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Zettle Terminal USER GUIDE

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Zettle Terminal User Guide

Revision History

Version	Date	Range	Description	Author
1.0.0	06.08.2020	All document	First release	Stefan Mitov
1.1.0	02.11.2020	All document	Changed device name	Stefan Mitov
1.2.0	05.11.2020	Device Specifications	Remove Bluetooth support	Stefan Mitov
1.3.0	24.03.2021	REGULATORY	Added FCC section	Stefan Mitov
1.4.0	06.04.2021	REGULATORY	Updated section "REGULATORY"	Stefan Mitov
1.5.0	24.06.2021	REGULATORY	Updated FCC section	Stefan Mitov

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Contents

REGULATORY

Regulatory information can be accessed from Android menu setting. From main screen by pressing "Settings" -> "About" -> "Legal Information".

FCC NOTICE (United Sates)

FCC ID: YRW-ZPPTERMINAL

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 to this device not explicitly approved by manufacturer could void your authority to operate this equipment.
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.

Specific Absorption Rate (SAR) information:
This Zettle Terminal meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Smartphone has also been tested against this SAR limit. This device was tested for typical body-worn operations with the back of the Zettle Terminal kept 5mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain an 0mm separation distance between the user's body and the back of the phone. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

PREFACE

This guide is the primary source of information for setting up and installing Zettle Terminal.

Audience

This guide provides simple descriptions of Zettle Terminal features, as well as basic information for anyone installing and configuring Zettle Terminal.

Organization

This guide is organized as follows:
Chapter 1, Overview. Provides an overview of the Zettle Terminal.

Chapter 2, Specifications. Discusses power requirements and dimensions of Zettle Terminal, etc.

Chapter 3, Setup. Explains setup and installation of Zettle Terminal.
This chapter tells how to establish connections with other devices.

Chapter 4, Maintenance and Cleaning. Explains maintenance of Zettle Terminal.

Chapter 5, Service and Support. Provides information on contacting your
Datecs representative or service provider and information on how to order
accessories or documentation from Datecs.

Chapter 6, Troubleshooting Guidelines. Provides troubleshooting guidelines
should you encounter a problem in terminal installation and configuration.

Related Documentation

To learn more Zettle Terminal, refer to the following set of documents:

- *Zettle Terminal Physical Security Features*
- *Zettle Terminal Firmware API Specifications*
- *Zettle Terminal Software Design Specifications*

CONVENTIONS

Various conventions are used to help you quickly identify special formatting. Table 1 describes these conventions and provides examples of their use.

Table 1   Document Conventions

Convention	Meaning	Example
Blue	Text in blue indicates terms thatare cross references.	See Guide Conventions
Italics	Italic typeface indicates book titles or emphasis.	You *must* not use this unit underwater.
	The Information icon is used to highlight important information.	Zettle Terminal is using USB communication
	The caution symbol indicates hardware or Software failure, or loss of data.	The unit is not waterproof or dustproof, and is intended for indoor use only.
	The warning symbol is used as a warning when bodily injury might occur.	Due to risk of shock do not use the terminal near water.

Overview

This chapter provides a brief description of Datecs's Zettle Terminal device.

Zettle Terminal

The Zettle Terminal is a wireless POS terminal with 5" inch colorful display, with capacitive touch screen. The Zettle Terminal offer an integrated smart, and contactless card reader, offering advanced security and payment processing capabilities to handle credit and PIN-based debit card transactions in an attended environment.

Zettle Terminal supports both symmetric encryption algorithms (DES, 3DES, and AES) and asymmetric encryption (RSA). This device internally manages simultaneous multiple keys through either Master Session- or DUKPT-based processes, and offers high performance smart card processing, as well as support for the new generation of 3-volt cards.
The Zettle Terminal' sleek and stylish ergonomic design offers power and performance in a smart card and Contactless PIN pad device.

ℹ️	Datecs ships variants of ZETTLE TERMINAL unit for different markets. Your unit may have a different configuration. However, the basic processes described in this guide remain the same, regardless of configuration.

