MAGTEK®
SECURITY FROM THE INSIDE

DynaPro Mini

PIN Encryption Device
Installation and Operation Manual

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REGISTERED TO ISO 9001:2015

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Table 0.1 - Revisions

Rev Number	Date	Notes
1.01	Nov 7, 2013	Initial Release, derived from 99875586-1.01
1.02	Jun 16, 2014	Update **Appendix A** Electrical Characteristics, Reliability and Enhance Battery Life
13	Oct 30, 2018	Update format and standardize terminology; In **4.2 Power Management**, provide more battery information and migrate device usage information from programmer's manual; Add section **2 Handling and Storage**; Update **Appendix A Technical Specifications**; Remove obsolete 30-pin model; Misc. clarifications and corrections

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FCC INFORMATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

CUR/UR

This product is recognized per Underwriter Laboratories and Canadian Underwriter Laboratories 1950.

CANADIAN DOC STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conformé à la norme NMB-003 du Canada.

CE STANDARDS

Testing for compliance with CE requirements was performed by an independent laboratory. The unit under test was found compliant with standards established for Class B devices.

UL/CSA

This product is recognized per ***UL 60950-1, 2nd Edition, 2011-12-19*** (Information Technology Equipment - Safety - Part 1: General Requirements), ***CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12*** (Information Technology Equipment - Safety - Part 1: General Requirements).

ROHS STATEMENT

When ordered as RoHS compliant, this product meets the Electrical and Electronic Equipment (EEE) Reduction of Hazardous Substances (RoHS) European Directive 2002/95/EC. The marking is clearly recognizable, either as written words like "Pb-free," "lead-free," or as another clear symbol (Pb).

Table of Contents

1 Introduction

1.1 About DynaPro Mini

MagTek's DynaPro Mini is a handheld device that combines a secure PCI PTS 3.x, SRED-compliant PIN Encryption Device with a MagneSafe secure card reader authenticator (SCRA) and an EMV chip card reader. This versatile device is ideal for credit, ATM, prepaid, gift, and debit cards for mobile point-of-sale applications where you need unmatched convenience and security. Reduce your interchange rates, reduce chargebacks, and increase your customer satisfaction and sales with DynaPro Mini.

DynaPro Mini provides a mobile solution that is convenient without sacrificing security. DynaPro Mini meets and exceeds PCI PTS 3.x and SRED security requirements, includes the MagTek MagneSafe™ Security Architecture (MSA), is a Tamper-Responsive Secure Cryptographic Device (SCD), and includes EMV chip card technology. Any attempts to penetrate or modify the unit will cause all keys to be cleared and will stop the device from functioning.

DynaPro Mini can be used with a variety of computing platforms including iOS, Android, and PC and Mac computers. DynaPro Mini can interface through its onboard USB port or its optional Bluetooth 4.0 (Bluetooth Low Energy or Bluetooth LE) antenna. The display module is a full dot-matrix graphics unit with an LCD display, and the twelve-key keypad consists of well-contoured buttons with tactile feedback for convenient entry of PINs or other data.

DynaPro Mini product features include:

- PCI PTS 3.x, SRED (pre-release)
- Meets EMV level 1 and 2 requirements
- Triple DES encryption
- DUKPT key management
- Device/mutual authentication
- Card data authentication
- Tokenization and masked data
- Bluetooth 4.0 (Bluetooth LE) connection, with Micro-USB connectivity
- Ergonomic and ruggedized design
- Secured by MagneSafe Security Architecture
- MagnePrint card authentication
- Generates dynamic payment card data with each swipe
- Reads ANSI/ISO/AAMVA cards plus custom formats
- EMV chip card reader
- Fast and reliable magnetic stripe reading
- LCD graphical display
- Reads up to 3 tracks of card data
- Bi-directional read

1.2 Protection for All Points Within the Payment Infrastructure

DynaPro Mini exemplifies engineered design and delivers a PIN encryption device that combines best practices for mobility and security. The DynaPro Mini uses the MagneSafe Security Architecture (MSA) and is built for durability.

In addition to meeting the requirements established by PCI PTS v3.x, which incorporates secure reading and exchange of data (SRED) features, DynaPro Mini uses the **MagneSafe Security Architecture** (MSA), a digital identification and authentication architecture that safeguards consumers and their personal data. Designed to exceed PCI regulations, MSA leverages strong encryption, secure tokenization, counterfeit detection, tamper recognition, data relevance and integrity, and dynamic digital transaction signatures, which together validate and protect the entire transaction and each of its components.

A key feature of MSA is **MagnePrint** card authentication, a patented, proven technology which reliably identifies counterfeit credit cards, debit cards, gift cards, ATM cards and ID cards at the point of swipe, before fraud occurs.

MSA's multi-layer security provides unmatched protection and flexibility for safer online transactions.

