KDC500 User Manual

Rev 1.0
September 2015

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TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO ANY TYPE OF MOISTURE. DO NOT LOOK DIRECTLY INTO LASER OR POINT THE LASER INTO ANOTHER PERSON'S EYES. EXPOSURE TO THE BEAM MAY CAUSE EYE DAMAGE.

CAUTION:

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Regulatory Compliance

US

FCC ID: VH9KDC500

This equipment has been tested and found to comply with the limits of 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:

1. Reorient / Relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a different circuit than the receiver.
4. Consult with the dealer or an experienced radio/TV technician for help.

Change or modification not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment

WARNING:

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

Laser Compliance

Complies with US 21 CFR 1040.10 and 1040.11 except for deviations pursuant to laser notice no. 50, dated June 24, 2007 and IEC 60825-1 (Ed. 2.0)

Complies with IEC60825-1:1993 + A1:1997 + A2:2001

- EMV Contact L1: 13248 0415 400 21 CEM

- EMV Contact L2: 2-03233-1-1C-TUU-0815-4.3.d, 2-03233-1-1OS-TUU-0815-4.3.d

PCI PTS V4.0

Battery Warning

- This device contains a rechargeable NiMH. Never throw the battery into a fire, as that could cause the battery to explode.
- Never short-circuit the battery by bringing the terminals in contact with another metal object. This could cause personal injury, a fire, and/or damage to the battery.
- Never dispose of used batteries with other ordinary solid wastes. Batteries contain toxic substances.
- Dispose of used batteries in accordance with the prevailing community regulations that apply to the disposal of batteries.   Cover the metal terminals with insulating tape (this is to prevent accidental short-circuiting).
- Never expose the battery to any liquid.
- Always keep the battery out of reach of infants or small children.
- Never shock the battery by dropping it or throwing it.
- Dispose of a spent or damaged battery promptly.

WARNING: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Product Disposal
This device should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

Bluetooth
Core Specification: 2.1+EDR

Apple

Made for iPhone, Made for iPod, Made for iPad

Samsung

Compatible with Galaxy Series

1. Introduction

Bluetooth EMV/Chip&PIN/MSR/Barcode/NFC Mobile POS Companion

The PCI compliant detachable EMV/MSR/Barcode/NFC SmartSled® design provides a secure and convenient user payment transaction and barcode scanning experience. Chip-and-PIN payment solutions are becoming the global industry standard and as a result, KOAMTAC has developed the most advanced mobile payment companion. Being that it has a traditional magnetic stripe reader, as well as the newly implemented EMV functionality, the Mobile POS Companion allows businesses to take payments with existing swipe cards, as well as support those implementing the newly adopted EMV systems without changing of solutions.

The KDC500 is 50% smaller and lighter than its competitors, but with its ultra-efficient power management technique it enables a long lasting operation; up to a few weeks on a single charge.

The KDC500 comes complete with a 1D laser or 2D imager barcode reader option. The 1D laser barcode solution provides an economical and fast scanning experience for budget conscious projects. The 2D imager provides a high-end scanning solution that provides generous barcode scanning capability and the ability to scan all major 2D barcodes, such as QR and PDF417 codes.

To find out more about KOAMTAC, Inc. and our family of products, visit us at www.KOAMTAC.com.

1.1 Specification

Main Processor	120MHz ARM Cortex-M4
Memory	1M program flash, 128KB RAM, 32-byte secure key storage, 8MB user data flash
Display	128x64 monochrome
Keypad	Secure Touch Pinpad(15 buttons) + 2 Scan buttons for barcode module . '0 to '9', Up/Fn, Down/Menu, Cancel, Clear and Enter
Battery	Li-ion 1130mh
Charging	Micro-USB, Charging Cradle or Wireless Charging
Mag-Stripe Reader	Track 1/2/3, Bi-directional, ISO 7810, 7811, 7813
Smart Card Reader	EMV L1 and L2, SAM

Contactless and NFC (NXP PN512)	Antenna : FPCB Type 2-Turn Loop Antenna with Ferrite Sheet
	Frequency : 13.56MHz
	PN512 -> Card (Tx) : 100% ASK (Amplitude Shift Keying)
	    Bit Encoding : Modified Miller Encoding
	Card -> PN512 (Rx) : Subcarrier Load Modulation
	    Bit Encoding :
	    106kBaud ->Manchester Encoding
	    212kBaud ->BPSK (Binary Phase Shift Keying)
	    424KBaud->BPSK (Binary Phase Shift Keying)
	ISO 14443, MIFARE, Felica, MasterCard PayPass, Visa PayWave

