

# Hitachi USB Finger Vein Biometric Scanner PC-KCA100 /PC-KCA110 Hardware Operations Manual

Before using this product, read all guidelines in the manual carefully.  
This manual should be kept for future reference.

## Important Notices

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- The contents of this document are subject to change without notice.
- In the case of any errors, inaccuracies or omissions in the contents of this document, please notify Hitachi, Ltd.
- Hitachi, Ltd. permits the acquisition and use of the product according to the conditions indicated in this Hardware Operations Manual.
- According to the statements contained in previous paragraphs, Hitachi, Ltd. will not assume any liability for effects arising from the use of this product. Consequently, do not use the product unless you fully understand its operation.

## Product Reliability

- The product you have purchased has been designed and manufactured for general office use. Avoid its use for applications that require extremely high reliability or in cases where lives or property may be at stake, for example the control of chemical plants, medical devices, urgent communications etc. Hitachi, Ltd. assumes no liability for any such uses and for any derived circumstances that may lead to accidents if used inappropriately .
- We do not guarantee the correct functioning of this product if it is used simultaneously with other identification devices.

## 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.

Supplied USB cable must be used for connection to host computers 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.

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- 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 Hitachi, Ltd. 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.

### Notes

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

**Important:** If the device is not properly handled, 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 implementation of the Hitachi USB Finger Vein Biometric Scanner (hereafter referred to as "FV Scanner"). The objective of this operations manual is to provide a basic understanding of how to handle and use the FV Scanner. Information on the installation and un-installation of the device driver and the necessary software are provided in the "Device Driver and Hitachi Secure BioAPI Runtime Libraries Installation and Un-installation Manual".

### 1.1 Product Characteristics

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

### 1.2 Package Contents Verification

The package consists of the items listed below. In case the package does not contain any of these items, please contact the retailer.

FV Scanner.....1 unit

USB Cable (1.8m) .....1 unit

## 2. Installation of the FV Scanner

### 2.1 FV Scanner Components and Functions

Image from Top and Side

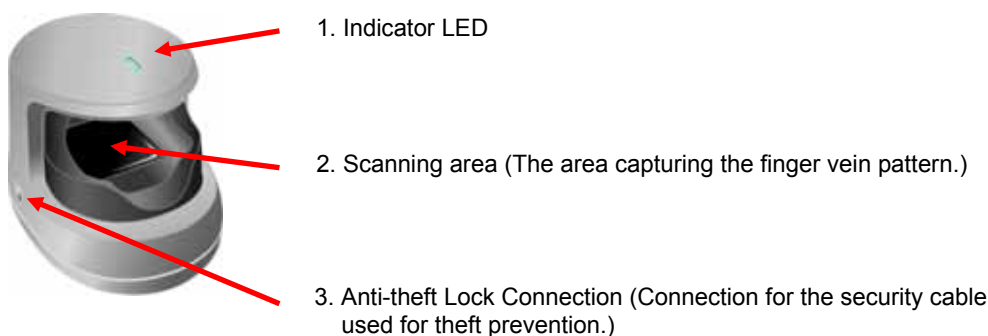
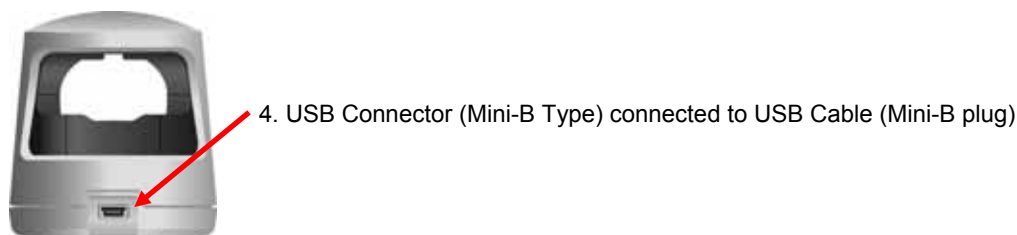