1.2.1 Security and Ease of Integration by Design

The MagneSafe Security Architecture also secures clear text card data. DynaPro Mini uses a 32-bit secure processor which incorporates flexible **data formatting and masking** capabilities for compatibility with existing software and payment applications, eliminating the need for recertification.

DynaPro Mini supports **Device Authentication** so the retailer, processor, and acquirer have the confidence of knowing that a rogue reader has not been substituted, and provides transparency to the processor, acquirer, or ISO if the device is changed. It also supports **Mutual Authentication** through a secure challenge/response sequence, which eliminates both the potential of being redirected to an illegitimate site and the ability to substitute a compromised PIN encryption device.

1.2.2 Read Head Security Features

DynaPro Mini contains a MagneSafe card reader that **encrypts card data at the point of swipe** to safeguard personal information encoded on the magnetic stripe. The reader incorporates MagTek's 3-track encrypting IntelliHead, a magnetic read head with encapsulated and securely-potted electronics that reads, decodes, and encrypts card data within the head, eliminating the chance of intercepting clear text data. This secures the magnetic stripe data at the earliest point in the transaction chain—the initial swipe.

DynaPro Mini's data encryption scheme uses the industry standard **TDEA (3DES)** algorithm and **DUKPT key management**, which offers merchants, processors, issuers, and acquirers the flexibility to manage decryption services themselves or to outsource, thereby avoiding the risk imposed by unproven, proprietary encryption algorithms.

In addition, as a card is swiped through the reader, through the use of **MagnePrint** technology the card can be authenticated immediately, either by Magensa or by another system, to determine whether the card is counterfeit or has been altered.

The card reader is capable of reading any ISO or AAMVA encoded magnetic stripe data, and includes an EMV chip card (ICC) reader on the front of the device under the keypad.

1.2.3 Tamper Responsiveness

The DynaPro Mini enclosure and its associated electronics have been designed to form a **Tamper-Responsive Secure Cryptographic Device (SCD)**. The covers are securely attached and incorporate sensing circuits to detect any attempts to open the unit. Internal spaces within DynaPro Mini have been minimized to reduce the possibility of unauthorized modifications.

In addition, any attempt to penetrate or modify the device electronically will cause the unit to permanently erase its stored encryption keys, after which the device will cease to function.

1.2.4 Liquid Crystal Display

The Liquid Crystal Display (LCD) is a 128 x 32 pixel array capable of showing static or animated messages. Animation includes horizontal scrolling for longer prompt text, and animations on the **Swipe Card** and **Insert Card** pages.

1.2.5 10-Digit Numeric Pad

During normal operation, cardholders use the device's numeric keypad to enter PINs. An audible tone provides feedback when entering the PIN digits. There are three additional function keys cardholders may press during a transaction:

- Cardholders can press the green **ENTER** ("OK") key to indicate they have finished their input.
- Cardholders can press the yellow **BACKSPACE** ("Correction") key to clear any entered data and continue the current operation.
- Cardholders can press the red **CANCEL** ("X") key to halt the current operation. Depending on the context, it may cancel the entire transaction.
- Cardholders can press the **Up Arrow** and **Down Arrow** keys to scroll display content when required.

1.2.6 Low-Power Standby Mode

When the communication channel (such as the USB bus) goes into suspend mode, or when the device is disconnected from a host and power source, DynaPro Mini enters a low-power standby mode. Any current transactions are terminated and all caches are flushed. The device resumes normal operation when the connection resumes normal operation.

1.3 About DynaPro Mini Components

The major components of DynaPro Mini are shown in **Figure 1-1**. In addition to the components shown, the device has the following additional features:

- DynaPro Mini with Bluetooth LE has a Bluetooth transceiver power button on the back.
- All models have a reset button on the bottom intended for manufacturer use only. **Do not press the reset button! Doing so will activate the tamper feature and erase all injected keys; the device will stop functioning and will have to be returned to the manufacturer for re-configuration.**