Security	PCI PTS V4
Encryption	For PIN : T-DES(128-bit) For Card data : T-DES(128-bit), AES(128-bit)
Key Management	DUKPT
Key Injection	Key Loader
OS compatibility	All major OS
Barcode Scanner	Optional - 1D/2D
Interfaces	Bluetooth(V2.1+EDR, Class 2, SPP/MFi), USB to Serial (Micro USB port)
Dimensions	49(W) x 117(L) x 25(H) mm (1.93" x 4.6" x0.98")
Weight	5.6oz (160grams)
Drop Spec	4 feet(1.22M)

Operating Temperature	32˚F (0℃) ~ 113˚F (45℃)
Storage Temperature	-4˚F (-20℃) ~ 113˚F (45℃)
Humidity	5% ~ 85% (noncondensing)

1.2 Package

The standard KDC500 package contains:

1. One KDC500

2. USB Cable

    ● 5pin Micro USB cable

3. KOAMTAC Installation CD with

    ● KDC Device Driver
    ● User Manual

The following KDC accessories are available to purchase from www.koamtacstore.com

or local reseller.

● Smartphone cases for KDC500
● Charging cradles for KDC500
● KDC500 SmartSled® adaptor
● KDC500 battery

1.3 Characteristics

Before starting to use the KDC500, the user should become familiar with its physical characteristics. Refer to the follow figure that indicate the placement of 1D/2D Barcode Scanner, SCAN buttons, Secure Touch Pinpad, OLED display, LED, NFC Reader, Magnetic-Stripe Card Reader, IC Card Reader and ports on the KDC.

Figure 1 - KDC500 Overview

1.4 Scan Buttons

Left SCAN Button	Right SCAN Button	Behavior
○	–	Scan Barcode / Scroll up
–	○	Scan Barcode / Scroll down
○	○	Enter KDC500 menu
●	●	Reboot KDC500

* ○(short press), -(no press), ●(long press, 5 sec)

1.5 Secure Touch Pinpad

(Menu/Down button)	While in the KDC500 menu, press this button to scroll down the selection bar. While on the main screen, press this button for 5 seconds then the KDC500 will enter the KDC500 menu mode.
(FN/Up button)	While in the KDC500 menu, press this button to scroll up the selection bar. While on the main screen, press this button for 5 seconds then the KDC500 will enter the KDC500 BT Service menu. While the KDC500 waits for Alpha-Numeric key entry, this button allows the user to switch between ABC and number input mode.
(Number button)	Input numbers or characters
(Enter button)	Press to finish data input.

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(Delete button)	Press to delete the last character or number input.
(Cancel button)	Press to cancel data input.

2. Installation

2.1 Bluetooth Pairing

The KDC500 can read and store barcode data independently, but it can also be used in combination with a PC, PDA, smartphone, or tablet.

To use the KDC500 to read barcodes while it is paired with another device, the user should first set up a pairing between the KDC and smart device via Bluetooth. If no changes have been made in the smart device's Bluetooth settings, the smart device will always recognize the KDC500 that has previously been paired. However, if changes have been made, the user will need to go through the pairing process again. The user can also refer to **Chapter 4. Bluetooth** for more information about Bluetooth pairing.

1. Put the KDC500 into **Pairing** mode

- Select and scan the correct pairing barcode below for your KDC model, or

KDC500L/KDC500Li (1D)

KDC500C/KDC500Ci (2D)

Pairing

- Select **Pairing** from the KDC500 menu, or

  From the KDC500 menu, select Normal, select BT Service, and select BT Pairing.

- Press the FN button for 5 seconds while the KDC500 is in the main screen. Then, select BT Pairing

2. On the host device, go to **Settings -> Bluetooth**, and select the KDC500 that needs to be paired. The KDC500 and host device will now communicate with each other.

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3. Operating your KDC500

3.1 Getting Started

Charge KDC500 Battery

Prior to using the KDC500, the user should charge its battery by following the below instructions.