Image from Back



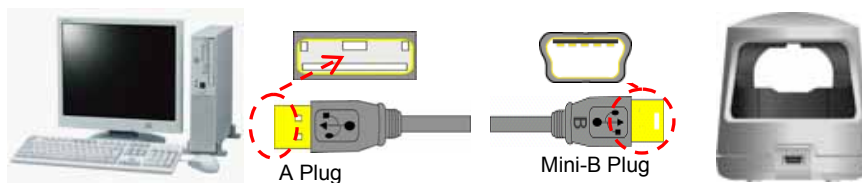
## 2.2 FV Scanner Installation and Configuration

1. Install the FV Scanner on a horizontal surface in a stable and secure location. Place the device away from windows, direct light, or other strong light sources. Usage of the device under 300-1000 Lux, which is equivalent to the light required to read a newspaper without difficulty, is strongly advised.

### **Important**

Do not use FV Scanner in places receiving solar rays, either direct sun exposure or strong sunlight coming in through windows. Exposure to strong light may lead to authentication failure.

2. Connect the USB Connector (Mini-B Type) of the USB cable (Mini-B Type) to FV Scanner. Connect plug A of the USB cable to the USB port or to the PC Hub.



### **Attention**

Insert the USB plug into the USB connector in a safe manner. Hold the plug end when connecting or disconnecting the USB cable. If the plug end is not held when connecting or disconnecting, failures may occur.

### **Important**

- When connecting the USB via the hub, verify the supply current. Equipment may malfunction with insufficient power supply.
- For a USB 2.0 PC port, do not use a USB 1.1 hub, which may cause the FV scanner to malfunction.
- FV Scanner may hold some heat due to the use of infra-red rays in the product, but this will not cause failures.
- Do not connect more than two devices simultaneously to one PC. If multiple FV Scanners are connected, they will not work properly.
- After connecting the FV Scanner, wait for at least 5 seconds before performing any operation.

3. When connecting FV Scanner to the PC, a message stating "Hardware Update Wizard" or "New Hardware Access Wizard" will be displayed. Cancel the wizard and instead execute the device driver and the necessary software installation from "Hitachi USB Finger Vein Biometrics Scanner PC-KCA100/PC-KCA110 Bundle CD". For information on software installation, refer to the "Device Driver and Hitachi Secure BioAPI Runtime Libraries Installation and Un-installation Manual".

### 3. How to Use the FV Scanner

Place the finger in the scanning area of the FV Scanner.

#### **Important**

- Consult the accompanying document "Authentication-Registration Guide" about proper finger position.
- During image capture, do not place any unidentified object other than the finger in the scanning area of the FV Scanner as this may lead to malfunction.
- Finger vein authentication and registration may fail in the following cases - registration of children's fingers, narrow fingers (finger width under 10 mm/0.4"), wide fingers (finger width over 25 mm/1") or short fingers (the individual's finger cannot reach the finger authentication area).

When placing your index finger onto the scanning area, hold the FV scanner by using your thumb and middle finger on either side to keep it fixed and steady.

The fingertip must reach the cavity at the back of the scanning area. Rest the underside of the finger gently on the notch indicated by the red circle in the illustration below.



#### **Important**

- Improper positioning of the finger on FV Scanner may lead to authentication failure. For further information on the proper finger position, refer to the accompanying document "Authentication-Registration Guide".
- Do not disconnect the USB cable or FV Scanner from the PC during image capture as this may cause system instability.

## 4. FV Scanner Maintenance

### Attention

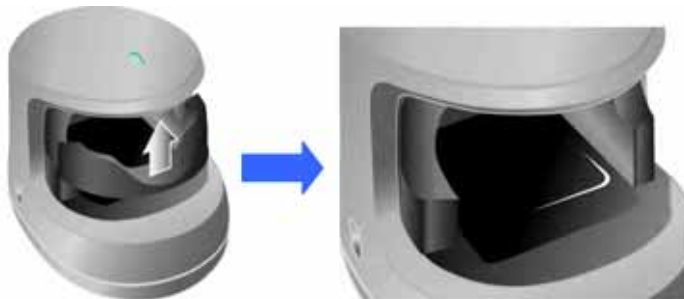
- Before performing FV Scanner maintenance, remove the USB cable. Keeping the cable connected during maintenance may cause failures.
- Take caution so that the product is not exposed to any liquid or humidity. as that may cause malfunctioning.
- Do not clean the device using organic solvents such as gasoline or alcohol.