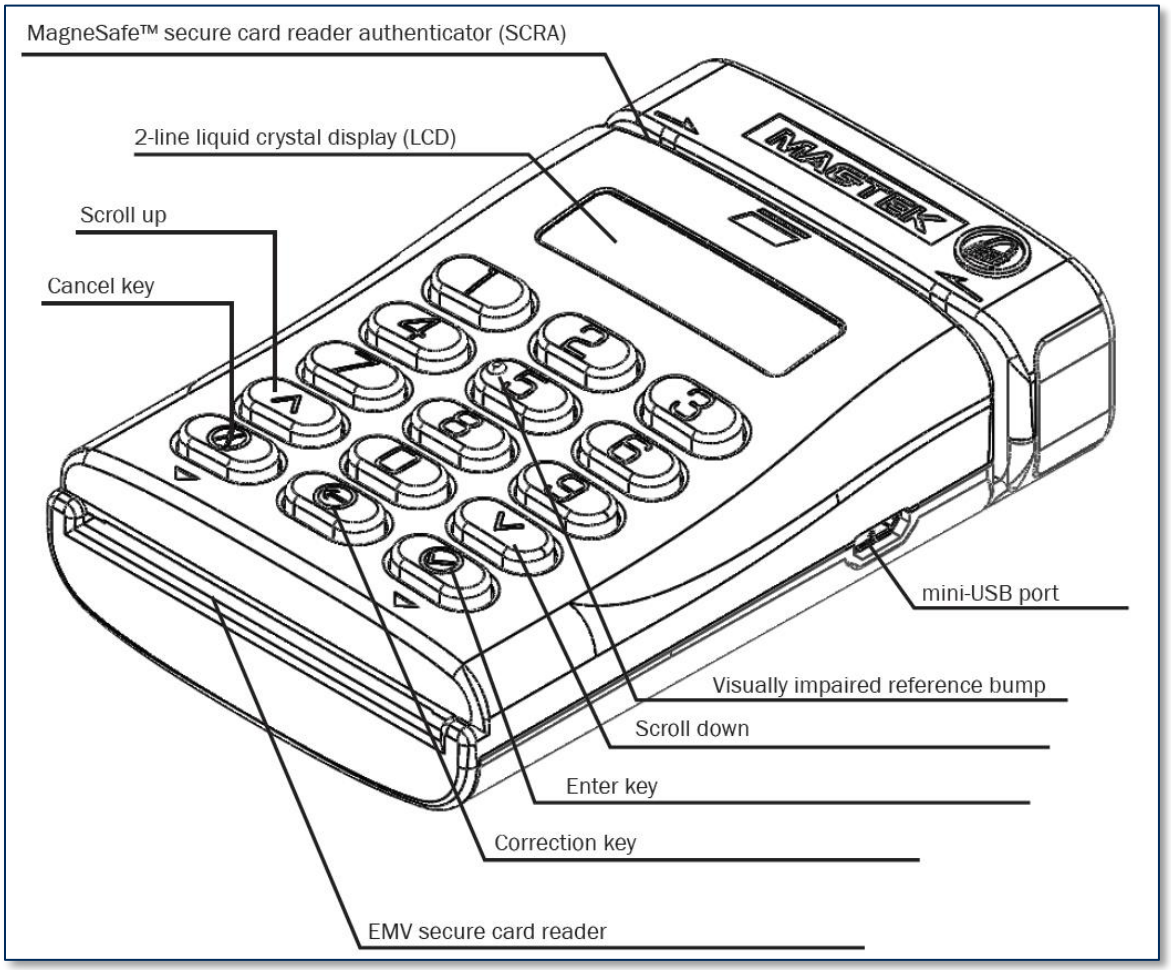


Figure 1-1 - DynaPro Mini Major Components

1.4 About Solution Planning

A smooth deployment of a DynaPro Mini solution requires some up-front planning and decision-making:

- Determine what type of **host** DynaPro Mini will connect to. This can be a computer or portable device with a USB port or with Bluetooth 4.0 hardware that supports Bluetooth LE. When planning, include any additional support or devices required by the host and DynaPro Mini, such as physical locations, mounting, power connections, and charging stations.
- Determine what **software** will be installed on the host and how it will be configured. Software can include operating system, transaction processing software, security software, and so on. Include any additional support required by the software, such as network connections.
- Determine how DynaPro Mini will be physically **presented** to the cardholder.
- Select which **connection type** the solution will use. DynaPro Mini has a Bluetooth LE transceiver and a Micro-USB connector.
- Determine how DynaPro Mini should be **configured**, and specify that when you order devices.
- Determine the **charging schedule(s) and location(s)**. For example, in high-traffic mission-critical solutions, it may be most appropriate to keep multiple devices charging for fast swap-out.

1.5 About Terminology

In this document, DynaPro Mini is referred to as the **device**. It is designed to be connected to a **host**, which is a piece of general-purpose electronic equipment which can send commands and data to, and receive data from, the device. Host types include PC and Mac computers/laptops, tablets, and smartphones. Generally, the host must have **software** installed that communicates with the device and is capable of processing transactions. During a transaction, the host and its software interact with the **operator**, such as a cashier or bank teller, while the device interacts with the **cardholder**.

2 Handling and Storage

⚠ CAUTION

Proper handling of the device throughout delivery, assembly, shipping, installation, usage, and maintenance is very important. Not following the guidelines in this document could damage the device, render it inoperable, and/or violate the conditions of the warranty.

2.1 Handling to Avoid Damage

Upon receiving the device, inspect it to make sure it originated from an authentic source and has not been tampered with.

From device delivery through assembly, shipping, installation, usage, and maintenance, the device must not be exposed to conditions outside the ratings in **Appendix A Technical Specifications**.

If the device is exposed to cold temperatures, adjust it to warmer temperatures gradually to avoid condensation, which can interfere with the operation of the device or cause permanent damage.

Do not drop or shake the device.

For information about ongoing maintenance of the device, such as cleaning, see section **5 Maintenance**.

