

Hitachi USB Finger Vein Biometric Authentication Unit PC-KCB100 User Guide

Read all guidelines in this document carefully before using this product.
This document should be kept for the future reference.

Important Notices

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Product Reliability

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Regulations and Measures

- ICES-003 Statements

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

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

- Federal Communications Commission (FCC) Statement

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.

FCC WARNING

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

USB cable in the package must be used for connection to host computer in order to meet FCC emission limits.

Note: This equipment has been tested and found to comply with the limits for a class B digital devices, 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. 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.
- Exports Regulations
Before exporting the product, verify legal requirements in each country in addition to U.S. regulations for export control, and make all necessary arrangements accordingly. The above applies to attachments and software surrounding the device as well. Contact your distributor should you have any concerns.

Disposal

- When discarding this product, follow all regional and local laws. Also consult regulations regarding the material of each component.

Hazardous substance table for China

有毒有害物质或者元素

部件名称	铅 (Pb)	水银 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板	×	○	○	○	○	○
机箱	○	○	○	○	○	○
连接线缆	○	○	○	○	○	○
光学部件	○	○	○	○	○	○
USB 线缆	○	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T26572-2011 规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572-2011 规定的限量要求。

备注：以上部件中，部分含有有毒有害物质超过是由于目前行业技术水平所限，暂时无法实现替代或减量化。

Notes

Attention: If the device is not properly used, device failure may occur.

Important: If the device is not properly used, certain functions may not respond properly.

Safety Guidance

- Do not use this product near wet places such as humidifiers, washing machines, cooking places, washbasins, baths and the like. This may cause damage to the product.
- Do not use damaged or badly bent USB cables. If the cable is damaged, this may cause interruptions or malfunction.
- Do not dismantle or modify this device. It may lead to damage and malfunction.

1. Introduction

Hitachi gratefully acknowledges your purchase of the Hitachi USB Finger Vein Biometric Authentication Unit (hereafter referred to as “FV Unit”). The objective of this document is to provide a basic understanding of how to handle and use the FV Unit.

1.1 Product characteristics

The FV Unit is a biometric authentication device that performs individual authentication by capturing finger vein patterns.

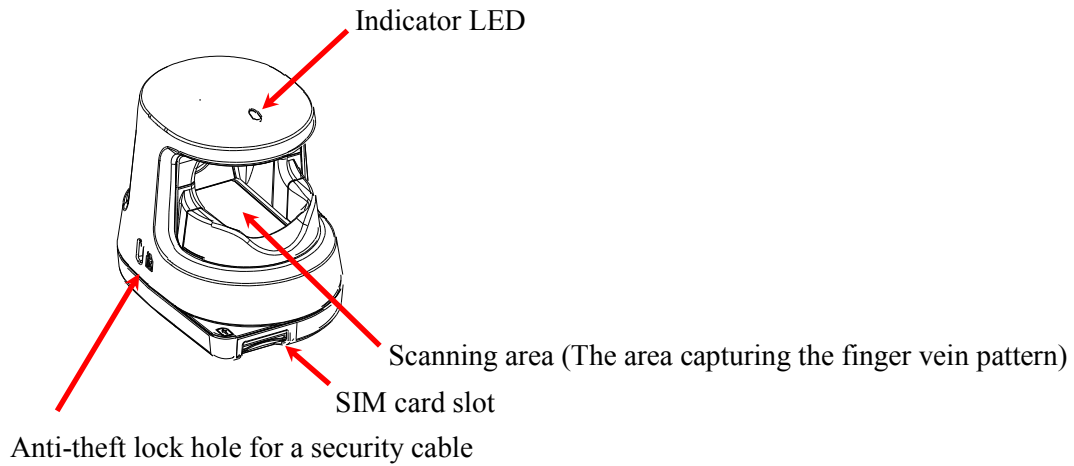
1.2 What’s in the box

Your FV Unit package includes:

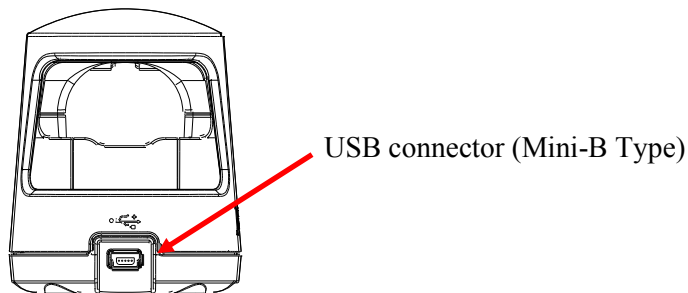
- FV Unit 1 unit
- USB Cable (1.8m/5.9ft) 1 piece

1.3 FV Unit components

Overhead view



Back view



1.4 LED color and FV Unit status

The indicator LED shows the status of the of the FV Unit. Depending on its color and blinking state, please take an appropriate action.

LED status	FV Unit status	Action
Orange	FV Unit is connected to the PC and SIM card is not inserted or recognized.	Insert SIM card to the FV Unit.
Orange blink	FV Unit is connected to the PC and SIM card being is accessed.	Wait until the LED status becomes Green. Do not disconnect the FV Unit or remove the SIM card.
Green	FV Unit is connected to the PC and SIM card is recognized.	FV Unit is to ready for use
Green blink	FV Unit is connected to the PC and is requesting the capturing of finger vein.	Place your finger on the scanning area of the FV Unit.
Red	FV Unit is connected to the PC and a permanent error occurred.	Disconnect the FV Unit from PC and connect again.
Off	FV Unit is disconnected from the PC or PC does not recognize the unit.	Connect the FV Unit to the PC.

2. Installation of the FV Unit

2.1 Place the FV Unit

Install the FV Unit on a horizontal and stable place. No light through a window or from lamps should enter the scanning area of the FV Unit.

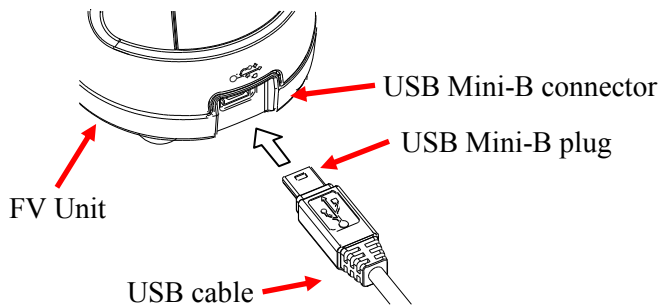
It is recommended that you use the FV Unit in the 300-1000 lx luminance environment, which is equivalent to brightness suitable for reading a newspaper.

Important

- Do not use the FV Unit in places where the FV Unit is exposed to the strong light such as outdoors, near windows, near a light source. It may lead to an authentication failure.

2.2 Connect the USB cable

Connect the USB Mini-B plug of the USB cable to the USB Mini-B connector of the FV Unit.



Connect the plug A of the USB cable to the USB port of your PC.

Attention

- Connect the USB plug and the USB connector securely. Hold the plug end when connecting or disconnecting the USB cable to prevent the connectors from breaking down.