1. Connect the KDC500 cable to the micro USB connector on the KDC500.

2. Connect the KDC500 cable to the Type A USB connector on the computer.

3. The KDC500 battery will begin charging. Within a few minutes, the LED on the front panel will illuminate orange. When the battery is fully charged, the LEDs will illuminate green. It will require 5 hours to fully charge a KDC500 Battery.

3.2 Basics

Read barcodes

To read a barcode using the KDC500, simply point the KDC500 at a barcode and press the scan button. Be sure to point the scan engine window at the barcode, not at the user's face, and make sure to position the light beam on the barcode.

If a barcode has been successfully scanned, the user will hear one short beep and the LED will illuminate green. The scanned barcode data will be displayed on the KDC500 screen.

If scanning was unsuccessful, the user will hear two short beeps, the LEDs will illuminate red, and the message ***Reading failed...*** will display. If this is the case, the

user should point the KDC500 at the barcode and press the scan button while trying the following suggestions:

- Modify the angle of the KDC500 in relation to the barcode, making the angle more wide or narrow as needed.

- Modify the distance between the barcode and the KDC500, moving closer or further away as needed.

- Check the option settings defined in the KDC500 menu section and change options as needed.

- Check to see that the barcode's width does not exceed the light beam's width, and vice versa.

Read NFC Tag (MIFARE)

1. The paired host application sends a command to enable the NFC Reader.

2. Touch NFC tag to the NFC antenna symbol on the front case, and make sure the tag and case are within 4cm of each other.

3. The KDC500 will send the NFC tag UID to the paired host application and the user will hear a short beep if it has been read successfully.

Read Magnetic-Stripe Card

1. The paired host application sends a command to enable the MS Card Reader.

2. Swipe MS Card either top to bottom or bottom to top. Make sure the magnetic stripe of the card face to the KDC500.

3. The KDC500 will send the MS card data to the paired host application and the user will hear a short beep if it has been read successfully.

Read IC Card

1. The paired host application sends a command to enable the IC Card Reader.

2. Insert IC Card to the IC Card Reader located in the left side of KDC500. Make sure the IC of the card face to up.

3. The KDC500 will send the IC card data to the paired host application.

4. Warranty

LIMITED WARRANTY AND DISCLAIMERS

BY OPENING THE PACKAGE OF THIS PRODUCT YOU AGREE TO BECOME BOUND BY THE LIABILITY AND WARRANTY CONDITIONS AS DESCRIBED BELOW.

UNDER ALL CIRCUMSTANCES, THIS MANUAL SHOULD BE READ ATTENTIVELY, BEFORE INSTALLING AND OR USING THE PRODUCT.

Serial Number

A serial number appears on the KDC label. This official registration number is strictly related to the device purchased. Make sure that the serial number appearing on your KDC is not removed. Removing the serial number will affect the warranty conditions and liability disadvantageously, so please maintain the label with serial number on the KDC. Units with the serial number label removed should not be operated.

Warranty/Warranty Period/Liability

KOAMTAC, Inc. ("KOAMTAC") manufactures its hardware products in accordance with industry-standard practices. Unless otherwise agreed in a contract, KDC is warranted for a period of one year after purchase, covering defects in material and workmanship except rechargeable battery. KOAMTAC will repair or, at its opinion, replace products that prove to be defective in material or workmanship under proper use during the warranty period. KOAMTAC will not be liable in cases (i) in which the unit has been repaired or altered unless done or approved by KOAMTAC, (ii) in which the unit has not been maintained in accordance with any operating or handling instructions supplied by KOAMTAC, (iii) in which the unit has been subjected to unusual physical or electrical stress, misuse, abuse, power shortage, negligence or accident or (iv) in which the unit has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of the customer and is not covered under this warranty. Under no circumstance will KOAMTAC be liable for any direct, indirect, consequential or incidental damages arising out of use or inability to use either the hardware or software, even if KOAMTAC has been informed about the possibility of such damages.

Warranty Coverage and Procedure

During the warranty period, KOAMTAC will repair or replace defective products returned to KOAMTAC warehouse. International customers should contact the local KOAMTAC office or support center. If warranty service is required, KOAMTAC will issue a Return Material Authorization Number. Products must be shipped in the original or comparable package, shipping and insurance charges prepaid. KOAMTAC will ship the repaired or replacement product freight and insurance prepaid. Customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

5. Contact Information

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