2.2 Handling to Avoid Accidental Tamper

This device implements active tamper detection, which uses a small amount of electricity even when the device is completely powered off. The device ships with the battery charged to approximately 60%, which provides a shelf life of at least 6 months, and up to a year. Storage conditions (such as storage above 77°F / 25°C) strongly affect this duration. If the rechargeable battery is allowed to completely discharge, the device's tamper detection feature uses the device's non-rechargeable backup battery. If both batteries are allowed to completely discharge, the device interprets this as tampering.

Upon detecting tampering, the device locks down and must be returned to the manufacturer to reset. To avoid accidental tamper events, follow these precautions:

- Charge the device for 12 hours immediately upon receipt to extend its shelf life.
- Before storing the device, make sure the battery is charged to at least 40%.
- Before storing the device, power it OFF by activating Airplane Mode (wireless not advertising). See section **4.2.3 How to Turn Bluetooth LE Advertising On and Off**.
- When stored, recharge the device for 12 hours at least every 6 months.
- Do not drop or shake the device.
- Do not attempt to disassemble the device.
- Do not expose the device to excessive heat or cold (see **Appendix A Technical Specifications**).

3 Installation

Installing DynaPro Mini is a straightforward process; the acquirer configures the Certificate Authority, public keys, terminal and payment brand settings before deployment; end users need only set up a host with appropriate software, configure the software, and connect the device to the host. This section provides general information about solutions that incorporate DynaPro Mini, including host software, connecting the device, and charging the device.

3.1 About Software

In any solution, DynaPro Mini is connected to a host, which must have software installed that knows how to communicate with the device, and which is capable of processing transactions. To set up the host to work with DynaPro Mini, follow the installation and configuration instructions provided by the vendor of the host or the host software.

3.2 About Connecting DynaPro Mini

The following sections provide steps for connecting DynaPro Mini to a host via the various available physical connection types.

3.2.1 How to Connect DynaPro Mini to a Host via USB

To connect DynaPro Mini to a host computer or charger using the Micro-USB port, follow these steps:

1) Make sure the host is powered off.
2) Connect the small end of the USB cable to DynaPro Mini as shown in **Figure 3-1**.
3) Connect the large end of the USB cable to the charger or to the host computer's USB port.
4) Power on the host computer.

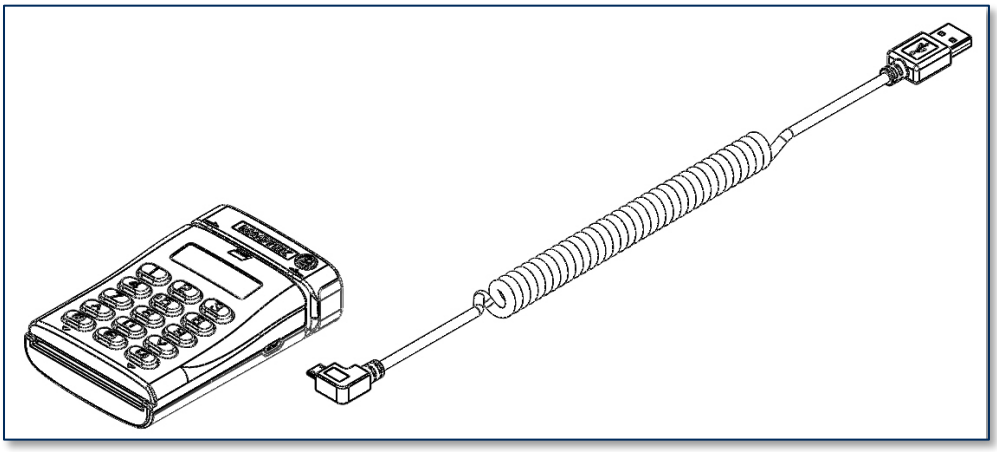


Figure 3-1 - Connecting DynaPro Mini to a Computer

3.2.2 How to Connect DynaPro Mini to a Host via Bluetooth LE

To connect DynaPro Mini with Bluetooth LE to a host that has Bluetooth 4.0 hardware and supports Bluetooth LE:

1) On the host, install and configure the software you intend to use with DynaPro Mini. If you do not yet have that software, you can download a tool from the App Store called "Light Blue," which provides functions to detect the device, connect to the device, and view the device's services and characteristics. See https://itunes.apple.com/us/app/lightblue/id639944780.
2) Make sure the device is powered on and advertising by briefly pressing and releasing the power button or connecting the device to USB power. Note that it is not always necessary to explicitly turn

on the device before using it; if the device is not powered on but is still advertising (not in Airplane Mode), it starts powering on when the host establishes a connection.

3) Make sure the device's battery is adequately charged.
4) Use the host software to scan for Bluetooth devices, and select the device you want to pair to.
5) If the device was not powered on before the host connected, it starts powering on when the host establishes a connection. The power-on sequence takes about 10 seconds.
6) When prompted, enter the device's passkey. The default passkey is `000000`.
7) The device stays powered on until the host terminates the Bluetooth LE connection, or until an operator or cardholder powers it off using the power button. Powering off causes the device to terminate the Bluetooth LE connection. To conserve power, always power off the device when it is not in use. You can then explicitly power on the device using the power button.

