EOL termination at a Hand Reader, both switches 1 and 2 must be ON.
- To disable EOL termination at a Hand Reader, both switches 1 and 2 must be OFF.
- In a Master/Remote Hand Reader network, the Master reader and the last Remote reader in the daisy-chain must have EOL termination turned ON. All other readers in the network must have EOL termination turned OFF.
- In a Hand Reader/host PC network, a modem/host PC network, and a Ethernet/host PC network, the last Remote reader in the daisy-chain must have EOL termination turned ON.

Communication Method

Communication can be done via an RS-232 direct connection, a 4-wire RS-422 network configuration, or a 2-wire RS-485 network configuration connected to a DC-103 Data Converter. The factory default setting is for network communication via 4-wire RS-422 cabling – switch 3 OFF. Refer to Figure 3-11 for switch ON/OFF positioning.

- For network communication via 4-wire RS-485 (RS-422) cabling, switch 3 must be OFF.
- For network communication via 2-wire RS-485 cabling, switch 3 must be ON.
- For network communication via direct connection, the switch 3 position does not apply. Leave switch 3 in the default OFF position.

NOTE *All Hand Readers in a network must be set to the same communication method. Four-wire RS-422 cabling is required for HandNet for Windows™ network installations. Recognition Systems does not recommend two-wire RS-485 cabling for new network installations.*

Erasing Hand Reader Memory

The erase memory function allows a Hand Reader's setup and/or user database to be erased. The factory default setting (and normal operation setting) is for switches 4 and 5 to be OFF, retaining memory.

Erasing the Hand Reader Setup

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

1. With system power OFF, set switch 4 ON.
2. Turn system power ON and wait 5 seconds.
3. Turn switch 4 OFF.

Erasing the Hand Reader Setup and User Database

Perform the following steps to erase both the setup programs and the user database.

1. With system power OFF, set both switches 4 and 5 ON.
2. Turn system power ON and wait 5 seconds.
3. Turn both switches 4 and 5 OFF.

NOTE *Before putting the hand reader into service ensure DIP switches 4 and 5 are both OFF. If switches 4 and 5 are not off, the next time the Hand Reader's power is cycled the Hand Reader's memory will be erased.*

Closing the Hand Reader

Before closing the Hand Reader, ensure dip switches 4 and 5 are OFF (refer to Figure 3-11). With the wall mount latch in the unlocked position, swing the body of the Hand Reader up and lock the latch into place with the key provided with the Hand Reader (see Figure 3-12).

NOTE Do not force the Hand Reader onto the wall mount latch when the latch is in the locked position.

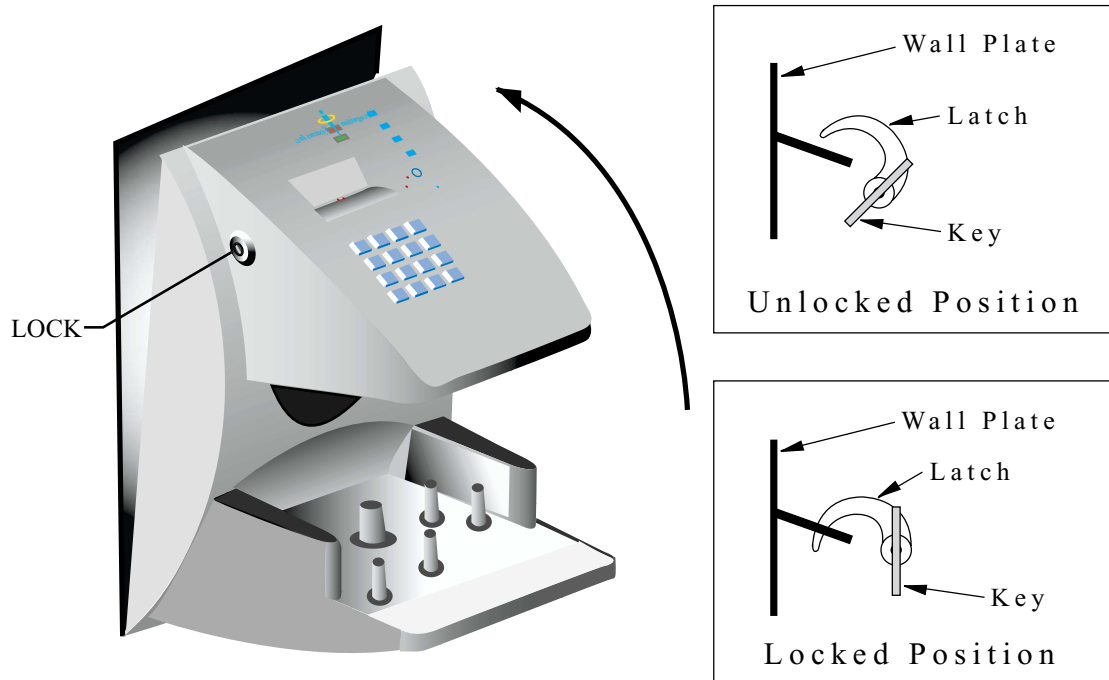


Figure 3-12: Closing the Hand Reader

Powering the Hand Reader

The Hand Reader is powered through the cabling run to the Hand Reader. Apply power via this cabling. The Hand Reader's display lights up. After a several second delay the Hand Reader's display shows the following information.



If the display remains blank, verify the power connections made to the Hand Reader.

Programming the Hand Reader

The Hand Reader is programmed via a series of command menus. A summary of the menus and commands is given in Table 6.

Table 6: Basic Command Mode Structure

Security Menu	Enrollment Menu	Management Menu	Setup Menu	Service Menu
Set User Data	Add User	List Users	Set Language	Calibrate
Set TZ Table	Add/Remove User	Data From Network*	Set Date Format	Status Display
Reject Threshold		Data to Network*	Set Time and Date	Network Status*
Set Passwords			Set Address	
Clear Memory			Set ID Length	
Special Enroll			Set Output Mode	
			Set Facility	
			Lock/Shunt Time	
			Aux Out Control	
			Set Reader Mode	
			Set Serial	
			Set Duress Code	
			Print Options	
			Set Beeper	

* These menu options only appear in Hand Readers configured as “Master.”

Menu Passwords

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 user must enter the correct password for that menu to access that menu. The default menu passwords are given in Table 7.

Table 7: Default Menu Passwords

Menu	Default Password
Security	5
Enrollment	4
Management	3
Setup	2
Service	1

To increase the security of the Hand Reader, 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 with the Set Passwords command described on page 63.

Authority Level

A second method for controlling access to the command menus is through the use of Authority Levels. Authority Levels control which command menus a user is allowed to access; the higher the authority level a user is granted, the greater the number of menus the user may access. Assign Authority Levels to users according to the types of tasks to which they are assigned.

- Level 0 is for a user who does not need access to any of the command menus.
- Level 1 provides access to the Service command menu.
- Level 2 adds access to the Setup command menu to all previous access levels.
- Level 3 adds access to the Management command menu to all previous access levels.
- Level 4 adds access to the Enrollment command menu to all previous access levels.
- Level 5 adds access to the Security command menu to all previous access levels.

The Hand Reader automatically assigns Authority Level 0 to each ID number enrolled. Until a user has been assigned to Authority Level 5, 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 Hand Reader. Once a user has been assigned to Authority Level 5, all other user authority levels are applied as per the list above.

!NOTE *The first person enrolled should be designated the System Administrator and should change his/her Authority Level to 5. This protects the integrity of the system by enacting the Authority Level rules described in the list above. Recognition Systems strongly recommends assigning at least two users to Authority Level 5 to ensure that more than one person has the authority to access all menus and all commands.*

Programming Order

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

Design an ID Numbering System – Define the format for user ID assignments. A properly designed ID numbering system makes the Hand Reader easier and faster to use.

Enter a Command Menu – Enter a Command Menu and begin Hand Reader programming per the commands in that menu.

Enroll all Supervisory Staff – Enroll yourself and the supervisors who will have responsibility for Hand Reader management. This is done through the Enrollment Menu.

Set Supervisory Staff Authority Levels – Assign Authority Levels to the supervisors with specific Hand Reader management responsibilities. This is done through the Security Menu.

Set Reader Site Parameters – Set the reader's Operating Parameters to meet site specific needs and usage. This is done through the Setup Menu.

Train and Enroll Users – Train each user regarding Hand Reader usage and then Enroll each user. This is done through the Enrollment Menu.

System Management and Maintenance

Once a Hand Reader network is in operation the following commands are used to manage and maintain the Hand Reader network.

Set Reader Operating Thresholds – Set the Reject and Number-of-Tries Hand Reader operating thresholds to meet the site's security requirements. This is done through the Security Menu.

System Management – Backup or Restore Hand Reader data and List the Users authorized to use a Hand Reader. This is done through the Management Menu.

System Maintenance – Calibrate the Hand Reader, display Hand Reader Status, and display Network Status. This is done through the Service Menu.

NOTE *For documentation clarity, instructions for operating each of the menu commands are presented in menu order, which is not necessarily programming order. Please keep this in mind as you review the commands for all of the menu options.*

Design an ID Numbering System

The ID numbering system helps identify the user about to use the Hand Reader. ID numbers are used when enrolling users. A properly designed ID numbering system allows for quicker user recognition (through the use of the Set ID Length command) and allows the assigning of a Duress code. A Duress code sends a silent alarm to a pre-defined location when entered by a user. Use the following guidelines when designing an ID numbering system.

