



BlueCash-50 USER GUIDE



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BlueCash-50 User Guide

Revision History

Version	Date	Range	Description	Author
1.0.0	04.07.2020	All document	First release	Stefan Mitov
1.1.0	21.08.2020	Device Specifications	Updated Cellular specification of version A1	Stefan Mitov
1.2.0	22.11.2020	Device Specifications	Updated connectivity specification	Stefan Mitov
1.3.0	15.08.2022	REGULATORY	Added FCC statement	Stefan Mitov

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REGULATORY

FCC NOTICE

FCC ID: YRW-BLUECASH50

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:

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 BlueCash-50 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 BlueCash-50 kept 0mm 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 BlueCash-50.

Audience

This guide provides simple descriptions of BlueCash-50 features, as well as basic information for anyone installing and configuring BlueCash-50.

Organization

This guide is organized as follows:

[Chapter 1, Overview](#). Provides an overview of the BlueCash-50.

[Chapter 2, Specifications](#). Discusses power requirements and dimensions of BlueCash-50, etc.

[Chapter 3, Setup](#). Explains setup and installation of BlueCash-50.
This chapter tells how to establish connections with other devices.

[Chapter 4, Maintenance and Cleaning](#). Explains maintenance of BlueCash-50.

[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 BlueCash-50, refer to the following set of documents:

- *BlueCash-50 Physical Security Features*
- *BlueCash-50 Firmware API Specifications*
- *BlueCash-50 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 that are cross references.	See Guide Conventions
<i>Italics</i>	Italic typeface indicates book titles or emphasis.	You <i>must</i> not use this unit underwater.
	The Information icon is used to highlight important information.	BlueCash-50 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 BlueCash-50 device.

BlueCash-50

The BlueCash-50 is a wireless POS terminal with 5.45” inch colorful display, with capacitive touch screen and secondary OEL display. The BlueCash-50 offer an integrated smart, magnetic stripe, contactless card reader and printer. Offering advanced security and payment processing capabilities to handle credit and PIN-based debit card transactions in an attended environment.

BlueCash-50 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 BlueCash-50’ sleek and stylish ergonomic design offers power and performance in a smart card and MSR-integrated PIN pad device.



Datecs ships variants of BLUECASH-50 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.

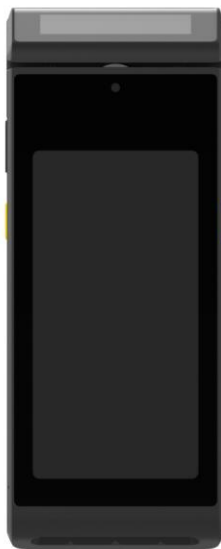


Figure 1

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 BlueCash-50 provides the right combination of features and functions in a small stylish device that fits in your hand. This includes a magnetic stripe card reader, smart card reader, an integrated PIN pad, and an Bluetooth module, 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.
- BlueCash-50 has received PCI PTS 5.1 SRED Security Certification.

Device Specifications

Processor for payment and security functions	ARM Cortex® M3 Security Microcontroller
Memory	<ul style="list-style-type: none"> • 64KB Internal ROM • 256KB Internal RAM • 1MB Internal Flash
Application Memory	4MB Serial Flash
Processor for Android OS	Quad-Core ARM Cortex-A53
Memory	<ul style="list-style-type: none"> • 8GB Flash • 1GB LPDDR3 RAM • Micro SD card
Fiscal Module (Option)	<ul style="list-style-type: none"> • ARM Cortex-M3 microcontroller • 512KB Internal Flash • 64KB Internal RAM • 2MB External RAM • 4MB External Flash • Fiscal Memory • Micro SD card
Main Display	<ul style="list-style-type: none"> • Type -IPS • Colors – 16.7M • Size 5.45 inch, HD+ 18:9 • Resolution – 720 x 1440 • Backlight • Capacitive touchscreen
Secondary Display	<ul style="list-style-type: none"> • Type – OEL • Resolution – 128 x 30 • Color – Monochrome (White)
Magnetic Card Reader	• 3-track bi-directional reading
Smart Card Reader	ISO7816, EMV L1 certified
Contactless Card Reader for payment applications	<ul style="list-style-type: none"> • AMEX ExpressPay • Discover D-PAS • MasterCard Contactless • VISA PayWave • China Union Pay • JCB
Contactless Card Reader	<ul style="list-style-type: none"> • NFC-A/ISO 14443 Type-A • NFC-B/ISO 14443 Type-B • NFC-F/Felica • NFC-V/ISO 15693
Barcode Reader (option)	<ul style="list-style-type: none"> • Zebra SE4710* – Image Sensor 1280 x 800 pixels, High Performance 2D Imager Scan Engine • E3 – Image Sensor 1280 x 800 pixels, High Performance 2D Imager Scan Engine
Supported Barcode Types*	<ul style="list-style-type: none"> • 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