 Figure 1	**Features At a Glance** • Delivers **power** and **usability** in a **small convenient** hand-held design. • **Security** architecture meets specifications for PIN-entry devices (PED) and sophisticated **file authentication**. The Zettle Terminal provides the right combination of features and functions in a small stylish device that fits in your hand. This includes a contactless card reader, smart card reader, an integrated PIN pad, and an WiFi and 4G wireless mobile.

Features and Benefits

Exceptional Ease of Use
- Ergonomic design is sleek, stylish, and lightweight for conveniently handing the unit to the consumer for PIN entry.
- Intuitive interface
- Highly readable display handles multiple languages.

Critical Security Protection
- Incorporates tamper-detection circuitry to resist unauthorized intrusion and supports a broad spectrum of hardware and software-based security features.
- Integrated security modules simultaneously support sophisticated encryption (AES, DES, 3DES, RSA) and key management schemes.

Strong Feature Set
- Primary smart card reader support for synchronous and asynchronous smart cards.
- Zettle Terminal has received PCI PTS 5.1 SRED Security Certification.

Device Specifications

Processor for payment and security functions	**ARM Cortex® M3 Security Microcontroller**
Memory	• **64KB Internal ROM** • **256KB Internal RAM** • **1MB Internal Flash**
Application Memory	**4MB Serial Flash**
Processor for Android OS	**Cores: 8x ARM Cortex A53, Octa-core CPU, Clock Speed: 1.8 GHz, Architecture: 64-bit**
GPU	**Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing**
Memory	• **16GB Flash** • **2GB LPDDR3 RAM**
Main Display	• **Type - IPS** • **Colors - 16.7M** • **Size 5 inch** • **Resolution - 720 x 1280** • **Backlight** • **Capacitive touchscreen**
Smart Card Reader	**ISO7816, EMV L1 certified**
Contactless Card Reader for payment applications	• **AMEX ExpressPay** • **Discover D-PAS** • **MasterCard Contactless** • **VISA PayWave** • **China Union Pay** • **JCB**
Contactless Card Reader	• **NFC-A/ISO 14443 Type-A** • **NFC-B/ISO 14443 Type-B** • **NFC-F/Felica** • **NFC-V/ISO 15693**
Barcode Reader (option)	• **Zebra SE4100* – Image Sensor 1280 x 800 pixels, High Performance 2D Imager Scan Engine**
Supported Barcode Types*	• **1D Barcode Scanner Supported Symbologies:** JAN/UPC/EAN incl. add on, Codabar/NW-7, Code 11, Code 39, Code 93, Code 128, GS1-128 (EAN-128), GS1 DataBar (RSS), IATA, Industrial 2of5, Interleaved 2of5, ISBN-ISSN-ISMN, Matrix 2of5, MSI/Plessey, S-Code, Telepen, Tri-Optic, UK/ Plessey **POSTAL CODE:** US PostNet, US Planet, UK Postal, Australian Postal, Japan Postal, Dutch Postal (KIX) • **2D Imager Supported Symbologies:** PDF417, MicroPDF417, Datamatrix, QR Code, Micro QR Code, Aztec, RSS, Composite, TLC-39, MaxiCode
Battery	**Rechargeable lithium-Polymer battery 3.7V, 2200 mAh**

Connectivity	• **USB**
	  - **Device**
	• **USB pass-through Docking station**
	• **WLAN**
	  - **2.4G/5G, 802.11 a/b/g/n/ac**
	• **Wireless mobile Data – SC600Y-EM (EMEA)**
	  - **LTE FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28**
	  - **LTE TDD: B38/B39/B40/B4**
	  - **WCDMA: B1/B2/B4/B5/B8**
	  - **GSM: 850/900/1800/1900MHz**

	• **Wireless mobile Data – SC600Y-NA (North America)**
	  - **LTE FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71**
	  - **LTE TDD: B41**
	  - **WCDMA: B2/B4/B5**
	  - **Tray for Nano SIM**
	• **GNSS; GPS, Galileo, Glonass and Beidou**

Audio features	• **Electro-Magnetic Buzzer** • **Rear Speaker**
Buttons	• **ON / OFF key** • **Key for barcode scanner** • **Device rest button**
OS	**Android 10**
Reliability	• **500 000 chip card cycles**
Certifications	**PCI PTS 5.1**
Dimensions (LxWxH), mm	**137.5 x 76 x 15.2**
Weight, g	**210 (with Barcode engine)** **205 (without Barcode engine)**
Environmental	**Operating: -10°C to +45°C / 5 to 90% RH** **Storage: -25°C to +70°C / 5 to 90% RH**
Power Supply	• **5V through USB-C** • **5V through Rear pads**
Accessories	• **Docking station**