NOTE *Designing an ID numbering system is not necessary when using an external card reader to enter the ID number. All ID information is provided by the card.*

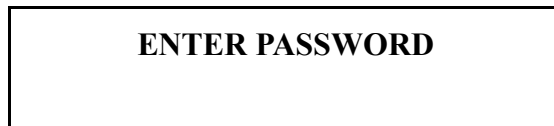
- Each user must have a unique ID number.
- ID numbers can be up to 10 digits long.
- For ease of memorization, make each number as short as possible. Generally speaking, 4 digit or fewer ID numbers are easy to remember.
- Make all ID numbers the same length. This allows the Set ID Length command to be used, automatically reading an ID number when the proper number of digits have been entered. If different ID number lengths are used, a user must press the key to identify when the complete ID number has been entered.
- To use the Duress feature, ID numbers must begin with one specific digit that has been identified as the Duress code and this digit cannot be used as the first digit in any of the user ID numbers. This means that in normal use a user enters his/her ID number followed by the key. To create a Duress alarm, the user enter the Duress code, the user's ID number, and the key. The Set ID Length command cannot be used if the Duress feature is used.

Enter a Command Menu

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

If No One is Enrolled in the Hand Reader

1. The display appears as follows.



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.

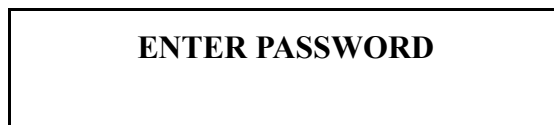
3. Press **ENTER** and the first command option in the selected menu appears.

If Users are Enrolled in the Hand Reader

1. The display appears as follows.



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.



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 appears as follows.

READY
*:

!NOTE

To access all five menus you must be the first person enrolled in a new system installation or you must have the highest authority level and the correct passwords for all five menus. If you are blocked from a menu to which you should have access, verify your access/password rights with management personnel. If authority levels or passwords have been incorrectly changed and you must have access to all menus, it is possible to reset the Hand Reader's memory. Resetting memory allows access to all five menus by the first person enrolled (as if it is a new system installation), but this means that any user information programmed into the Hand Reader must be re-entered (manually or by using HandNet software to restore the user information). Be sure you need to reset memory before performing this function. To reset memory, refer to the Erasing Hand Reader Memory section on page 35.

Security Menu

The Security menu has six commands. These commands control the security of the Hand Reader and the sensitivity of the Hand Reader when reading hands.

Set User Data – Set the User Authority level controlling which command menus a user is allowed to access, Set the User Reject Threshold adjusting the hand read threshold for one Hand Reader without affecting the threshold of others, and Set the User Time Zone.

Set TZ Table – Set, examine, print, or clear Time Zone or Holiday table values and set an Unlock Time Zone value.

Reject Threshold – Set the Hand Reader's Reject Sensitivity level applied to all users when reading hand data and Set the Number of Retries a user is allowed before being rejected by a Hand Reader.

Set Passwords – Change the passwords assigned to each of the five command menus.

Clear Memory – Clear the user data from the system, but retain the setup data.

Special Enroll – 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.

The following sections describe all the Security menu options. All commands are described in the order they are accessed. Locate the command you need to perform and step through all previous commands until you reach the desired command.

Set User Data

The Set User Data command allows you to set the User Authority level, the User Reject Level, and the User Time Zone.

- The Authority Level controls which command menus a user is allowed to access; the higher the authority level, the greater the number of menus the user may access.
- The User Reject level allows you to set the number of failed hand read attempts for a user before rejecting further attempts by that user.
- The User Time Zone allows you to assign a time zone to a user, restricting the time-of-day that a user may be granted access.

Set User Authority Level

In the following example a user with ID # 321 is assigned Authority Level 4.

1. Enter the Security command menu per the instructions in the Enter a Command Menu section earlier in this Manual. The default password for the Security menu is “5.” When you enter the Security command menu the display appears as follows.

SET USER DATA
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Set TZ Table command.
– or –
4. Press **#** to Set User Data. The display appears as follows.

SET USER AUTH?
***NO YES#**

5. Press ***** to skip to the Set User Reject command.
– or –
6. Press **#** to Set User Authority. The display appears as follows.

ID# ?
#:

7. Enter the user's ID #. Press **3** **2** **1** **#**. The display shows the current authority level for this user.

AUTH(0) ?:

8. Enter the new authority level. Press **4** **#**. The display appears as follows.

ID# ?

9. To enter a new authority level for another user, return to Step 6 but enter the next user's ID #.
– or –
10. Press **#** to step to the Set User Reject Level command.
– or –
11. Press **5** to exit command mode.

Set User Reject Level

In the following example the reject level for the user with ID # 123 is set to 5.

1. When you enter the Set User Reject Level command the display appears as follows.

SET USER REJECT?
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Set User Time Zone command.
– or –
4. Press **#** to Set User Reject. The display appears as follows.

ID#?
#:

5. Enter the user's ID number. Press **1** **2** **3** **#**. The display shows the current reject level for this user.

REJ. AT (0)?

6. Enter the new reject level for this user. Press **5** **#**. The display appears as follows.

ID#?
#:

7. To enter a new reject level for another user, return to Step 5 but enter the next user's ID #.
– or –
8. Press **#** to step to the Set User Time Zone command.
– or –
9. Press **5** to exit command mode.

Set User Time Zone

In the following example the time zone for the user with ID # 123 is set to 12.

1. When you enter the Set User Time Zone command the display appears as follows.

SET USER TZ?
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to return to the Set User Authority Level command at the beginning of this command menu.
– or –
4. Press **#** to Set User Time Zone. The display appears as follows.

ID#?
#:

5. Enter the user's ID number. Press **1** **2** **3** **#**. The display shows the current time zone assigned to this user.

NEW TZ (0)?

6. Enter the new time zone for this user. Press **1** **2** **#**. The display appears as follows.

ID#?
#:

7. To enter a new time zone for another user, return to Step 5 but enter the next user's ID #.
– or –
8. Press **#** to return to the Set User Authority Level command at the beginning of this command menu.
– or –
9. Press **5** to exit command mode.

Set TZ Table

The Set TZ Table command allows you to create or edit Time Zone and Holiday tables. A time zone is an identified period-of-time and days-of-the-week, during which a user is allowed access to an area secured by a Hand Reader. Once a user is assigned a Time Zone (refer to the Set User Time Zone command on page 48), access attempts outside of that time/date period are rejected by the Hand Reader.

A time zone may be “split.” This means that a time zone may identify more than one set of period-of-time and days-of-the-week – up to four sets in one time zone. This provides a great deal of flexibility in providing secured access through a Hand Reader.

Time Zone information can also be printed for review or cleared if a time zone becomes unnecessary.

!NOTE *All time entries made for time zones are entered in 24-hour format. For example, 8 A.M. is entered as 08:00, 5 P.M. is entered as 17:00, and 11 P.M. is entered as 23:00.*

The Holiday schedule for a calendar year can be entered. Once a holiday schedule is set, holidays are applied to time zones just like another day of the week (1 to 7 for the days of the week, 8 for holidays). Once entered, the holiday schedule can be printed for review and cleared.

!NOTE *Certain holidays, such as Easter and Thanksgiving, change their days from year to year. You must review and edit your holiday schedule each year to ensure the correct days are counted as holidays.*

An Unlock Time Zone can also be set. The unlock time zone is a special time zone that automatically unlocks the door associated with a Hand Reader when the time zone is active, and then automatically locks that door when the time zone becomes inactive. This can be used on doors where general access is allowed during specific times of the day (such as business hours).

Edit Time Zone

The following example sets time zone 2 to allow access from 08:00 to 17:00 hours on Mondays, Wednesdays, and Holidays.

1. When you enter the Edit Time Zone command the display appears as follows.

EDIT TZ's
***NO YES#**

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Print Time Zone command.
– or –
4. Press **#** to edit a time zone. The display appears as follows.

TIME ZONE #?:

5. Enter the time zone to be edited. For this example, press **2** **#**. The display appears as follows, showing current information for time zone 2, split 1 (TZ2-1).

TZ2-1
ON00:00 OFF:00:00

6. For split 1, information can be entered immediately. To enter time zone information for splits 2, 3, or 4, press ***** until the desired split number appears on the display.
7. Each day-of-the-week is represented by a number. Refer to Table 8 and enter the days to be applied to the time zone. For Monday, Wednesday, and Holiday, press **2** **4** **8** **#**.

Table 8: Time Zone Days-of-the-Week

Day	Number
Sunday	1
Monday	2
Tuesday	3
Wednesday	4
Thursday	5
Friday	6
Saturday	7
Holiday	8

8. The display appears as follows.

TZ2-1 2 4 8 ON00:00 OFF:00:00
--

9. Now set the 8 A.M. to 5 P.M. start and stop times for time zone 2.

For the start time of 08:00, press .

For the stop time of 17:00, press .

The display appears as follows.

TZ2-1 2 4 8 ON08:00 OFF:17:00
--

10. Press to record the time zone. The display clears to prepare for the next split.

TZ2-2 ON00:00 OFF:00:00
--

11. The reader is now ready for information to be entered for split 2.

12. To enter time zone information for split 2, return to Step 6.
– or –
13. To enter time zone information for another split, press until the desired split number appears on the display, then return to Step 6.
– or –
14. To edit a different time zone, press until the enter time zone request (shown below) appears on the display. Return to Step 4.
– or –
15. To exit the Set Time Zone command, press until the enter time zone request (shown below) appears on the display. Press .