4 Operation

4.1 Overview

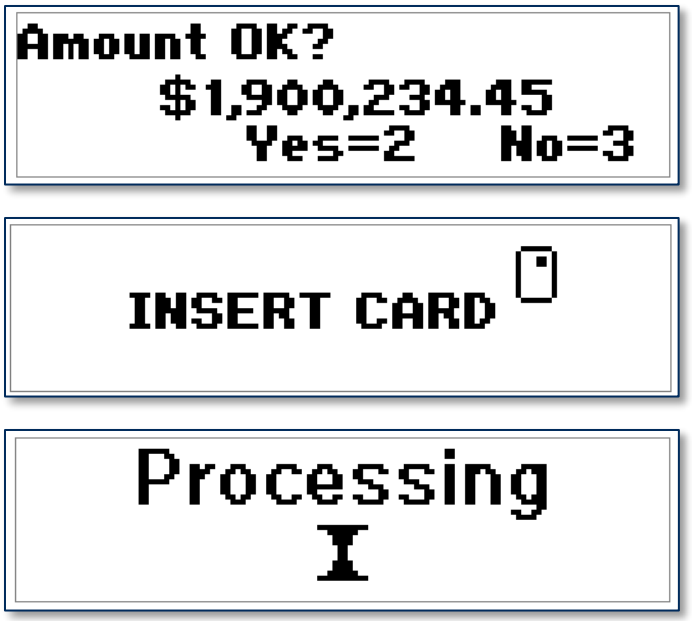
When DynaPro Mini is ready to begin a new transaction, it shows **Welcome** on its display.

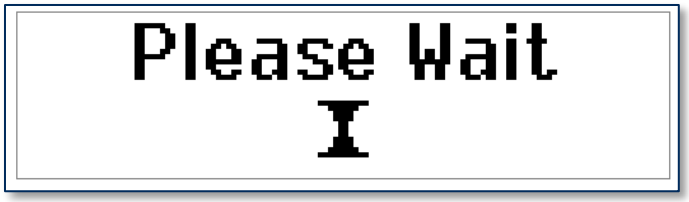
Figure 4-1 - Example of Welcome Screen (Ready for a New Transaction)

During normal operation, an operator initiates a transaction from the host, and the cardholder enters data on DynaPro Mini's keypad in response to prompts on its display. Transaction types depend on the host software, and may include new accounts, teller window applications, checking, savings, mortgages, retail transactions, or any other option where there is interaction between the cardholder and the operator.

After the operator initiates the transaction, the device prompts the cardholder to insert or swipe a card. If the device can not read the card data, the device may request the cardholder repeat the action, or request the cardholder use the magnetic stripe reader instead of the chip card insertion slot, or may ask the cardholder to enter card data manually. The device may also prompt the cardholder to identify the card type, such as debit or credit. If the transaction requires a PIN (such as in banking or debit card transactions), the device prompts the cardholder to enter one. In the case of an EMV transaction with a successful chip read, DynaPro Mini uses the transaction amount and the chip card's on-chip risk management to decide whether to process the transaction offline or require online approval.

A typical transaction sequence looks like this:




Please Wait

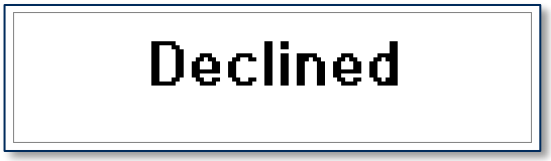

ENTER PIN
=Cancel
=OK


Processing


Please Wait


Approved

or


Declined

4.2 Power Management

4.2.1 About Power

This device incorporates a built-in Lithium-ion rechargeable battery, which requires very little maintenance. It is not subject to "charge memory" and therefore does not require deep discharge cycles to restore its charge capacity like many other battery technologies.

When properly powered through its USB port, the device powers on automatically, remains powered on, and draws power both for operation and for recharging the battery (see section **4.2.2 How to Charge the Battery**). While charging, the device consumes more power from the USB connection than when the battery is fully charged. The device stops charging the battery when it determines it is optimally full, to prevent overcharging.

If the device is not connected to USB power, or if the USB connection does not provide enough power, the device powers itself using the rechargeable battery. When the battery discharges to a critically low level, the device powers down automatically. In this state, the device continues to power its active tamper detection circuitry using the device's non-rechargeable backup battery. If both batteries are allowed to completely discharge, tamper detection engages, and the device must be returned to the manufacturer to reset. To minimize battery drain and prevent this from occurring:

- When charging, make sure the device is receiving enough power from the USB connection (battery level should increase even when device is in use).
- Power the device OFF when not in use (see section **4.2.3 How to Turn Bluetooth LE Advertising On and Off**).