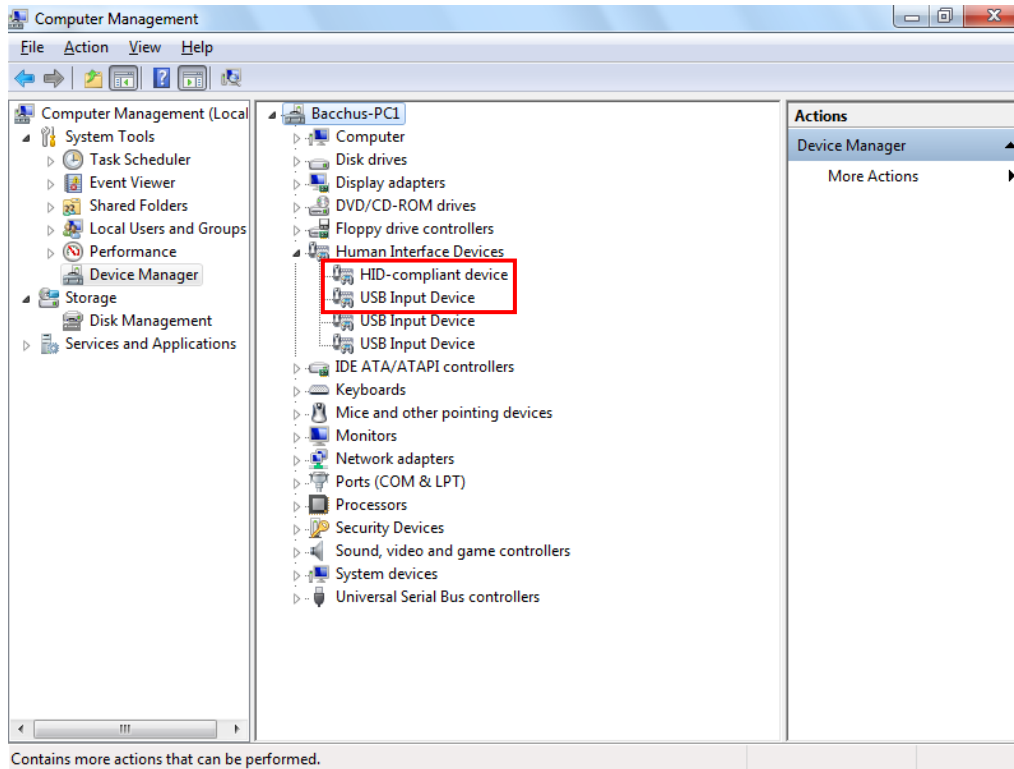
Important

- When connecting the USB cable via a USB hub, check the supply current. The FV Unit may malfunction with insufficient power supply.
- Do not use a USB 1.1 hub for a USB 2.0 PC port, which may cause the FV Unit to malfunction.
- FV Unit may hold some heat due to the use of infra-red rays inside, but this will not cause malfunctions.
- Do not connect more than two FV Units simultaneously to one PC. If multiple FV Units are connected, they will not work properly.
- After connecting the FV Unit to your PC, wait for at least 5 seconds before performing any operation.

2.3 Check the FV Unit is recognized

After connecting the FV Unit to your PC, check that the FV Unit is recognized correctly by the PC. Note that Windows uses the Human Interface Device driver to access the FV Unit, so you do not need to install a specific device driver for the FV Unit.

Confirm that the FV Unit is displayed in the Device Manager as a Human Interface Device.



3. How to use the FV Unit

3.1 How to insert / remove the SIM card

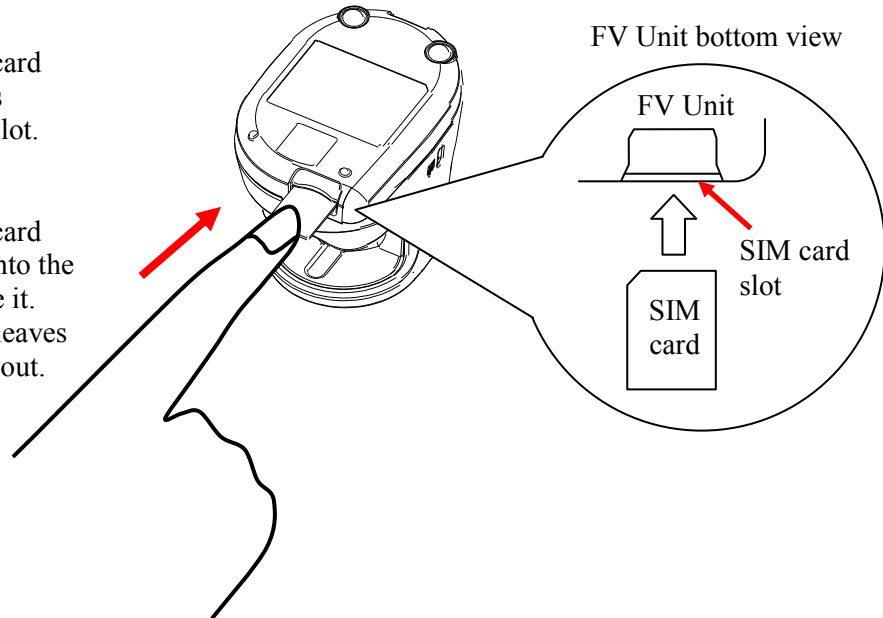
Disconnect the USB cable before you insert or remove the SIM card.