TIME ZONE #?:

Print Time Zone

1. When you enter the Print Time Zone command the display appears as follows.

<p style="text-align: center;">PRINT TZ's *NO YES#</p>
--

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Clear Time Zone command.
– or –
4. Press **#** to print a time zone. The time zone data is sent to the serial printer connected to the master Hand Reader and the display steps to the Clear Time Zone command.

Clear Time Zone

The following section provides an example of clearing time zone 2.

1. When you enter the Clear Time Zone command the display appears as follows.

CLEAR TZ's
***NO YES#**

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Edit Holidays command.
– or –
4. Press **#** to clear a time zone. The display appears as follows.

TO CLEAR ENTER
123# ELSE #?:

5. Press **#** to skip to the Edit Holidays command without clearing a time zone.
– or –
6. To ensure you want to clear a time zone, a prefix must be entered before the time zone is entered. To clear a time zone, enter the prefix followed by the time zone.
To clear time zone 2, press **1 2 3 # 2**. The time zone is cleared and the display steps to the Edit Holidays command.

Edit Holidays

Months are identified numerically, where January = 1 through December = 12. The following section provides an example of entering December 24 and 25 as holidays.

1. When you enter the Edit Holidays command the display appears as follows.

EDIT HOLIDAYS
***NO YES#**

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Print Holidays command.
– or –
4. Press **#** to edit holidays. The display appears as follows.

MONTH (1-12)
?:

5. Press **1 2 #**. The display appears as follows.

DEC

6. Press **2 4 #**. The display appears as follows.

DEC
24

7. Press **2 5 #**. The display appears as follows.

DEC
24 25

8. Press **#**. The display steps to the Print Holidays command.

Print Holidays

1. When you enter the Print Holidays command the display appears as follows.

<p style="text-align: center;">PRINT HOLIDAYS *NO YES#</p>

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Clear Holidays command.
– or –
4. Press **#** to print holidays. The holiday data is sent to the serial printer connected to the master Hand Reader and the display steps to the Clear Holidays command.

Clear Holidays

When you clear holidays, you clear all holidays in a month. That means that if any holidays should be in that month, they must be reentered (see the Edit Holidays command on page 56).

1. When you enter the Clear Holidays command the display appears as follows.

CLEAR HOLIDAYS
***NO YES#**

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to skip to the Set Unlock Time Zone command.
– or –
4. Press **#** to clear holidays. The display appears as follows.

TO CLEAR ENTER
123# ELSE #?:

5. Press **#** to skip to the Set Unlock Time Zone command without clearing a holiday.
– or –
6. To ensure you want to clear a holiday, a prefix must be entered before the holiday month is entered. To clear a holiday month, enter the prefix followed by the number corresponding to the month. To clear December holidays, press **1 2 3 # 1 2**. All the holidays in the month are cleared and the display steps to the Set Unlock Time Zone command.

Set Unlock Time Zone

1. When you enter the Set Unlock Time Zone command the display appears as follows.

SET UNLOCK TZ
***NO YES#**

2. Press **5** to exit to the Set TZ Table command.
– or –
3. Press ***** to return to the Edit Time Zone command at the beginning of this command menu.
– or –
4. Press **#** to set an unlock time zone. The display appears as follows.

UNLOCK TZ IS ##
NEW TZ?:

5. Press **#** to exit without changing the unlock time zone.
6. Enter the new time zone to be applied. For example, press **4** **2** to set time zone 42 as the unlock time zone. The display returns to the Edit Time Zone command at the beginning of this command menu.

Reject Threshold

Use the Reject Threshold command to set the Hand Reader's reject sensitivity level applied when reading hand data and to set the number of tries a user is allowed before being rejected by a Hand Reader.

The reject sensitivity level and number of tries are global values. This means that these values are applied to all users on all Hand Readers on the network – except for those users who have been assigned an individual user reject level (refer to the Set User Reject Level command on page 46).

The default reject threshold is 100. This is the best threshold value for most applications.

- Raising the threshold level makes the Hand Reader less sensitive to variations in user hand placement on the platen.
- Lowering the threshold level might result in a greater number of rejected attempts, but also results in a more secure system.

The default number of tries is 3. If a user exceeds the number of tries without a valid hand read, the Hand Reader will refuse all subsequent attempts with that user ID number. This means the user will be locked out until another user is verified successfully.

The following instructions demonstrate how to set the Reject Threshold to 105 and the number of tries to 4.

1. When you enter the Reject Threshold command the Hand Reader's display appears as follows.

REJECT THRESHOLD
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Set Passwords command.
– or –
4. Press **#** to set the Reject Threshold. The display appears as follows.

REJECTS AT 100
NEW?:

5. Press **1** **0** **5** **ENTER** to set the Reject Threshold at 105. The display appears as follows.

OF TRIES 3
NEW?:

6. Press **4** **ENTER** to set the number of tries at 4. The display appears as follows.

REJECT THRESHOLD
***NO YES#**

7. Press **5** to exit command mode.
– or –
8. Press ***** to step to the Set Passwords command.

Set Passwords

Use the Set Passwords command to change the passwords assigned to each of the five command menus. To increase the security of the Hand Reader, the password for any or all menus can be changed to a new number, up to 10 digits long. This means that to enter a command menu, a user must have the correct Authority Level (refer to page 44) and must enter the correct password.

The following instructions demonstrate how to set the Security Mode password to 6225.

1. When you enter the Set Password command the Hand Reader's display appears as follows.

SET PASSWORDS
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Clear Memory command.
– or –
4. Press **#** to set Passwords. The display appears as follows.

SECURITY MODE PW
?

5. Press **#** to keep the existing password and skip to the next password entry.
– or –
6. Press **6 2 2 5 #** to set the new Security Mode password. The display appears as follows.

ENROLL MODE PW
?

7. Press **#** to keep the existing password and skip to the next password entry.
– or –

8. Press the desired digits followed by **#** to set the new Enrollment Mode password. The display appears as follows.

MNGMNT. MODE PW
?

9. Press **#** to keep the existing password and skip to the next password entry.
– or –

10. Press the desired digits followed by **#** to set the new Management Mode password. The display appears as follows.

SETUP MODE PW
?

11. Press **#** to keep the existing password and skip to the next password entry.
– or –

12. Press the desired digits followed by **#** to set the new Setup Mode password. The display appears as follows.

SERVICE MODE PW
?

13. Press **#** to keep the existing password and skip to Step 14.
– or –

14. Press the desired digits followed by **#** to set the new Setup Mode password.
15. The display appears as follows.

SET PASSWORDS
***NO YES#**

16. Press **5** to exit command mode.
– or –

17. Press ***** to step to the Clear Memory command.

Clear Memory

Use the Clear Memory command to clear the user data from the Hand Reader, but retain the setup data. This allows you to clear the Hand Reader's user database of all templates and ID numbers, but retain all Hand Reader setup information. Typically, this is done when moving the Hand Reader to a new location with different users but the same setup requirements.

NOTE Use this command with caution. Once user data is cleared from the Hand Reader's memory the user data is not recoverable.

1. When you enter the Clear Memory command the Hand Reader's display appears as follows.

CLEAR MEMORY
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Special Enroll command.
– or –
4. Press **#** to Clear Memory. The display appears as follows.

TO CLEAR ENTER
123 ELSE #?

5. Press **1 2 3 #** to clear the user data from the Hand Reader's memory. The display appears as follows.

CLEAR MEMORY
***NO YES#**

6. Press **5** to exit command mode.
– or –
7. Press ***** to step to the Special Enroll command.

Special Enroll

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 also be applied to the Special Enrollment ID number to increase access limits. The default is for no time zone to be applied.

NOTE *Special Enrollment affects the integrity of the Hand Reader network and should only be used as a last resort. Anyone 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 61).*

The following instructions demonstrate how to set a Special Enrollment ID number of 987 and a Time Zone of 4.

1. When you enter the Special Enroll command the Hand Reader's display appears as follows.

SPECIAL ENROLL
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to return to the Set User Data command at the beginning of this command menu.
– or –
4. Press **#** for Special Enrollment. The display appears as follows.

ID#?

5. Press **9 8 7 #** to enter the Special Enrollment ID number. The display appears as follows.

ENTER TIME ZONE
(0)?:

6. Press **#** to keep the default value of no assigned time zone.
– or –
7. Press **4** **#** to enter the new time zone.
8. The display appears as follows.

SPECIAL ENROLL
***NO YES#**

9. Press **5** to exit command mode.
– or –
10. Press ***** to return to the Set User Data command at the beginning of this command menu.

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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 Hand Reader has access to all command menus. This person should be considered the System Administrator and should retain the highest authority level to access all five menus at any time¹. As other users are enrolled they can be left as basic access users or they can be assigned varying degrees of authority depending upon the tasks for which they will be responsible.

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 Hand Reader before you enroll them.

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 advance².
- The Hand Reader 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 plan to use the Duress function, do not enroll ID numbers that begin with the Duress code digit³.
- 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 dealer.

User Education

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

- The Hand Reader 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 verify the user's identity.

-
1. Refer to the [Set User Data > Set Authority Level](#) command in the Security command menu on page 44.
 2. Refer to the [Design an ID Numbering System](#) section on page 40.
 3. Refer to the [Set Duress Code](#) command in the Setup command menu on page 113.