Camera	<ul style="list-style-type: none"> • Main - 5 MP • Secondary - 0.3 MP
Battery	Rechargeable lithium-ion battery 7.2V, 2600 mAh
Printing Mechanism	Direct line thermal printer
Printing Width	48 mm, 384 dots per line
Printing Resolution	8 x 8 dots/mm
Printing Speed	Max 90 mm/s
Paper specifications	<ul style="list-style-type: none"> • Width 58 mm • Roll Max Diameter 40 mm
Connectivity	<ul style="list-style-type: none"> • USB <ul style="list-style-type: none"> - Device - OTG • USB pass-through Docking station • WLAN <ul style="list-style-type: none"> - 2.4G/5G, 802.11 a/b/g/n/ac • Wireless mobile Data for A1 version*: <ul style="list-style-type: none"> - LTE FDD Band 1, 3, 5, 7, 8, 19, 20, 26 - LTE TDD Band 38, 40, 41 - WCDMA Band 1, 5, 8 - GSM/EDGE PCS 1900, DSC 1800, GSM 850, E-GSM 900 • Wireless mobile Data for B1 version*: <ul style="list-style-type: none"> - LTE FDD Band 1, 2, 3, 4, 5, 7, 12, 17, 19, 25, 26, 28A, 28B, 66 - LTE TDD Band 38, 41 - WCDMA Band 1, 2, 4, 5, 8 - GSM/EDGE PCS 1900, DSC 1800, GSM 850, E-GSM 900 - 2 x Slots for Nano SIM • GNSS; GPS, Galileo, Glonass and Beidou
Audio features	<ul style="list-style-type: none"> • Electro-Magnetic Buzzer • Rear Speaker • 3.5mm Audio Jack • Microphone
Buttons	<ul style="list-style-type: none"> • ON / OFF key • 2 keys for barcode scanner • Volume Up and Down keys
LED indication	<ul style="list-style-type: none"> • Device charging status LED • Fiscal Module status LED
OS	Android 10
Reliability	<ul style="list-style-type: none"> • 300 000 chip card cycles • 400 000 magnetic card swipes
Certifications	PCI PTS 5.1
Dimensions (LxWxH), mm	205.5 x 81.86 x 60.94
Weight, g	496
Environmental	<p>Operating: -20°C to +50°C / 5 to 90% RH</p> <p>Storage: -40°C to +70°C / 5 to 90% RH</p>
Power Supply	<ul style="list-style-type: none"> • 5V through USB-C • 5V through Rear pads