- Periodic maintenance of the external part of FV Scanner is recommended. About once a month or whenever required according the condition of the scanner, clean the external part by rubbing it with a soft piece of cloth. If dirt remains, use a mild detergent and rinse off with a damp cloth. Ensure that the FV scanner is in no way soaked in liquid.
- Scanning area maintenance is recommended about once a month or whenever dirt from fingerprints is detected.

Use a soft piece of cloth to clean it.

### [Scanning Area Maintenance Method]

- Raise upwards and remove the front part of the device where the finger is placed (support).



- Clean the scanning area using a soft piece of cloth. In case of big and obvious dirt particles, remove these before cleaning.
- Place the support back into its position once cleaning is done.

## 5. Hardware Specifications

Name		USB Finger Vein Biometric Scanner
Model		PC-KCA100/PC-KCA110
Finger Size		More than 10 mm/0.4" and less than 25 mm/1" *1
Interface		USB 2.0
Dimensions		Approx. 59mm/2.3"(W) × 82mm/3.2"(D) × 74mm/2.9"(H)
Weight		Approx. 96g/3.4oz (USB cable not included)
Maximum energy supply		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 (However 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 (However, do not allow condensation)
PC Requirements	CPU	See "Device Driver and Hitachi Secure BioAPI Runtime Libraries Installation and Un-installation Manual"
	Memory	
	HDD	
	Interface *2	
Compatible OS		

\*1: In case of incorrect finger positioning, even with correct finger size, authentication may fail to be completed.

\*2: If possible, connect the FV scanner directly to a PC USB port. If connecting via a USB hub, use a self-powered hub. When the FV Scanner is disconnected from a USB port, use the same USB port upon reconnection.

## 6. Troubleshooting

This section presents methods for solving problems with the FV Scanner.

- The USB cable is connected to FV Scanner, but the LED does not display a green light.

This may be due to several reasons:

FV Scanner driver being used has not been appropriately configured.

→ See Chap. 2.4 Confirmation of Driver Installation in "Device Driver and Hitachi Secure BioAPI Runtime Libraries Installation and Un-installation Manual" and verify that the driver has been properly configured on the PC.

PC USB port may be malfunctioning.

→ Restart the PC.

The hardware may be damaged.

→ Contact the retailer.

- Authentication failure.

The finger has been moved during authentication.

→ Place the finger properly in the scanning area during authentication and do not move it until the authentication process is completed.

The finger is wounded, excessively dry or dirty.

→ When the finger is wounded, excessively dry or dirty, e.g. presenting dust or other traces of dirt on its surface, a proper image will not be obtained during the authentication process.

→ Wash or clean the hands, then perform authentication again using clean and healthy fingers.

In the case of a finger width over 25 mm/1" or under 10 mm/0.4", an appropriate image might not be obtained and thus the image capture will not be completed.

→ Perform a test of finger location: Try to extend the finger; place the finger deep into the cavity; place the finger closer to the front.

General usage: Perform authentication by placing the fingertip on the concave part of the FV Scanner.

The finger is not properly positioned.

→ Place the finger properly into the scanning area, following the instructions for authenticating.

Discrepancy between current finger condition and that stored at registration.

→ If it is difficult to complete authentication (i.e. with growing children, whose finger condition changes), register the finger information again. For this new registration, delete the previous finger information and perform Add Finger Information again.



- Authentication has failed to start.

Authentication will not start.

→When the FV Scanner is connected, the LED light is permanently on.  
However, authentication cannot be immediately started. Wait for at least 5 seconds after connecting the device before performing an authentication.

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2nd Edition July 2012

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