The device's rechargeable battery is designed to last hundreds of charging cycles, but with time and / or with use, its charge capacity will naturally degrade. To maintain the battery's charge capacity as much as possible, follow these guidelines:

- Do not discharge the battery to 0%. Create a charging schedule that recharges the battery well before it is fully depleted.
- Store the device at the lowest reasonable temperatures within its specified storage temperature range (see **Appendix A Technical Specifications**; below 77°F / 25°C is optimal). Temperature is the most critical factor in extending battery life.
- Store the device with the battery charged to less than 100% (40% is optimal).

4.2.2 How to Charge the Battery

When the battery is discharged to a critical level, the device shows a **Please Recharge** warning message on the display.

Figure 4-2 - "Please Recharge" Warning

The device's battery must be periodically recharged by connecting it to either a USB port or stand-alone power supply. The device requires a USB connection that can provide at least **2A @ 5V**. A full recharge cycle for a completely drained battery takes approximately 5 hours.

4.2.3 How to Turn Bluetooth LE Advertising On and Off

In its default configuration, the device's Bluetooth LE module can be toggled between advertising and not advertising to save power or to stop radio emissions for airline travel. The device's processor and display also power down when it is not advertising. This state is known as **Airplane Mode**, and can also be considered the device's "Off" state. Operators can toggle Airplane Mode as follows:

- **To Turn Airplane Mode On:** If the device is advertising, press and hold the power button for 7 seconds or longer to reset the Bluetooth LE module and turn advertising off. The device also resets to this state if the battery completely discharges.
- **To Turn Airplane Mode Off:** If the device is not advertising, briefly press and release the power button or connect the device to USB power to turn advertising on.

For information about reconfiguring the device to behave differently from defaults, see the references provided in section **6 Developing Custom Software**.

4.3 Card Reading

4.3.1 How to Swipe Magnetic Stripe Cards

To swipe a card with a magnetic stripe, cardholders should wait until the appropriate prompt appears on the display (see **Figure 4-3** for an example), then swipe the card with the magnetic stripe facing away from DynaPro Mini's keypad as shown in **Figure 4-4**. If the device can not read the card's magnetic stripe data, the device may prompt the cardholder to swipe the card again.

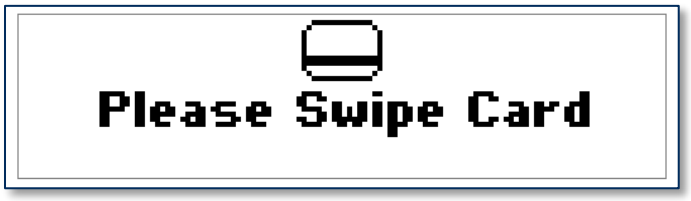


Figure 4-3 - Example of Swipe Card Screen

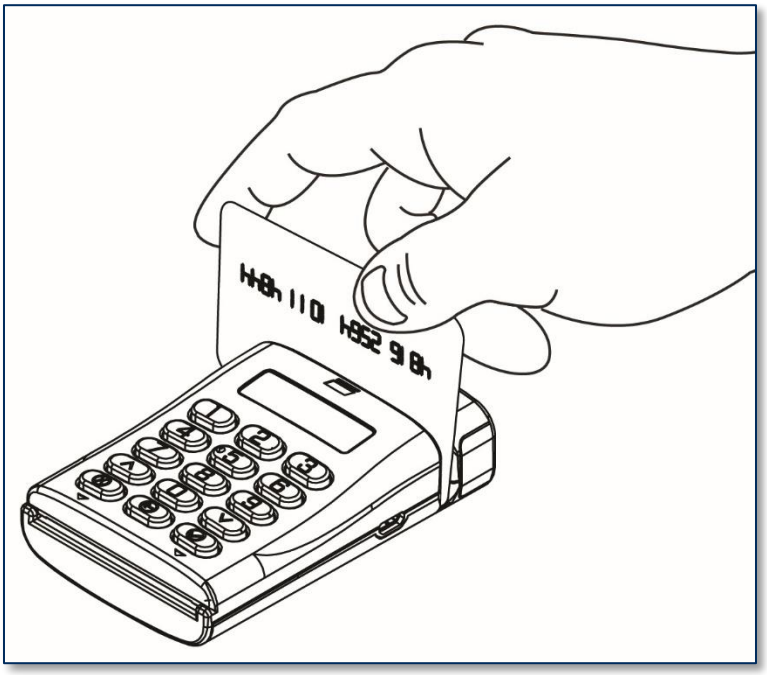


Figure 4-4 - Swiping a Card Through DynaPro Mini

4.3.2 How to Use Contact Chip Cards

To use a contact chip card, cardholders should wait until the appropriate prompt appears on the display and the LED on the front of the device turns on, then insert the card as follows:

1) Locate the slot on the front of the device shown in **Figure 4-5**.
2) Orient the chip card so the chip faces the ceiling and toward the slot.
3) Insert the chip card into the slot, then push gently on the card until it stops. There should not be any substantial resistance until the chip card is fully inserted.