- Insertion

Push the SIM card softly until it is latched in the slot.

- Removal

Push the SIM card softly further into the slot and release it. After the card leaves the slot, pull it out.



Important

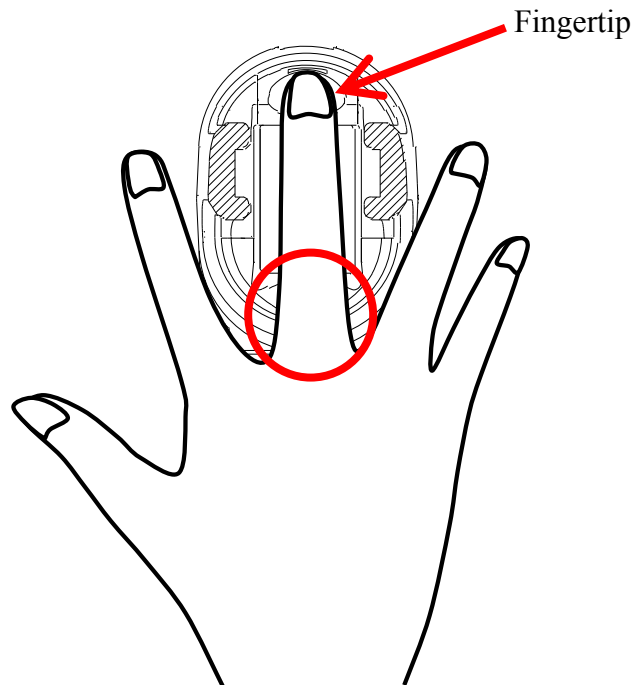
- Disconnect USB cable before you insert or remove the SIM card.
- Check the direction of the SIM card before you insert it to the FV Unit. If you insert it in the wrong direction, the FV Unit and the SIM card can be damaged and malfunction.
- Do not push the SIM card except by fingers.
- The SIM card is a very small material. Be careful in its handling. Especially, keep it away from young children in order to avoid accidental ingestions.

3.2 How to perform a finger vein authentication

Place your finger on the scanning area of the FV Unit.

Place your fingertip on the groove of the back finger rest.

Place the underside of your finger gently on the front finger rest as indicated by the red circle in the illustration below.



Important

- Improper positioning of the finger may lead to an authentication failure. See the *Enrollment and Authentication Guide* for details of the proper finger placement.
- Finger vein authentication and enrollment may fail in the following cases:
 - narrow fingers - finger width under 10 mm/0.4 inch
 - wide fingers - finger width over 25 mm/1 inch
 - short fingers - finger cannot reach the back finger rest
- Do not place any non-finger objects on the scanning area of the FV Unit.
- Do not disconnect the USB cable or the FV Unit from the PC.

4. FV Unit maintenance

Attention

- Disconnect the USB cable before the maintenance of your FV Unit. Keeping the cable connected during maintenance may cause failures.
- Take caution so that the FV Unit is not exposed to any liquid or humidity as it may cause malfunctioning.
- Do not clean the device with organic solvents such as gasoline or alcohol.

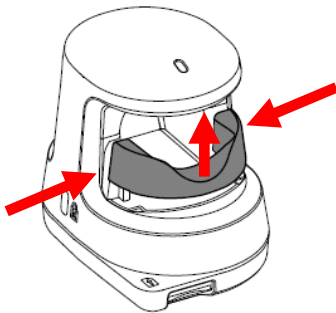
4.1 Cleaning external parts

Periodic maintenance of the external parts of the FV Unit is recommended. About once a month or whenever required according the condition of the FV Unit, clean the external parts by rubbing it with a soft piece of cloth. If a dirt remains, use a mild detergent and wipe it off with a damp cloth.