***A1 version – EU version**

***B1 version – Latin America version**

Device Operation

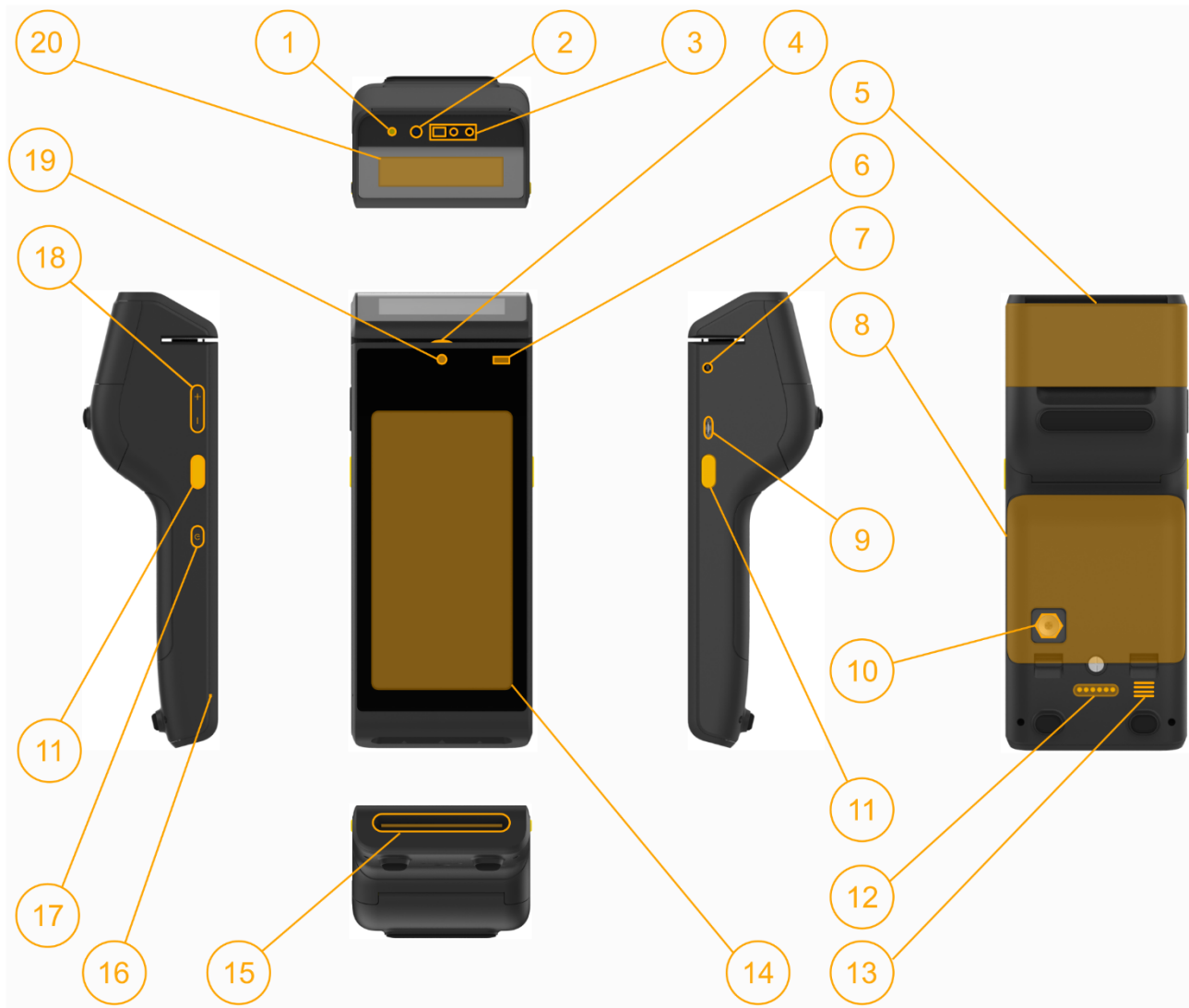


Figure 2

- | | |
|--|---|
| <ul style="list-style-type: none"> 1. LED Flashlight 2. Back camera 3. Barcode scanner 4. Magnetic card reader 5. Paper cover 6. LED indication 7. 3.5mm Audio jack 8. Battery cover 9. USB type C port 10. Hexagonal seal | <ul style="list-style-type: none"> 11. Scan buttons 12. PADS for docking station 13. Speaker 14. Main display and touch 15. Chip card reader 16. Microphone 17. Sleep/Wake button 18. Volume buttons 19. Front camera 20. Secondary display |
|--|---|

GETTING STARTED

BlueCash-50 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 BlueCash-50 is removable, for replacing please see “Main battery replacement”.
Before first use, battery must be fully charged.

Setup

Supported USB communication modes from BlueCash-50:

- “File Transfer”
- “USB tethering”
- “Used device as MIDI”
- “PTP”
- “No data transfer”

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 to enter application download mode on the BlueCash-50, USB cable must be plug and button on special cable has to be maintained pressed. A characteristic sound (one beep) is played and then must be release the button. When device is in “Application download mode” will be played characteristic sound.

SYSTEM MODE

To to enter application download mode on the BlueCash-50, USB cable must be plug and button on special cable has to be maintained pressed. A characteristic sound (second beep) is played and then must be release the button. When device is in “System mode” will be played characteristic sound.