If the device can not communicate with the chip card, it may prompt the cardholder to insert the card again, or to use the magnetic stripe reader, or to enter card data manually.

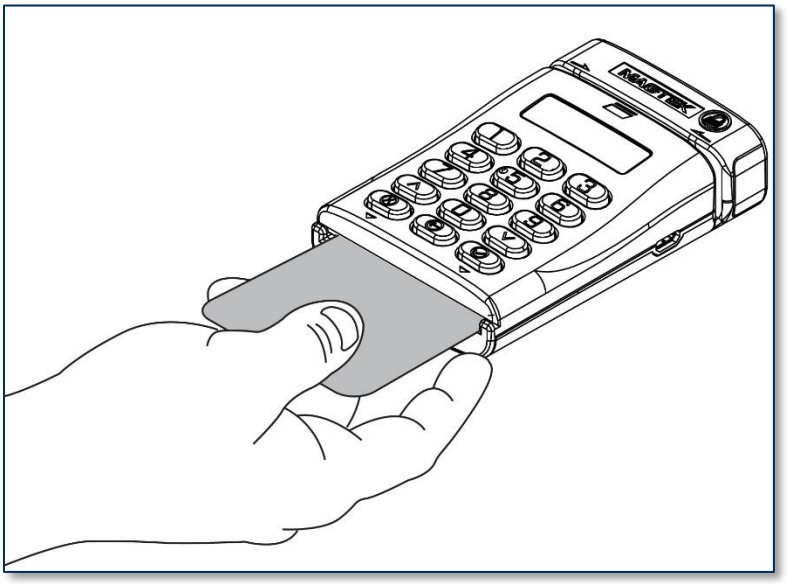


Figure 4-5 - Inserting a Chip Card Into DynaPro Mini

4.3.3 How to Enter Card Information Manually

If the swiped or inserted card is damaged or unreadable, DynaPro Mini may prompt the cardholder to enter card data manually, as shown in **Figure 4-6**. During manual entry, the device expects the account number to be between 16 and 19 digits long, the expiration date to be 4 digits long, and the card verification code (generally found on the rear of the card for MasterCard and Visa, or the front of the card for American Express) to be 3-4 digits long.

Figure 4-6 - Example of User Screen to Manually Enter Card Data

4.3.4 How to Select the Card Type

In a retail setting, the transaction might require the cardholder to select the card type (e.g. "Debit or Credit"). In the following example, the application prompts the cardholder to press a number on the keypad to select Credit or Debit (see **Figure 4-7**).

Figure 4-7 - Example of User Screen to Select Card Type

4.4 How to Enter PINs

When PIN entry is required, the display prompts the cardholder to enter one (see **Figure 4-8**) as required by the financial institution. The device expects the PIN to be between 4 and 12 digits long. After entering the PIN, the cardholder must press the ENTER button.

.

Figure 4-8 - Example of User Screen to Enter PIN

If the double PIN entry option is enabled, the display prompts the cardholder to enter the PIN a second time. The process for re-entry is identical to the process for the first entry.

4.5 How to Verify the Transaction Amount

In a retail setting when the customer selects "Credit" they are then prompted to verify the amount of the transaction. The customer can select "Yes "or "No" as shown in **Figure 4-9**.

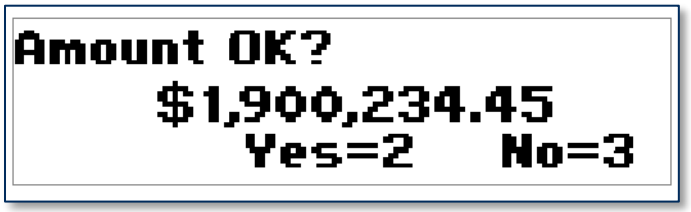


Figure 4-9 - Example of User Screen to Verify Amount

4.6 About Status Codes

The **Device Offline** screen indicates that the device is not ready for normal operation. There is also a code in the lower right corner that can help explain the cause of the offline state. Codes that start with H, S, C, or K indicate the problem requires the device be returned to the supplier for service or replacement.

Code	Description
A	An offline code beginning with "A" indicates the device is awaiting authentication. This is a normal condition when a device is configured to require authentication (security level 4). Authentication by the host is required to return it to the **Welcome** screen.
C	An offline code beginning with "C" indicates the device is missing a certificate. MagTek recommends repairing or replacing the device.
H	An offline code beginning with "H" indicates a hardware problem. MagTek recommends repairing or replacing the device.
K	An offline code beginning with "K" indicates a problem with either the magnetic stripe reader or PIN key. If the device is new, it is likely it has not been loaded with a PIN Key, and should be returned to the supplier for key loading. If a K-code appears after the device has been deployed and used for a long period of time, the K-code indicates one or both DUKPT keys have been exhausted. MagTek recommends contacting the supplier for a replacement.
S	An offline code beginning with "S" indicates a security element failure. This code can be triggered by severe handling of the device or strong interference by a nearby source of electromagnetic (EMF) interference. Try moving the device away from any suspected EMF source; if the error persists, the device should be repaired or replaced.