Device Operation

1. Power button
2. USB type C port
3. Scan button
4. PADs for docking station
5. Opening for reset button
6. Main display and touch screen/Contactless Reader
7. Chip chard reader
8. SIM card tray
9. Speaker
10. Barcode scanner

GETTING STARTED

Zettle Terminal has rechargeable Lithium-Ion battery. The battery can be charged from USB power adapter connected to USB port or when is attached to Docking station.
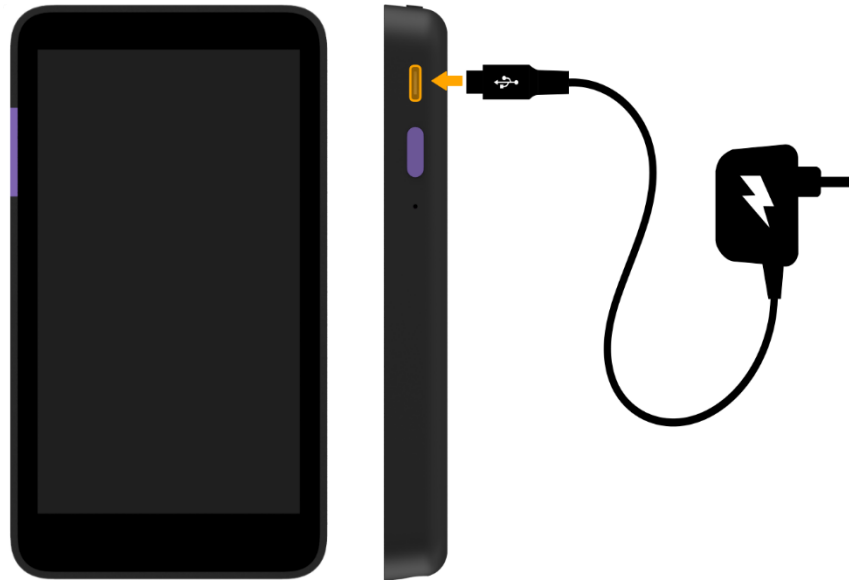

Figure 3

	Battery of Zettle Terminal is non removable, for replacing please see "Main battery replacement".

Setup

Zettle Terminal have two USB communication modes depends which USB cable is connected to the device. With cable USB-A to USB-C (USB AM 4PIN TO TYPE C SYI-0108B) gives communication to Android (Application processor), from there can be select:
- "Charge this device"
- "Transfer files"
- "Transfer photos (PTP)"
- "Use device as MIDI"

With special USB-C to USB-C cable (TYPE C MALE TO TYPE C FEMALE SYI-0129) can provide communication to Secure processor. This cable is need to be plugged to the USB-A to USB-C cable. After that can provide those modes:
- Application download mode (Loading Firmware and/or Application to secure processor)
- System mode (Key Management)
- Test Mode

COMMUNICATION PARAMETERS with Secure processor (Service Functions)

For communication with secure processor, please locate the service connector J2602 (under battery cover) and connect special service cable.

The default USB VC serial port communication parameters are the following:
- 115200bps
- 2 stop bit
- no parity

APPLICATION DOWNLOAD MODE

To enter in application download mode on the Zettle Terminal, must be hold power button and plug special USB cable (For communicated with Secure Processor USB, need is special USB cable SYI-0129) at same time. Release power button and characteristic sound is played, then press power button. In this mode can be update Firmware or Application of Secure Processor.

SYSTEM MODE

To enter in system mode on the Zettle Terminal, must be hold power button and plug special USB cable (For communicated with Secure Processor USB, need is special USB cable SYI-0129) at same time. Release power button and characteristic sound is played, after then will be played another characteristic sound, then press power button.

UPDATING SECURE PROCESSOR FIRMWARE/APPLICATION

Secure processor firmware and application can be updated via Android application.