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.

- 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.

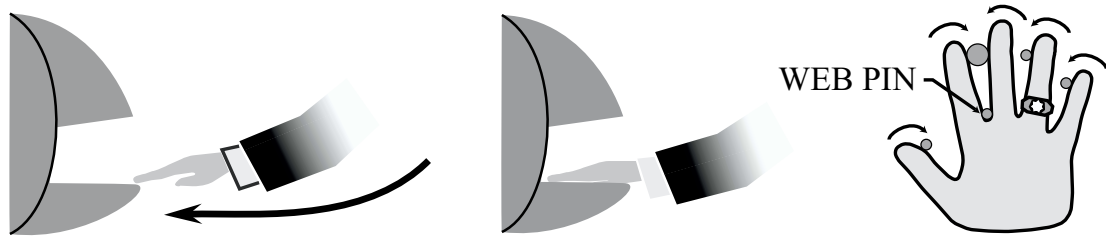


Figure 6-1: Placing Your Hand on the Platen

Left Hand Enrollment

Some right hands are not suitable for use in the Hand Reader 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 Hand Reader a number appears in the display.



The number on the display reflects how accurately the user is placing his/her hand 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 sensitivity if the user has a mild disability. Re-enrollment might be necessary to create a new user template.

Enrollment Commands

The following sections describe all the Enrollment menu commands. All commands are described in the order they are accessed. The following commands are in the Enrollment menu.

- Add User
- Remove User

Locate the command you need to perform and step through all previous commands until you reach the desired command.

Add User

The following instructions demonstrate how to enroll (add) a user, assigning that user ID number 123.

1. Enter the Enrollment command menu per the instructions in the Enter a Command Menu section above. The default password for the Enrollment menu is “4.” When you enter the Enrollment command menu the Add User option appears on the display.

ADD USER
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Remove User command.
– or –
4. Press **#** to Add a User. The ID number request appears on the display.

ID#?
:

5. Enter the user’s ID. For this example, press **1** **2** **3** **#**. The Place Hand request appears on the display.

PLACE HAND
1/3

6. Place your hand on the platen per the guidelines for proper hand placement given in the Proper Hand Placement section above. When the hand placement guidelines are met, the Hand Reader reads the hand. When the read is complete the Remove Hand request appears on the display.

REMOVE HAND

7. As prompted, repeat Step 5 twice so that 3 quality hand reads can be recorded by the Hand Reader. Once the third read is complete the User Enrolled message appears on the display.

123
USER ENROLLED

!NOTE *In some cases the Hand Reader may require more than 3 hand reads. If this is the case, simply repeat Step 5 as requested until the User Enrolled message appears on the display.*

8. After a short delay the Add User option reappears on the display.

ADD USER
***NO YES#**

9. Press **5** to exit command mode.
– or –
10. Press **#** to enroll another user. Repeat this procedure beginning at Step 3.
– or –
11. Press ***** to step to the Remove User command.

Remove User

Use the Remove User command to remove a user that has been entered incorrectly or needs to be removed from the Hand Reader system.

NOTE *Once a user has been removed from the Hand Reader, that user no longer has access through the door controlled by that Hand Reader. To be granted access again, that user must be re-enrolled.*

The following instructions demonstrate how to remove a user with ID number 321.

1. When you enter the Remove User command the Hand Reader's display appears as follows.

REMOVE USER
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to return to the Add User command at the beginning of this command menu.
– or –
4. Press **#** to enter the Remove ID # command. The Remove ID # request appears on the display.

REMOVE ID #
:

5. Enter the user's ID. For this example, press **3** **2** **1** **#**. The Remove ID # request appears on the display again.
6. The User Removed message appears briefly on the display.

USER REMOVED

7. After a short delay the Remove ID # request reappears on the display.

REMOVE ID #
:

8. To remove more users from the system repeat this procedure beginning at Step 3.
– or –
9. Press **#** (with no ID number) to exit the Remove ID # command. The Remove User command appears on the display.

REMOVE USER
***NO YES#**

10. Press **5** to exit command mode.
– or –
11. Press **#** to return to the Remove User command. Repeat this procedure beginning at Step 4.
– or –
12. Press ***** to return to the Add User command at the beginning of this command menu.

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Management Menu

The Management menu has three commands for managing user data in a Hand Reader and in a Hand Reader network.

List Users – Display or print a list of all the users enrolled in a Hand Reader.

Data From Network – Upload data from the network to the master Hand Reader.

Data To Network – Download data from a master Hand Reader to the network.

The following sections describe all the Management menu options. All commands are described in the order they are accessed. Locate the command you need to perform and step through all previous commands until you reach the desired command.

List Users

The List Users command displays or prints a list of all the users enrolled in a Hand Reader. The list is shown, one user at a time, on the Hand Reader's display, or it is printed by a serial printer attached to the Hand Reader being polled or to a printer attached to the Master Hand Reader in a Hand Reader network. Before displaying the user list, the amount of memory available for enrolling more users is displayed.

The following instructions demonstrate how to generate a Hand Reader's user list.

1. Enter the Management command menu per the instructions in the Enter a Command Menu section earlier in this Manual. The default password for the Management menu is "3." When you enter the Management command menu the List Users command appears on the display.

LIST USERS
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Data From Network command (if the Hand Reader is the master Hand Reader in a network).
– or –
4. Press **#** to List Users. The Hand Reader's display appears as follows.

0 - DISPLAY
1 - PRINT

5. Press **0** to list the users on the Hand Reader's display.
6. Press **1** to list the users on the serial printer.
7. The memory available for enrolling more users is displayed on the Hand Reader's display or is printed at the serial printer.

USER SPACE XXX

8. Press **#** to step to the first user enrolled in the Hand Reader. The first user's data is shown on the display.

**(ID) (REJ) (AUTH)
(TZ) MORE (#Y / *N)**

9. Press **#** to step to the next user in the list.
– or –
10. Press ***** to stop displaying the user list. The following appears on the display.

DONE. PRESS KEY

11. Press ***** to exit the User List command. The following appears on the display.

**LIST USERS
*NO YES#**

12. Press **5** to exit command mode.
– or –
13. Press ***** to step to the Data From Network command.
– or –
14. Press **#** to return to the List Users command. Repeat this procedure beginning at Step 4.

Data From Network

The Data from Network command allows the master Hand Reader to receive information from a Hand Reader on the network. This is used to transmit user enrollment and system configuration information from an existing Hand Reader to the master Hand Reader.

The following instructions demonstrate how to transmit data from a Hand Reader on the network to the master Hand Reader.

1. When you enter the Data from Network command the display appears as follows.

DATA FRM NETWORK
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Data to Network command.
– or –
4. Press **#** to receive Data from the Network. The display appears as follows.

READER:?

5. Enter the address of the Hand Reader from which data should be received. For example, to receive data from the Hand Reader with address 2, press **2**
ENTER.
6. The display appears as follows.

SENDING BANK 0

7. The number of banks of data sent to the master Hand Reader depends upon the amount of data stored in the selected reader – the more the data, the greater the number of banks of data. When complete, the Data from Network command reappears on the display.

DATA FRM NETWORK
***NO YES#**

8. Press **5** to exit the command menu.
– or –
9. Press ***** to step to the Data to Network command.

Data To Network

The Data to Network command transmits all data held by the master Hand Reader to all Hand Readers connected to the network. This is used to transmit user enrollment and system configuration information to all Hand Readers on the network.

The following instructions demonstrate how to transmit data from the master Hand Reader to the reader network.

1. When you enter the Data to Network command the display appears as follows.

DATA TO NETWORK
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to return to the List Users command at the beginning of this command menu.
– or –
4. Press **#** to transfer Data to the Network. The display appears as follows.

TO ALL RDRS
***NO YES#**

5. Press **#** to transfer data to all Hand Readers on the network. Skip to Step 8.
– or –
6. Press ***** to transfer data to one Hand Reader on the network. Typically, this is done when a new Hand Reader is added to an existing network. The display appears as follows.

READER:?

7. Enter the address of the Hand Reader to which data should be sent. For example, to send data to the Hand Reader with address 2, press **2** **ENTER**.
8. The display appears as follows.

SENDING BANK 0

9. The number of banks of data sent to the Hand Readers on the network depends upon the amount of data stored in the master Hand Reader – the more the data, the greater the number of banks of data. When complete, the Data to Network command reappears on the display.

DATA TO NETWORK
***NO YES#**

10. Press **5** to exit the command menu.
– or –
11. Press ***** to return to the List Users command at the beginning of this command menu.

Set Reader Site Parameters

The following section provides a brief summary of all the parameters that need to be set for the Hand Reader site. Programming instructions are provided following this summary.

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.*

Set Language – allows the language shown on the Hand Reader’s display to be “localized” for a variety of countries.

Set Date Format – allows the date format shown on the Hand Reader’s display to be “localized” for a variety of countries.

Set Time and Date – allows the Hand Reader’s time and date to be set. If the Hand Reader is networked to a PC, this step is not necessary as the Hand Reader’s time and date will be set by the host computer.

NOTE *Stand-alone Hand Readers and Hand Readers on a master/remote Hand Reader network require adjustment for the daylight savings time changes. Hand Readers networked to a host PC do not require adjustment as the host PC automatically makes the adjustment.*

Set Address – allows a unique address to be set for each Hand Reader in a network. For proper operation, each Hand Reader in the network must have a unique address. Addresses 0 to 254 are available – address 255 is reserved for the master Hand Reader in a network. The default address is 0. An address does not need to be set for stand-alone Hand Readers.