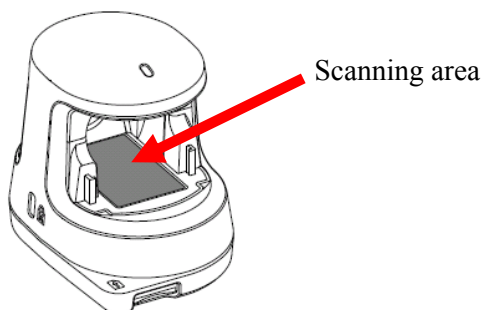
4.2 Cleaning scanning area

Maintenance of the scanning area is recommended about once a month or whenever it is dirty with fingerprints and others.

1. Push sides and raise upwards to remove the finger rest (a black part) of the FV Unit.



2. Clean the scanning area using a soft piece of cloth. If you find large dusts, remove them before cleaning.



3. After the cleaning is complete, place the finger rest back into its original position.

5. Hardware specifications

Name	USB Finger Vein Biometric Authentication Unit	
Model	PC-KCB100	
Applicable finger width *1	Wider than 10 mm/0.4 inch and narrower than 25 mm/1 inch	
Interface	USB 2.0 *2 *3 *4	
Dimensions	Approx. 59mm/2.3inch(W) x 82mm/3.2inch(D)x 74mm/2.9inch(H) (USB cable not included)	
Weight	Approx. 102g/3.4oz (USB cable not included)	
Maximum Current Consumption	DC 5V 500 mA (Bus powered)	
Environment Conditions (Operation)	Operating temperature	5 to 35 degrees C (41 to 95 degrees F)
	Operating Humidity	20 to 80% Rh (Do not allow condensation)
Environment Conditions (Storage)	Storage Temperature	-10 to 60 degrees C (14 to 140 degrees F)
	Storage Humidity	20 to 80% Rh (Do not allow condensation)
SIM card	ISO/IEC 7810 ID-000 sized	

- *1: If the finger positioning is incorrect, authentication may fail even with the applicable finger width.
- *2: It is recommended to connect the FV Unit directly to the USB port of your PC. If you need to connect the FV Unit via a USB hub, use a self-powered hub.
- *3: When you reconnect the FV Unit to your PC after a disconnection, use the same USB port to which the FV Unit was connected.
- *4: When FV unit is connected to the USB 3.0 port, FV unit is recognized as a USB 2.0 device.

6. Troubleshooting

This chapter presents methods for solving problems with the FV Unit.

- **The USB cable is connected to the FV Unit, but the LED does not turn on in green**

The supported SIM card is not inserted.

→ Insert the supported SIM card. You need to insert a SIM card in which Hitachi Finger Vein Biometric PKI Card Application (C-N1719-20) is installed.

The device driver is not appropriately configured.

→ See 2.3 **Check the FV Unit is recognized** and confirm that the device driver is properly configured on the PC.

The USB port of your PC is malfunctioning.

→ Restart your PC.

The FV Unit is damaged.

→ Please contact your retailer.

- **Authentication fails**

Your finger position is not stable during the capture process

→ Place your finger properly on the scanning area during the capture process. Do not move your finger until the capture process is completed.

Your finger is not properly placed.

→ Place your finger properly into the scanning area as shown in the *Authentication and Registration Guide*.

Your finger is wounded, excessively dry or dirty

→ Wash or clean your finger, then perform authentication again. When your finger is wounded, excessively dry or dirty, a quality finger vein image may not be obtained and it may result in authentication failure.

Your current finger condition differs from that at enrollment.

→ Enroll your finger again.

Your finger width is over 25 mm/1 inch or below 10 mm/0.4 inch

→ Enroll other finger. When a finger is too wide or too narrow, a quality finger vein image is not obtained and it may result in authentication failure.

- **Authentication does not start**

The FV Unit is not ready to start the authentication process.

→ When the FV Unit is connected to the PC and SIM card is inserted properly, its LED light is on in green. However, when connecting the FV Unit or inserting the SIM card, you need to wait for at least 5 seconds until the LED status changes from blank or orange blink to green, before performing an authentication process.

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