SOFTWARE VERSIONS

The product software version of Application processor can be retrieved using Android settings menu. From main screen by pressing "Settings"->"General"->"All Settings"->"About Phone":
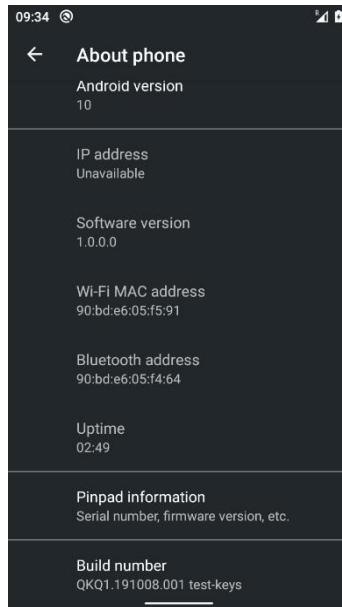

Figure 4

Android version

Software version

Build number

The product firmware and/or application versions of Security processor can be retrieved using Android settings menu. From main screen by pressing "Settings"->"General"->"All Settings"->"About Phone"->"Pinpad information":
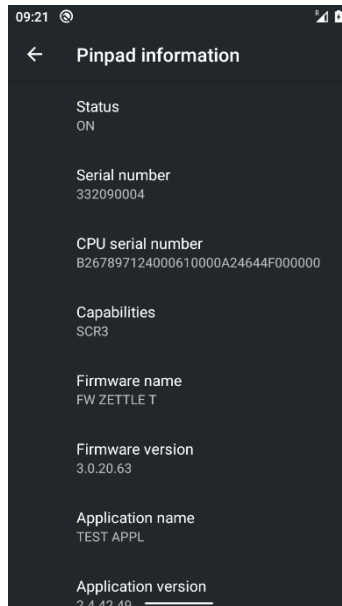
Figure 5

Status of the Secure processor On/Off

Serial Number of the device

CPU serial number – USIP serial number

Capabilities of the device

Firmware name of the loaded FW

Firmware version of the loaded FW

Application name of the loaded AP

Application version of the loaded AP

Firmware key version

Application key version

Loader key version

How to insert/remove SIM/SD cards

Location of the SIM tray is show on Figure 6 . For opening device SIM tray, insert a eject tool into the hole beside the tray.

Figure 6

ℹ️	The Zettle Terminal support only Nano SIM card.

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Smart Card Reader Use

The smart card transaction procedure can vary depending on the application loaded on the Zettle Terminal. Verify the proper procedure with your application provider before performing a smart card transaction.

To Conduct a Smart Card Transaction

1 Position a smart card with the gold contacts facing upward (Figure 7).
2 Insert it into the ICC card reader slot in a smooth, continuous motion until it seats firmly.
3 Hand Zettle Terminal to customer for PIN entry
4 Remove the card when the display indicates the transaction is completed.

Figure 7

⚠ Leave the smart card in the card reader until the transaction is completed. Premature removal can void the transaction.

Contactless Card Reading

The contactless card transaction procedure can vary depending on the application loaded on the Zettle Terminal. Verify the proper procedure with your application provider before performing a contactless card transaction.

To Conduct a Contactless Credit/Debit Card Transaction

1. Place a contactless card to shown on the Zettle Terminal display contactless logo (Figure 8).
2. Remove the card when the display indicates the transaction is completed.