Set ID Length – 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, when a user enters an ID number the Hand Reader will automatically accept that number once the correct number of characters have been entered. Set ID Length does not apply when ID entry is made from a card reader. Set ID Length cannot be used if a Duress Code has been assigned.

Set Output Mode – allows either of two output modes to be set. Outputs are pulled to ground when activated.

- Lock/Aux for Hand Readers acting as door controllers
- Card Reader Emulation for Hand Readers outputting to an access control panel

Set Facility – allows the facility code to be entered in Hand Readers configured for card reader emulation output mode. A facility code is not valid or required for Hand Readers configured in Lock/Aux output mode.

!NOTE *When using a HandKey II on a Wiegand format access control panel and a keypad is used for ID entry, you must set the site code to the access control panel's facility code. Without a matching code the access control panel will deny access to HandKey users.*

Set Lock and Shunt – allows the time that the door lock output is activated and the door alarm is shunted to be set. It also allows the auxiliary keypad to be used for user ID entry. The Lock time is the number of seconds the lock output is active (door is unlocked) following user verification. The Lock time is only valid when the Hand Reader is set to the Lock & Aux output mode. The Shunt time is the number of seconds the door may be held open before an alarm is generated. Lock and Shunt times are not required for Hand Readers configured in Card Reader Emulation output mode.

Aux Out Control – allows the Auxiliary Outputs in the Hand Reader to be set to trigger based on selected events. Alarms can be mapped to appropriate Auxiliary Outputs. Outputs are also cleared in this menu option. In the Lock and Shunt mode, all three Auxiliary Outputs are available. In the Card Reader Emulation mode, Auxiliary Outputs 1 and 2 are available.

Set Reader Mode – allows a Hand Reader to be set as the Master Hand Reader in a Hand Reader network. All user enrollment is done through the Master Hand Reader. The Master Hand Reader automatically downloads user data to all remote Hand Readers on the network. The Reader Mode does not need to be set for stand-alone Hand Readers and PC networks.

Set Serial – allows you to select either the RS-485/RS-422 or RS-232 communication mode and to set the baud rate for the selected communication mode. The default baud rate is 9600 bps which is suitable for most network communication applications. If the Hand Reader uses the Ethernet communication option, the TCP/IP address and gateway parameters are set instead of the baud rate.

Set Duress Code – allows a special digit code to be defined that, when entered before a user's PIN entry, sends a silent alarm to security personnel using an auxiliary output. This function only works with keypad ID number entry systems – it does not work with Card Reader entry systems. If a Duress Code is set, an ID Length cannot be set by the Set ID Length command.

!NOTE *For this function to work properly the following must be true: an auxiliary output must be defined to activate on DURESS and assigned ID numbers cannot begin with the duress code number.*

Set Printer Options – disables the printing of the “Valid Access” event message. The Valid Access event message is the most frequently printed event. If a printer is connected to the RS-232 serial port, it prints all events in real-time. This means the printer will print a message for every Valid Access event unless disabled here.

Set Beeper – allows the beeper to be enabled or disabled. When enabled, the beeper sounds an audible response to key strokes and events.

Setup Menu

The following sections describe all the Setup menu options that need to be set for standard Hand Reader operation. All commands are described in the order they are accessed. The following commands are in the Setup menu.

- Set Language
- Set Date Format
- Set Time and Date
- Set Address
- Set ID Length
- Set Output Mode
- Set Facility
- Lock/Shunt Time
- Aux Out Control
- Set Reader Mode
- Set Serial
- Set Duress Code
- Print Options
- Set Beeper

Locate the command you need to perform and step through all previous commands until you reach the desired command. For a first time setup, all Setup menu options need to be addressed (either by leaving the default values or entering new values).

Set Language

The default language is English. The following languages are available.

French	Japanese
German	Portuguese
Indonesian	Russian
Italian	Spanish

1. Enter the Setup command menu per the instructions in the Enter a Command Menu section earlier in this Manual. The default password for the Setup menu is “2.” When you enter the Setup command menu the Set Language command appears on the display.

SET LANGUAGE
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current language and skip to the Set Date Format command.
– or –
4. Press **#** to Set a Language. The current language appears on the display.

(LANGUAGE NAME)
***NO YES#**

5. Press ***** to step through the list of available languages until the desired language appears on the display, then press **#** to select the language. The display returns to the start of the Set Language command with the text displayed in the selected language.

(SET LANGUAGE)
***NO YES#**

6. Press ***** to step to the Set Date Format command.
– or –
7. Press **5** to exit command mode.

Set Date Format

The default date format is the U.S. standard date format – MM/DD/YY. The following date formats are available.

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

1. When you enter the Set Date Format command the display appears as follows.

SET DATE FORMAT
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current date format and skip to the Set Time and Date command.
– or –
4. Press **#** to Set the Date Format. The current date format appears on the display.

MM/DD/YY
***NO YES#**

5. Press ***** to step through the list of available date formats until the desired date format appears on the display, then press **#** to select the date format. The display returns to the start of the Set Date Format command.

SET DATE FORMAT
***NO YES#**

6. Press ***** to step to the Set Time and Date command.
– or –
7. Press **5** to exit command mode.

Set Time and Date

Time is kept using a 24-hour clock. The time is set in the following format.

Hour: two digits – 00 to 23

Minute: two digits – 00 to 59

The date is set in the following format.

Month: two digits – January = 01, incrementing to December = 12

Day: two digits – 01 through 31

Year: two digits – enter the last two digits of the current year (i.e. 2001 = 01)

The following instructions demonstrate how to set the time and date to October 9, 2001 at 2:45 P.M.

1. When you enter the Set Time & Date command the display appears as follows.

SET TIME & DATE
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current time and date, and skip to the Set Address command.
– or –
4. Press **#** to Set the Time and Date. The current month appears on the display.

MONTH MM?

5. Press **1** **0** **#** to set the month to October. The current day now appears on the display.

DAY DD?

6. Press **0** **9** **#** to set the day to the 9th. The current year now appears on the display.

YEAR YY?

7. Press **0** **1** **#** to set the year to 2001. The current hour now appears on the display.

HOUR HH?

8. Press **1** **4** **#** to set the hour to 2 P.M. The current minute now appears on the display.

MINUTE MM?

9. Press **4** **5** **#** to set the minute to 45. The display returns to the start of the Set Time & Date command.

SET TIME & DATE
***NO YES#**

10. Press ***** to step to the Set Address command.
– or –
11. Press **5** to exit command mode.

Set Address

You must set the Hand Reader address if the Hand Reader is connected to a master/remote Hand Reader network or to a Hand Reader network connected to a host PC (stand-alone Hand Readers do not require an address). Addresses 0 to 254 are available – address 255 is reserved for the master Hand Reader in a network. Each Hand Reader on a network must have a unique address. The default address for all Hand Readers is 0.

The following instructions demonstrate how to change the Hand Reader's address from the default address of 0 to address 2.

1. When you enter the Set Address command the display appears as follows.

SET ADDRESS
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current address and skip to the Set ID Length command.
– or –
4. Press **#** to Set the Reader Address. The current address appears on the display.

RDR ADD IS 0
NEW?

5. Press **2** **#** to set the Hand Reader address to 2. The display returns to the start of the Set Address command.

SET ADDRESS
***NO YES#**

6. Press ***** to step to the Set ID Length command.
– or –
7. Press **5** to exit command mode.

Set ID Length

Set the ID Length to the number of digits in the longest ID number. This command is unnecessary (and should be left at its default value) if ID entry is made from a card reader. The ID Length should not be set if a Duress Code is being assigned (see page 113). The default value for ID Length is 10.

*NOTE: Users assigned ID numbers shorter than the number of digits in the longest ID number must press **#** following their ID entry to indicate the complete entry has been made.*

The following instructions demonstrate how to change the Hand Reader's ID length from the default of 10 digits to 4 digits.

1. When you enter the Set ID Length command the display appears as follows.

SET ID LENGTH
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current ID Length and skip to the Set Output Mode command.
– or –
4. Press **#** to Set the ID Length. The current ID Length appears on the display.

LENGTH IS 10
NEW?

5. Press **4 #** to set the ID length to 4. The display returns to the start of the Set ID Length command.

SET ID LENGTH
***NO YES#**

6. Press to step to the Set Output Mode command.
– or –
7. Press to exit command mode.

Set Output Mode

Lock and Auxiliary Output and Card Reader Output are the two output mode choices. The selected mode is applied to Output 0. Lock and Auxiliary Output mode is the default setting.

1. When you enter the Set Output Mode command the display appears as follows.

SET OUTPUT MODE
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Output Mode and skip to the Set Facility command.
– or –
4. Press **#** to Set the Output Mode. The current Output Mode appears on the display.

FOR LOCK & AUX
***NO YES#**

5. Press **#** to keep the current Output Mode and skip to the next command.
– or –
6. Press ***** to change to Card Reader Output Mode. The new Output Mode appears on the display.

FOR CARD RDR OUT
***NO YES#**

7. Press **#** to step to the Set Facility command.
– or –
8. Press **5** to exit command mode.

Set Facility

Set the Facility Code to match the code expected by the access control panel. This command is unnecessary (and should be left at its default value) if the output mode is set to Lock and Auxiliary Output Mode. The default facility code value is 50.