UPDATING SECURE PROCESSOR FIRMWARE/APPLICATION

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

SOFTWARE VERSIONS

The product software versions can be retrieved using via Android Settings Menu through “About phone” ->”Android version”:

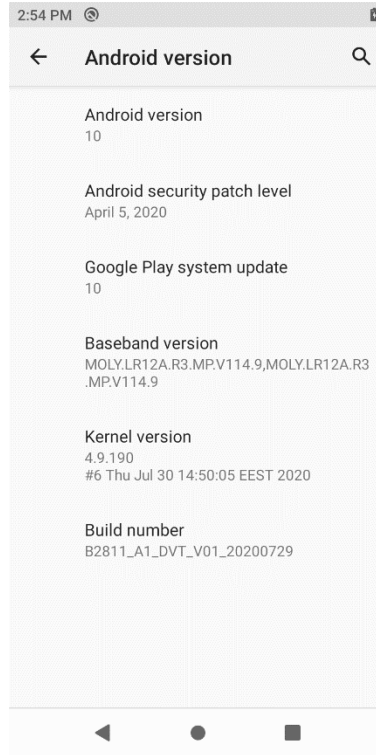


Figure 4

Android version

Android security patch level

Baseband version

Kernel version

Build number

The product software version of “Application processor” can be retrieved using via Android Settings Menu through “About phone”:

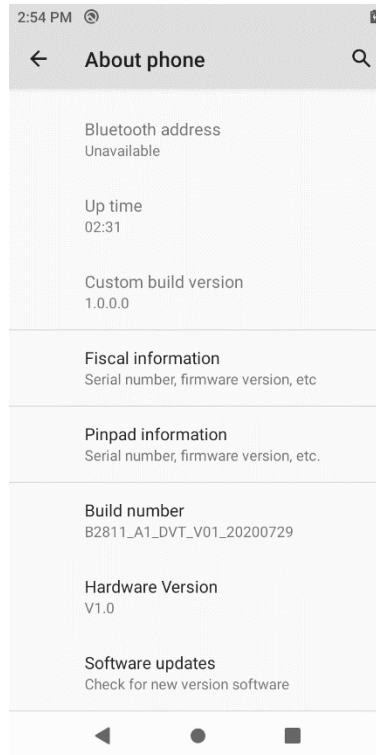


Figure 5

Custom build version of the Application processor firmware

The product software version of “Secure processor” can be retrieved using via Android Settings Menu through “About phone”->”Pindpad information”:

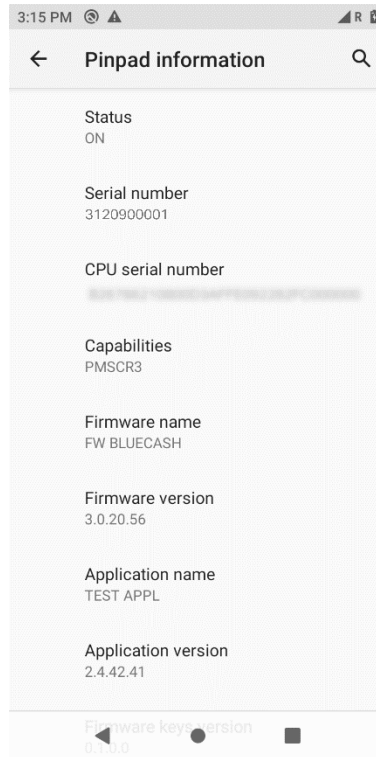


Figure 6

- 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

To be located SIM/SD holder, need to be removed battery cover, after that to be detached battery. Location of the SIM/SD holder is show on [Figure 7](#) and [Figure 8](#).



Figure 7

Figure 8



The BlueCash-50 support only Nano SIM cards.
The BlueCash-50 support only MicroSD cards.

Magnetic Card Reader Use

The magnetic card transaction procedure can vary depending on the application loaded on the BlueCash-50. Verify the proper procedure with your application provider before performing a magnetic card transaction.