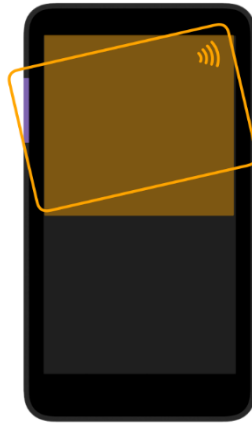Figure 8

Reading barcodes with barcode engine

Zettle Terminal has integrated barcode engine (depends on the configuration). Can be scanned 1D and 2D barcode types. For using this functionally need to be start the barcode application. After that to be pressed and hold one of the scan buttons, then position the scanning engine to the center of the barcode by aiming and the illumination box is over the outer edges of the barcode. Slowly pull back or forward the unit, while increasing or decrease the distance between the barcode and the scanning head, until the barcode has been read by the scanner. Barcode data will have shown on the used application.
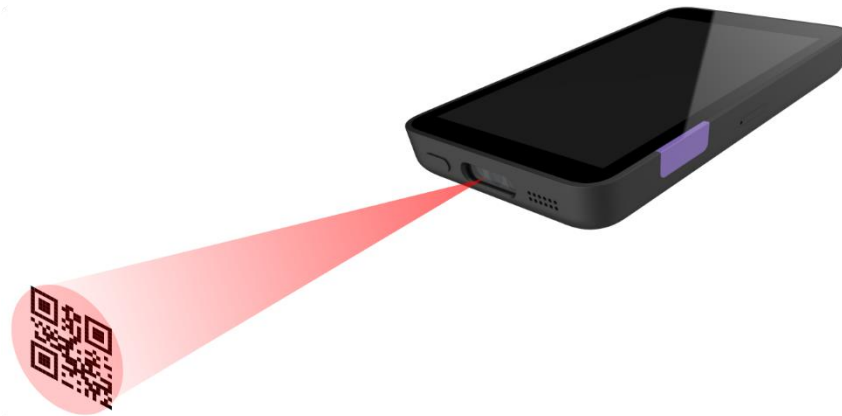

Figure 9

Troubleshooting Guidelines

This chapter lists typical examples of malfunction you may encounter while operating your Zettle Terminal unit and steps you can take to resolve them.

The troubleshooting guidelines provided in the following section are included to assist successful installation and configuration of Zettle Terminal units. If you are having problems operating your ZETTLE TERMINAL unit, please read through these troubleshooting examples. If the problem persists even after performing the outlined guidelines or if the problem is not described, contact your local Datecs representative for assistance.

	The Zettle Terminal unit contains no user-serviceable parts. Do not, under any circumstance, attempt to disassemble the unit. Perform only those adjustments or repairs specified in this guide. For all other services, contact your local Datecs service provider. Service conducted by parties other than authorized Datecs representatives may void any warranty.

Blank Display

When the Zettle Terminal unit display does not show correct or clearly readable information:
- Check battery power.
- If the problem persists, contact your local Datecs service provider.

Touchscreen Does Not Respond

If the touchscreen does not respond properly:
- Check the display. If it displays is not blank, follow the steps outlined in Transactions Fail To Process.
- If the problem persists, contact your local Datecs representative.

Transactions Fail To Process

There are several possible reasons why the unit may not be processing transactions. Use the following steps to troubleshoot failures.

Check Smart Card Reader

- Perform a test transaction using several different smart cards to ensure the problem is not a defective card.
- Ensure that the card is inserted correctly (see Smart Card Reader Use).
- If the problem persists, contact your local Datecs representative.

⛔	Due to risk of shock or damage, do not use the ZETTLE TERMINAL unit near water, including a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.

Maintenance and Cleaning

Zettle Terminal units have no user-serviceable parts.

To clean the unit, use a clean cloth slightly dampened with water and a drop or two of mild soap. For stubborn stains, use alcohol or an alcohol-based cleaner.

Do not attempt to clean the card readers. Doing so can void any warranty. For card reader service, contact your Datecs distributor or service provider.

⚠️	Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts. Do not spray cleaners or other solutions directly onto the display.

Main battery replacement

For replacing the main battery of Zettle Terminal please contact with your local Datecs representative or service provider.

Safety

• To prevent damage to your device's parts or internal circuits, do not use it in dusty, smoky, damp, or dirty environments or near magnetic fields.

• Using an unapproved or incompatible power adapter, charger, or battery may damage your device, shorten its lifespan, or cause a fire, explosion, or other hazards.

• Keep the device and battery away from excessive heat and direct sunlight. Do not place them on or in heating devices, such as microwave ovens, stoves, or radiators.

• Dispose the battery, and accessories according to local regulations. They should not be disposed of in normal household waste. Improper battery use may lead to fire, explosion, or other hazards.

• Do not use, store or transport the device where flammables or explosives are stored (in a gas station, oil depot, or chemical plant, for example). Using your device in these environments increases the risk of explosion or fire.

Service and Support

For Zettle Terminal problems, product service, and repair information, contact your local Datecs representative or service provider.

• International – Contact your local Datecs distributor

Service Returns

All customers, please contact your local Datecs Ltd representative or distributor for assistance with your service, return, or replacement.