The following instructions demonstrate how to change the Hand Reader's facility code to 125.

1. When you enter the Set Facility command the display appears as follows.

SET FACILITY
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Facility Code and skip to the Set Lock and Shunt command.
– or –
4. Press **#** to Set the Facility Code. The current Facility Code appears on the display.

SITE CODE: 50
NEW?

5. Press **1 2 5 #** to set the facility code to 125. The display returns to the start of the Set Facility command.

SET FACILITY
***NO YES#**

6. Press ***** to step to the Set Lock and Shunt command.
– or –
7. Press **5** to exit command mode.

Set Lock and Shunt

Set the Lock time and the Shunt time to desired values, and set the Auxiliary Keypad to allow entry when the user's ID number is entered. If the Auxiliary Keypad is enabled, you have the option to set if the time zone assigned to a user should apply when the user's ID number is entered at the Auxiliary Keypad (the user will only be granted entry if the access request meets time zone guidelines).

This command is unnecessary (and should be left at its default values) if the output mode is set to Card Reader Output Mode. The default Lock time is 5 seconds. The default Shunt time is 10 seconds. The default Auxiliary Keypad value is to not allow entry when the user's ID number is entered.

The following instructions demonstrate how to change the Lock time to 7 seconds, the Shunt time to 12 seconds, and to allow entry when the user's ID number is entered.

1. When you enter the Set Lock and Shunt command the display appears as follows.

LOCK/SHUNT TIME
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Lock, Shunt, and Auxiliary Keypad values and skip to the Aux Out Control command.
– or –
4. Press **#** to Set the Lock and Shunt times and Auxiliary Keypad value. The current Lock time appears on the display.

LOCK IS 5 SEC.
NEW TIME?

5. Press **7 #** to set the Lock time to 7 seconds. The current Shunt time appears on the display.

SHUNT IS 10 SEC.
NEW TIME?

6. Press **1** **2** **#** to set the Shunt time to 12 seconds. The current Auxiliary Keypad value appears on the display.

**UNLK ON AUX KPD
(Y#) ?:**

7. Press **#** to enable unlocking when the user's ID number is entered at the Auxiliary Keypad. The current Auxiliary Keypad Use Time Zone value appears on the display.

**AUX KPD USE TZ
(Y#) ?:**

8. Press ***** to keep the current Auxiliary Keypad value.
– or –
9. Press **#** if the time zone assigned to the user should be applied when the user's ID number is entered at the Auxiliary Keypad. This means that to be granted access, the time zone assigned to the user must be valid.
– or –
10. Press ***** if the time zone assigned to the user should not be applied when the user's ID number is entered at the Auxiliary Keypad. This means that the user will be granted access regardless of the time zone assigned to the user.
11. The display returns to the start of the Set Lock and Shunt command.

**LOCK/SHUNT TIME
*NO YES#**

12. Press ***** to step to the Aux Out Control command.
– or –
13. Press **5** to exit command mode.

Aux Out Control

There are three outputs that can be set: 0, 1, 2. Output 0 can only be set when the Hand Reader is in Lock and Auxiliary Output mode; Outputs 1 and 2 can be set regardless of the mode the Hand Reader is in.

Outputs 0, 1, and 2 can be connected to a variety of peripheral devices such as audible or silent alarms, door locks, or lighting systems. Verify Hand Reader/peripheral wiring is correct and that the peripheral meets Hand Reader/system specifications before changing the output settings. Table 9 describes the Auxiliary Output choices.

Table 9: Auxiliary Output Choices

Auxiliary Output	Function
Aux Set by Time Zone	Activated by a time zone.
Tamper	Hand Reader opened, shaken, or removed.
TZ Violation	User attempted entry during a restricted time period.
ID Refused	User not verified after allowed number of tries.
Duress	User entered the duress code digit.
Auxiliary Input 1	Auxiliary Input 1 switched to ground.
Auxiliary Input 2	Auxiliary Input 2 switched to ground.
Door Alarm	Door forced open or held open beyond shunt time.
Try Again	User rejected.
F1 Key	F1 key pressed.
F2 Key	F2 key pressed.
On Battery Backup	AC power failure, Hand Reader switched to battery power.
Unlock	Door unlocked.
Auxiliary Keypad	Auxiliary keypad is used.

The following instructions demonstrate how to step through each of the Auxiliary Output Control options.

1. When you enter the set Aux Out Control command the display appears as follows.

AUX OUT CONTROL
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Auxiliary Output Control values and skip to the Set Reader Mode command.
– or –
4. Press **#** to Set the Auxiliary Output Control values.
5. The select Aux Out Control command appears on the display.

AUX OUT CONTROL
AUX 0/1/2?

6. Press **0** to select Output 0, press **1** to select Output 1, or press **2** to select Output 2. The Aux Set by Time Zone option appears on the display.

AUX. SET BY TIME
ZONE (##)?:

7. Press **ENTER** to skip to Step 9, the Tamper option.
– or –
8. To assign a Time Zone to the output enter the digits for the time zone. For example, for Time Zone 42 press **4** **2** **ENTER**.
9. The Tamper option now appears on the display.

TAMPER
NO

10. Press **ENTER** to skip to Step 13, the TZ Violation option.
– or –
11. Press **#** to assign Tamper to the output. The display shows the Tamper assignment.

**TAMPER
YES**

12. Press **ENTER** to step to the TZ Violation option.
13. The TZ Violation option appears on the display.

**TZ VIOLATION
NO**

14. Press **ENTER** to skip to Step 17, the ID Refused option.
– or –
15. Press **#** to assign TZ Violation to the output. The display shows the TZ Violation assignment.

**TZ VIOLATION
YES**

16. Press **ENTER** to step to the ID Refused option.
17. The ID Refused option appears on the display.

**ID REFUSED
NO**

18. Press **ENTER** to skip to Step 21, the Duress option.
– or –
19. Press **#** to assign ID Refused to the output. The display shows the ID Refused assignment.

**ID REFUSED
YES**

20. Press **ENTER** to step to the Duress option.
21. The Duress option appears on the display.

**DURESS
NO**

22. Press **ENTER** to skip to Step 24, the Aux In 1 option.
– or –

23. Press **#** to assign Duress to the output. The display shows the Duress assignment.

**DURESS
YES**

24. Press **ENTER** to step to the Aux In 1 option.
25. The Aux In 1 option appears on the display.

**AUX IN 1
NO**

26. Press **ENTER** to skip to Step 29, the Aux In 2 option.
– or –

27. Press **#** to assign Aux In 1 to the output. The display shows the Aux In 1 assignment.

**AUX IN 1
YES**

28. Press **ENTER** to step to the Aux In 2 option.
29. The Aux In 2 option appears on the display.

**AUX IN 2
NO**

30. Press **ENTER** to skip to Step 33, the Door Alarm option.
– or –

31. Press **#** to assign Aux In 2 to the output. The display shows the Aux In 2 assignment.

**AUX IN 2
YES**

32. Press **ENTER** to step to the Door Alarm option.
33. The Door Alarm option appears on the display.

**DOOR ALARM
NO**

34. Press **ENTER** to skip to Step 37, the Try Again option.
– or –

35. Press **#** to assign Door Alarm to the output. The display shows the Door Alarm assignment.

**DOOR ALARM
YES**

36. Press **ENTER** to step to the Try Again option.
37. The Try Again option appears on the display.

**TRY AGAIN
NO**

38. Press **ENTER** to skip to Step 41, the F1 Key option.
– or –

39. Press **#** to assign Try Again to the output. The display shows the Try Again assignment.

**TRY AGAIN
YES**

40. Press **ENTER** to step to the F1 Key option.
41. The F1 Key option appears on the display.

**F1 KEY
NO**

42. Press **ENTER** to skip to Step 45, the F2 Key option.
– or –
43. Press **#** to assign F1 Key to the output. The display shows the F1 Key assignment.

**F1 KEY
YES**

44. Press **ENTER** to step to the F2 Key option.
45. The F2 Key option appears on the display.

**F2 KEY
NO**

46. Press **ENTER** to skip to Step 49, the On Batt Backup option.
– or –
47. Press **#** to assign F2 Key to the output. The display shows the F2 Key assignment.

**F2 KEY
YES**

48. Press **ENTER** to step to the On Batt Backup option.
49. The On Batt Backup option appears on the display.

**ON BATT BACKUP
NO**

50. Press **ENTER** to skip to Step 53, the Unlock option.
– or –

51. Press **#** to assign On Batt Backup to the output. The display shows the On Batt Backup assignment.

**ON BATT BACKUP
YES**

52. Press **ENTER** to step to the Unlock option.
53. The Unlock option appears on the display.

**UNLOCK
NO**

54. Press **ENTER** to skip to Step 57, the Aux Kpd option.
– or –

55. Press **#** to assign on Unlock to the output. The display shows the Unlock assignment.

**UNLOCK
YES**

56. Press **ENTER** to step to the Aux Kpd option.
57. The Aux Kpd option appears on the display.

**AUX KPD
NO**

58. Press **ENTER** to skip to Step 61, the Aux Cleared by Timer option.

– or –

59. Press **#** to assign the Aux Kpd to the output. The display shows the Aux Kpd assignment.

**AUX KPD
YES**

60. Press **ENTER** to step to the Aux Cleared by Timer option.

61. The Aux Cleared by Timer option appears on the display.

**AUX CLEARED BY:
TIMER (5)?:**

NOTE *The Aux Cleared by Timer option allows you to set a countdown timer value that will automatically clear the output when the timer expires. The default value is 5 seconds. This means that if an output is set and no valid access occurs within 5 seconds, the output will automatically clear itself.*

62. Press **ENTER** to skip to Step 64, the output cleared by Valid Access option.

– or –

63. To assign a Timer value, enter the digits for the number of seconds. For example,

for 20 seconds press **2** **0** **ENTER**.