To Conduct a Magnetic Credit/Debit Card Transaction

- 1** Position a magnetic card with the stripe facing down (Figure 9).
- 2** Insert it into the MS card reader slot and then quickly swipe it.
- 3** Hand BlueCash-50 to the customer for signature or PIN entry



Figure 9

Smart Card Reader Use

The smart card transaction procedure can vary depending on the application loaded on the BlueCash-50. 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 10).
- 2 Insert it into the ICC card reader slot in a smooth, continuous motion until it seats firmly.
- 3 Hand BlueCash-50 to customer for PIN entry
- 4 Remove the card when the display indicates the transaction is completed.



Figure 10



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 BlueCash-50. 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 BlueCash-50 display contactless logo (Figure 11).
2. Remove the card when the display indicates the transaction is completed.



Figure 11

Reading barcodes with barcode engine

BlueCash-50 has integrated barcode engine (depends on the configuration). Can be scanned 1D and 2D barcode types. For using this functionality 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 12

Replacing paper roll

BlueCash-50 has printing mechanism. For replacing the paper roll need to be open the paper cover, please follow the steps on the picture below (Figure 13).

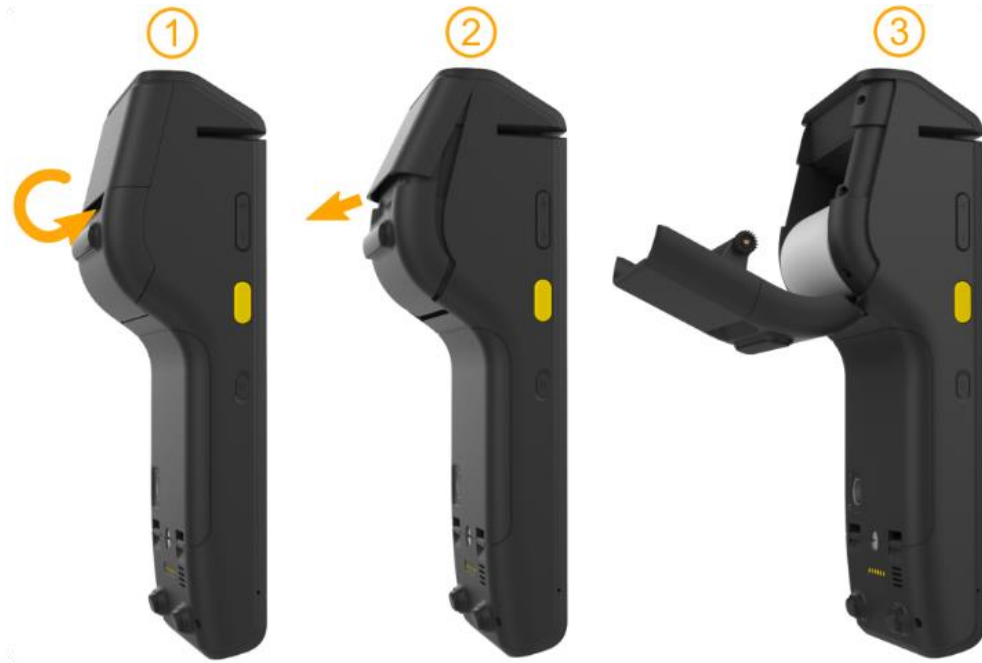



Figure 13

	<p>Paper roll specifications:</p> <ul style="list-style-type: none">• Width 58 mm• Roll Max Diameter 40 mm• Heat Transfer Paper Roll
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Troubleshooting Guidelines

This chapter lists typical examples of malfunction you may encounter while operating your BlueCash-50 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 BlueCash-50 units. If you are having problems operating your BLUECASH-50 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 BlueCash-50 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 BlueCash-50 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 Magnetic Card Reader

- Perform a test transaction using one or more different magnetic stripe cards to ensure the problem is not a defective card.
- Ensure that you are swiping cards properly (see [Magnetic Card Reader Use](#)).
- If the problem persists, contact your local Datecs representative.

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 BLUECASH-50 unit near water, including a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
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Maintenance and Cleaning

BlueCash-50 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.
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Main battery replacement

Remove battery cover and disconnect the battery (Figure 14). Place the new spare battery and connect it again to battery connector.



Figure 14



Please contact with your local Datecs representative or service provider for receiving spare original battery.

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 BlueCash-50 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.