5 Maintenance

Periodic cleaning of DynaPro Mini's exterior may be required. To clean the outside of DynaPro Mini, wipe down the device with a soft, damp cloth and then wipe with a dry cloth.

⚠ CAUTION

To avoid damaging the read head, only clean the card path with approved cleaning cards. DO NOT use liquid cleaning products or insert any other objects into the device.

6 Developing Custom Software

Custom software uses the same underlying device command set for all DynaPro Mini connection types (USB HID or Bluetooth LE). The device commands are wrapped differently depending on the connector. The following sections give high-level information about communicating with the device via the various physical connection types in various software development frameworks, and provide pointers to select API references and sample code.

6.1 USB-Based Custom Software

MagTek produces software development kits (SDKs) with API libraries that provide higher-level functions wrapped around **HID USB** communication protocols. These libraries simplify the development of custom applications that use DynaPro Mini, and include an SDK for the Microsoft .NET Framework, and an SDK for non-managed Windows executable images, such as.exe or DLL files.

In addition to the SDK API libraries, custom software on any operating system can communicate directly with the device using the HID USB libraries and protocols.

If you are developing a point-of-sale (POS) application for Windows, you might also consider using the service objects for .NET POS (UPOS 1.12), available from Microsoft.

6.2 Bluetooth LE-based Custom Software and Apps

When DynaPro Mini is connected via **Bluetooth LE** to a host with Bluetooth 4.0 hardware that supports Bluetooth LE, the device acts as a server/peripheral, and the host acts as a client/central. The custom software wraps commands in simple Get/Set wrappers, and should use whatever Bluetooth LE library is appropriate for the chosen software development framework. For example, iOS custom apps use Apple's `CoreBluetooth` Framework, for which sample code is available in the form of Apple's Temperature Sensor app; see https://developer.apple.com/library/IOS/samplecode/TemperatureSensor/Introduction/Intro.html.

6.3 For More Information

For more information about developing custom applications that integrate with DynaPro Mini, see the MagTek web site or contact your reseller or MagTek Support Services.

Appendix A Technical Specifications

DynaPro Mini Technical Specifications	
Reference Standards and Certifications	
Magnetic stripe: ISO Type B, AAMVA Encryption: TDEA (3DES)-CBC using DUKPT PCI PTS v3.x EMV ICC Specifications for Payment Systems Version 4.3	
Physical Characteristics	
Dimensions (L x W x H)	3.82 in. (97.0 mm) x 2.46 in. (62.5 mm) x 1.05 in. (26.6 mm)
Weight (with Bluetooth LE)	10.9 oz. (309 g)
User Interface Characteristics	
Display Type	Dot Matrix LCD
Display Size (viewable area)	1.42 in. (36.1 mm) x 0.392 in. (9.95 mm)
Display Resolution	128 x 32 pixels 4 lines of up to 21 characters
Keypad	Rubber dome switches: 10 digits, 3 data entry keys, up/down arrows
Card Reader	3 track encrypting IntelliHead reader with MagnePrint
Acceptable Swipe Speeds	10 to 50 inches per second
Electrical Characteristics	
Data Connections	Bluetooth Low Energy wireless (select models) Micro-USB, compatible with USB 1.1 and USB 2.0
Battery Capacity	1000 mAh nominal (rated)
Battery Capacity, Airplane Mode	6 months minimum
Battery Capacity, Standby	2 weeks minimum (new device)
Battery Capacity, Active	200 transactions per day minimum (new device)
Power Input	USB powered via Micro-USB cable
Maximum current draw	500 mA
Voltage Requirement	5VDC
Battery Type	Rechargeable Battery: Lithium-ion (“LiPo” / “Li-ion”) for main power Tamper Backup Battery: Lithium coin cell
Flash Memory	256 MBit

DynaPro Mini Technical Specifications	
Software Characteristics	
Tested Operating System(s)	USB: Windows 7, Windows 8 and 8.1, Windows 10, Android 4.4.2 and above with USB OTG support Bluetooth LE: iOS 7.1 and above, Android 5.0, 5.1, 5.1.1, Windows 8.1 and above on hosts with Bluetooth 4.0 hardware and above
Environmental Tolerance	
Operating temperature	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 90% without condensation at 23°C
Storage temperature	32°F to 113°F (0°C to 45°C)
Storage relative humidity	5% to 90% without condensation
Reliability	
Mechanical Life	1,000,000 card swipes 500,000 chip card insertions
Battery Shelf Life	At least 6 months without depleting coin cell backup 2 years maximum coin cell backup over device lifetime
Rechargeable Battery Life	2-3 years or 300 full discharge cycles, 500 cycles or more if device is not run to complete discharge