64. The Valid Access option now appears on the display.

**VALID ACCESS
(Y)?:**

NOTE *The Valid Access option allows you to determine if the output should be cleared when a valid access occurs. The default value is Yes. This means that if an output is set and a valid access occurs before the Aux Cleared by Timer expires, the output will automatically clear itself.*

65. Press **ENTER** to skip to Step 67, the Aux Out Control command.

– or –

66. To disable the output cleared by Valid Access option, press *****.

– or –

To enable the output cleared by Valid Access option, press **#**.

67. The Aux Out Control option now appears on the display.

AUX OUT CONTROL
AUX 0/1/2?

68. Return to Step 6 to set Aux Out Control parameters for another Output.

– or –

69. Press **5** to exit command mode.

– or –

70. Press ***** to step to the next command. If the Auxiliary Keypad has not been configured to trigger an output, the next command is the Set Reader Mode command; skip to the next section. If the Auxiliary Keypad has been configured to trigger an output, the next command is the Aux Kpd Use TZ command. The current Aux Kpd Use TZ value appears on the display.

AUX KPD USE TZ
(Y#) ?:

71. Press **#** if the time zone assigned to the user should be applied when the user's ID number is entered at the Auxiliary Keypad. This means that to activate the output, the time zone assigned to the user must be valid.

– or –

72. Press ***** if the time zone assigned to the user should not be applied when the user's ID number is entered at the Auxiliary Keypad. This means that the output will be activated regardless of the time zone assigned to the user.

73. Aux Out Control option now appears on the display.

AUX OUT CONTROL
AUX 0/1/2?

74. Return to Step 6 to set Aux Out Control parameters for another Output.

– or –

75. Press **5** to exit command mode.

– or –

76. Press ***** to step to the Set Reader Mode command.

Set Reader Mode

In Hand Reader networks, one Hand Reader must be set as a Master Hand Reader and all remaining Hand Readers must be set as Remote Hand Readers. The default Reader Mode is Remote mode. Reader Mode does not apply to stand-alone Hand Readers or Hand Readers in a PC network (the Hand Reader should be left in its default value).

NOTE *All remote Hand Readers on a Hand Reader network must have a unique address. Refer to the Set Reader Address section on page 91.*

1. When you enter the Set Reader Mode command the display appears as follows.

SET READER MODE
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Reader Mode and skip to the Set Serial command.
– or –
4. Press **#** to Set the Reader Mode.
5. The “To Master” option appears on the display.

TO MASTER
***NO YES#**

6. Press **#** to set the Hand Reader to a Master Hand Reader. Skip to Step 10.
– or –
7. Press ***** to set the Hand Reader to a Remote Hand Reader. The “To Remote” option appears on the display.

TO REMOTE
***NO YES#**

8. Press **#** to set the Hand Reader to a Remote Hand Reader. Skip to Step 10.
– or –
9. Press ***** to set the Hand Reader to a Master Hand Reader. Return to Step 5.

10. The display returns to the start of the Set Reader Mode command.

<p style="text-align: center;">SET READER MODE *NO YES#</p>
--

11. Press to step to the Set Serial command.
– or –

12. Press to exit command mode.

!NOTE *Once a Hand Reader has been assigned master Hand Reader status its standard display changes slightly (see below), providing a visual indicator that this is the master Hand Reader – the dashes on the top line change to equal signs.*

<p style="text-align: center;">= READY = TIME DATE</p>

Set Serial

Set the serial port (RS-485/RS-422 and RS-232) baud rates to match the rates of the other Hand Readers, the host computer, and serial printer. 9600 baud is suitable for most applications and is set as the default value.

1. When you enter the Set Serial command the display appears as follows.

SET SERIAL
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current serial port baud rates and skip to the Set Duress Code command.
– or –
4. Press **#** to Set a Serial Port. The RS-485/RS-422 option appears on the display.

SET RS-485/422?
***NO YES#**

5. Press ***** to skip to the RS-232 option.
– or –
6. Press **#** to select the RS-485/RS-422 baud rate. The Baud Rate option appears on the display.

9600 BAUD
***NO YES#**

7. Press ***** to step through the list of available baud rates until the desired baud rate appears on the display, then press **#** to select the baud rate. The display returns to the start of the RS-485/RS-422 option.

SET RS-485/422?
***NO YES#**

8. Press to step to the RS-232 option. The RS-232 option appears on the display.

SET RS232?
***NO YES#**

9. Press to skip to the printer/PC option.
– or –

10. Press to select the RS-232 baud rate. The Baud Rate option appears on the display.

9600 BAUD
***NO YES#**

11. Press to step through the list of available baud rates until the desired baud rate appears on the display, then press to select the baud rate. The display returns to the start of the RS-232 option.

SET RS-232?
***NO YES#**

12. Press to step to the printer/PC option. The Printer/PC option appears on the display.

USE RS-232 FOR
0-PRINTER 1-HOST

13. Press to configure the RS-232 port for use by the printer.
– or –

14. Press to configure the RS-232 port for use by the host PC.

15. Once a selection is made the display returns to the start of the Set Serial option.

SET SERIAL
***NO YES#**

16. Press to step to the Set Duress Code command.

– or –

17. Press to exit command mode.

Set Duress Code

A Duress Code only works with keypad entry – it does not work with card reader input. If you set a Duress Code, you cannot set an ID Length (see page 92). For the Duress Code function to work an auxiliary output must have been set to DURESS. Refer to the Aux Out Control section on page 98.

The following instructions demonstrate how to set the Hand Reader's Duress Code to 9.

1. When you enter the Set Duress Code command the display appears as follows.

SET DURESS CODE
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Duress Code setting and skip to the Set Print Options command.
– or –
4. Press **#** to Set the Duress Code. The current duress code appears on the display. If there is no existing Duress Code value an asterisk (*) is displayed.

DURESS CODE
(*):

5. Press **9 #** to set the Duress Code to 9. The display returns to the start of the Set Duress Code command.

SET DURESS CODE
***NO YES#**

6. Press ***** to step to the Set Print Options command.
– or –
7. Press **5** to exit command mode.

Set Print Options

Set the Print Options to whether or not the serial printer should print valid access events.

1. When you enter the Set Print Options command the display appears as follows.

PRINT OPTIONS
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current print options setting and skip to the Set Beeper command.
– or –
4. Press **#** to Set the Print Options. The Print Valid Access option appears on the display.

VALID ACCESS
***NO YES#**

5. Press ***** to not Print Valid Access events.
– or –
6. Press **#** to Print Valid Access events.
7. The display returns to the start of the Set Print Options command.

PRINT OPTIONS
***NO YES#**

8. Press ***** to step to the Set Beeper command.
– or –
9. Press **5** to exit command mode.

Set Beeper

Set the Beeper Options to whether or not the Hand Reader's beeper should sound an audible response to key strokes and events.

1. When you enter the Set Beeper command the display appears as follows.

SET BEEPER
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to keep the current Beeper setting and return to the Set Language command at the beginning of this command menu.
– or –
4. Press **#** to Set the Beeper. The beeper option appears on the display.

TURN BEEPER OFF
***NO YES#**

5. Press ***** to keep the Beeper on.
– or –
6. Press **#** to turn the Beeper off.
7. The display returns to the start of the Set Beeper command.

SET BEEPER
***NO YES#**

8. Press ***** to return to the Set Language command at the beginning of this command menu.
– or –
9. Press **5** to exit command mode.

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Service Menu

There are no user serviceable parts inside the Hand Reader. Hand Reader Calibration can be performed from the Hand Reader's keypad. Hand Reader Status and Network Status (for the Master Hand Reader in a network) can be viewed from the Hand Reader's display.

Cleaning the Hand Reader

Inspect and clean the Hand Reader 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 forward.

NOTE *DO NOT SPRAY CLEANING FLUID DIRECTLY INTO OR ON THE HAND READER.*

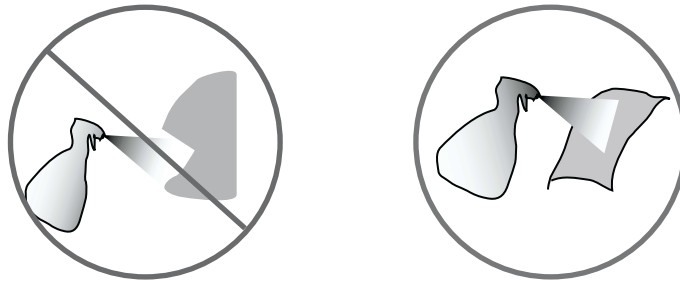


Figure 9-1: Hand Reader Cleaning

User Score

Periodically check users' scores (refer to the Read Score section on page 71). Scores should average under 30. Occasionally a user will score above 30. This is not necessarily an indication of poor performance. If a number of scores average over 30, clean the Hand Reader and check scores again. If scores remain high, or if users are experiencing frequent rejections, run the Calibration command described below.

Service Commands

There are three commands available from the Service command menu.

Calibrate – Run a calibration test to check Hand Reader exposure values.

Status Display – Check the status of Hand Reader inputs and outputs, the hand read score of the last user to verify on the system, and the master/remote status of the Hand Reader.

Network Status – Check the network communication status of Hand Readers in a hand reader network (for the Master Hand Reader in a network).

The following sections describe all the Service menu options. All commands are described in the order they are accessed. Locate the command you need to perform and step through all previous commands until you reach the desired command.

Calibrate

The Calibrate command verify that the Hand Reader’s exposure values are within normal operating parameters. The normal operating parameters are shown in Table 10.

Table 10: Normal Operating Parameters

Parameter	Normal Range
Row “r”	0 +/- 3
Column “c”	0 +/- 3
Exposure	100 +/- 10

The following instructions demonstrate how to Calibrate a Hand Reader.

1. Enter the Service command menu per the instructions in the Enter a Command Menu section above. The default password for the Service menu is “1.” When you enter the Service command menu the Calibrate command appears on the display.

<p style="text-align: center;">CALIBRATE *NO YES#</p>

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Status Display command.
– or –
4. Press **#** to Calibrate the Hand Reader. The Hand Reader’s display appears as follows.

<p style="text-align: center;">r - 0 c - 0 e - 100 RECAL (Y# / NO*)</p>

5. Press **5** to exit command mode.
– or –
6. Press **#** to re-Calibrate the Hand Reader. Repeat this procedure beginning at Step 4.
– or –
7. Press ***** to step to the Status Display command.

Status Display

The following instructions demonstrate how to check a Hand Reader's status.

1. When you enter the Status Display command the following appears on the Hand Reader's display.

STATUS DISPLAY
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Network Status command (if the Hand Reader is the Master Hand Reader on a network).
– or –
4. Press **#** to Display Hand Reader Status. The Hand Reader's display appears as follows.

STATUS DISPLAY
(OFF/ON) *NO / #Y ?:

5. The Hand Reader's display shows the current OFF/ON value of the status display command.
6. If the current value is ON, skip to Step 9.
7. If the current value is OFF press **#** to turn the status display command ON. The Hand Reader's display appears as follows.

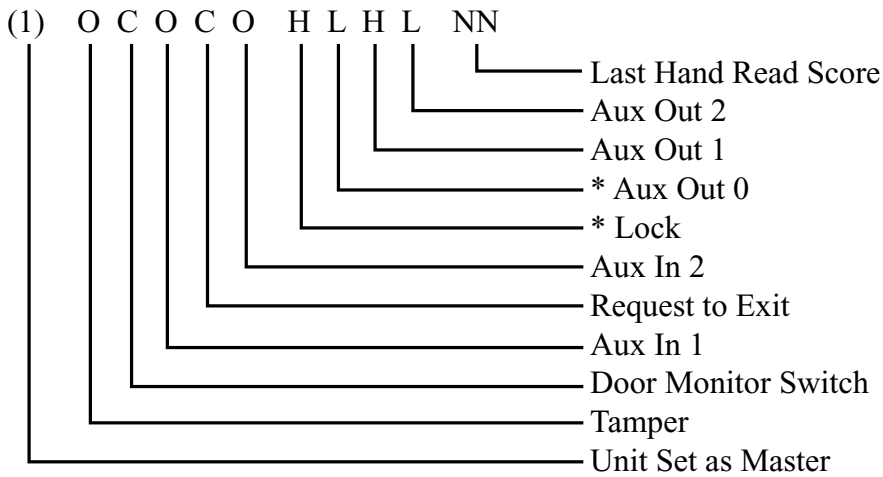
STATUS DISPLAY
***NO YES#**

8. Press **#** to re-enter the status display command.
9. The Hand Reader's display appears as follows.

STATUS DISPLAY
ON *NO / #Y ?:

10. Press **ENTER** to enable the status display command.
11. Press **5** to exit command mode. After a short delay the Hand Reader's display shows the status display values for this Hand Reader. Figure 9-2 defines each field for the status display values.

(1) O C O C O H L H L NN 16



* 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 9-2 Status Display Chart

12. The status display values are shown on the Hand Reader's display until the status display command is exited. Users can continue to use the Hand Reader.

Exiting Status Display

1. When you enter the Status Display command the following appears on the Hand Reader's display.

STATUS DISPLAY
***NO YES#**

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Network Status command (if the Hand Reader is the Master Hand Reader in a network).
– or –
4. Press **#** to Display Hand Reader Status. The Hand Reader's display appears as follows.

STATUS DISPLAY
ON *NO / #Y ?:

5. The Hand Reader's display shows the current OFF/ON value of the status display command.
6. If the current value is OFF, skip to Step 9.
7. If the current value is ON press **#** to turn the status display command OFF. The Hand Reader's display appears as follows.

STATUS DISPLAY
***NO YES#**

8. Press **#** to re-enter the status display command.
9. The Hand Reader's display appears as follows.

STATUS DISPLAY
OFF *NO / #Y ?:

10. Press **ENTER** to disable the status display command.
11. Press **5** to exit command mode. After a short delay the Hand Reader's display returns to the standard user display.

<p>READY TIME DATE</p>

Network Status

The following instructions demonstrate how to check the Hand Reader network status. To check network status, the Hand Reader must be the Master Hand Reader in the network.

1. When you enter the Network Status command the following appears on the display.

```
NETWORK STATUS
*NO YES#
```

2. Press **5** to exit the command menu.
– or –
3. Press ***** to skip to the Calibrate command.
4. Press **#** to display Hand Reader Network Status. The status of the first 16 Hand Readers in the Hand Reader network is displayed (addressed 0 to 15, from left to right).

```
STAT: RDR 0-15
O O O O O O O O . . . . .
```

NOTE Each “O” and “.” represents a Hand Reader address in the network. An “O” indicates that the Hand Reader corresponding to that address is communicating on the network. A “.” indicates that the Hand Reader with that address is not communicating on the network.

5. Press **#** to display the status of the last 16 Hand Readers in the Hand Reader network (addressed 16 to 31, from left to right).

```
STAT: RDR 16-31
. . . . . O O O O O O O O
```

6. Press **#** to return to the Network Status command. The following appears on the display.

NETWORK STATUS
***NO YES#**

7. Press to return to the Calibrate command at the beginning of this command menu.
or
8. Press to display Hand Reader Network Status. Repeat this procedure beginning at Step 4.
or
9. Press to exit command mode.

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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 one year from the date of purchase by such user or 15 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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Glossary

Address, IP – An Internet Protocol address is a unique address assigned to a computer for communicating over the Internet. It is made up of 4 sets of numbers, separated by periods (for example, 123.245.78.901).

Address, Reader – A Hand Reader Address is a unique identification number assigned to a Hand Reader. Each Hand Reader on a network must be assigned a unique address.

AWG – American Wire Gauge is a U.S. standard set of wire conductor sizes. The “gauge” refers to the diameter of the wire. The higher the gauge number, the smaller the diameter, the thinner the wire, and the greater the electrical resistance. Thicker, smaller gauge wire carries more current because it has less electrical resistance over a given length. Thicker wire is better for long wire distances.

Card Reader Emulation Mode – In Card Reader Emulation Mode, the Hand Reader outputs hand read data in a card reader format, typically to an access control panel. The data is outputted when user’s hand is successfully read. This mode is commonly used when a Hand Reader is being added to an existing access control network. By configuring the Hand Reader in card emulation mode, it can easily replace an existing access control reader in the network. The Hand Reader can be configured to output data in a variety of card reader formats – such as Wiegand, ABA Track-II magnetic stripe, or bar code.

Daisy-Chain – A Daisy-Chain is a method of wiring together Hand Readers on a network, where the first Hand Reader is connected to the second Hand Reader, which is connected to the third Hand Reader, and so on until the last Hand Reader is reached.

End-of-Line (EOL) Termination – EOL Termination is a set of resistors attached to the data lines at the last Hand Reader physically connected to a network. These resistors prevent data signal distortion and reflection back across the data lines, improving the integrity of the network connection.

IP Address – see Address, IP

Platen – The Platen is the flat surface at the base of the HandKey, on which a user places his/her hand for enrollment and verification. The platen has guide pins to ensure the user’s fingers are consistently positioned correctly.

Reader Address – see Address, Reader

Template – A Template is a set of data generated for a user. It is made up of the user’s enrollment information and any system configuration parameters that are assigned to the user. The template is stored at each Hand Reader and can be stored at a host computer when the HandNet™ for Windows™ software is used.

Time Zone – A Time Zone is an identified period of time, during which a user is allowed access to an area secured by a Hand Reader. Access attempts outside of that time period are rejected by the Hand Reader.

Transaction – A Transaction is any kind of event recorded at a Hand Reader. Transactions may include actions such as accepted or denied hand reads, input and output events, and doors opening and closing.

Wiegand™ Reader – The term “Wiegand Reader” has two meanings depending upon its application. A true Wiegand reader reads a specially constructed card made up of small pieces of magnetic wire. As the card is swiped through the reader, the individual bits of wire generate a unique data signal. This data signal is made up of a Facility Code field (typically 8 bits), an ID Number field (typically 16 bits), and parity bits (typically 2 bits) for a total of 26 bits of data. Now this 26-bit Wiegand data format has been adopted by a variety of access reader devices and access control panels for transferring user access data.

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