# Hardware Development Manual

## Kojak PL

### Fingerprint Scanner

**Version 1.0.1**

# Revision History

| Revision No. | Issue Date | Comments |
|---|---|---|
| 1.0 | 2016.11 | 1.0 Version Preliminary |
| 1.0.1 | 2016.11 | Reformatted |
| | | |

WEEE Symbol (Waste from Electrical and Electronic Equipment)

This symbol indicates that when the end-user wishes to discard this product, it must be sent to separate collection facilities for recovery and recycling. By separating this product from other household-type waste, the volume of waste sent to incinerators or land-fills will be reduced and natural resources will thus be conserved.

Direct Current Symbol

to indicate on the rating that the equipment is suitable for direct current only; to identify relevant terminals.

# Contents

# 1. Introduction


Kojak is provided with a full-featured SDK to enable effective integration into applications requiring certified FAP60 quality images. This product meets the needs for both enrollment and verification applications common in international standards based programs. Kojak is particularly suited to the many mobile applications where minimal size and weight have significant value. It can also cost-effectively perform all requirements common in Ten Print enrollment applications.

# 2. Features

- **Lightweight:** designed to have minimal impact on the overall weight or structure of biometric devices
- **Compact:** designed to easily integrate into multiple applications, allowing biometric devices to be smaller and more mobile
- **Durable:** impact-resistant and able to withstand the toughest conditions with minimal maintenance or damage due to scratching or breakdown from contaminants
- **Accurate:** provides accurate high-resolution fingerprint scans in virtually any environment: indirect or direct sunlight, a factory, with dirty or clean fingers
- **Secure:** live finger detection

## 2.1. Hardware Features

- **It can get a fingerprint image with high speed thanks to internal FPGA**
- **The verification of competiablity and interoperability using USB I/F certification**
  - It can get and transfer a fingerprint image most effectively using USB 2.0 interface.
  - It supports USB 2.0 Plug and play.

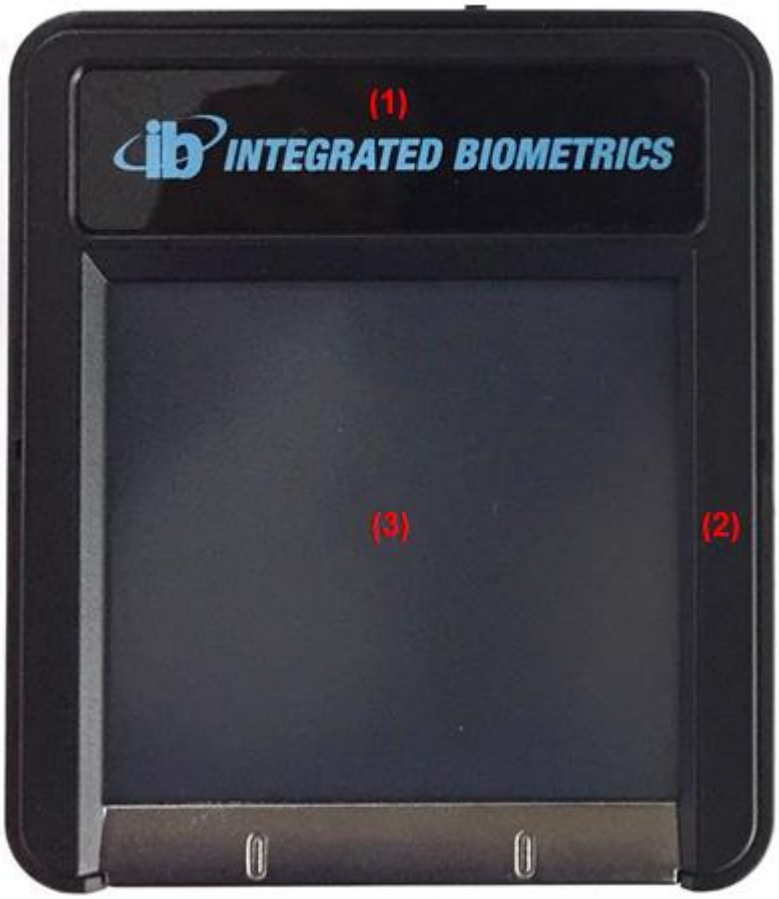
## 2.2. Software Features

- **It can capture single flat fingerprint, single rolled fingerprint, and two & four flat fingerprints.**
- **High security level**
  - It can distinguish between real and fake fingerprint.
  - U.S patented Contact Light Emitting Sensor
- **Automatic fingerprint capturing**
- **Provide SDK**
  - We provide a SDK for developing Windows & Linux program (Visual Basic, Visual C++, .Net).

# 3. Applications

- Immigration system
- Electronic ID
- Electronic ID

# 4. Exterior




(1) Private Label can customized

(2) Kojak sensor plate

(3) LE Sensor : **L**ight **E**mitting **Sensor**

# 5. Hardware Overview

## 5.1. Operational Modes


- **USB Connector Pin Description**

| Pin No. | Type | Description |
|---|---|---|
| 1 | V_BUS | +5Vdc |
| 2 | USB | D+ |
| 3 | USB | D- |
| 4 | G | GND |
| 5 | - | NC |
| 6 | G | Shield GND |

# 6. USB Specification

## 6.1. Supported OS Driver

| Section | Spec. | Remarks |
|---|---|---|
| Windows | XP | |
| | VISTA | |
| | 7&8 | |
| Android | Android 4.0 higher | |
| Linux | Kernel 2.6 | |

## 6.2. Recommended specification for PC

| Section | Spec. | Remarks |
|---|---|---|
| CPU | Pentium4 - 2.0GHz higher | |
| Memory | 512 RAM higher | |
| USB | USB 2.0 | |

## 6.3. Minimum specification for PC

| Section | Spec. | Remarks |
|---|---|---|
| CPU | Pentium4 - 1.0GHz higher | |
| Memory | 256RAM higher | |
| USB | USB 1.1 | |

# 7. Specification

## 7.1. Hardware Specification

| Section | | Spec. | Remarks |
|---|---|---|---|
| IBNK110 | Interface | USB 2.0 High speed Plug & Play | |
| | Sensor Type | LE Polymer Film | |
| | Camera | CMOS Image sensor | |
| | Resolution | 500DPI ± 1% | |
| | Platen size | 89mm(W) x 80mm(L), 3.5”(W) x 3.15”(L) | |
| | Slap sensing area | 80mm(W) x 76mm(L), 3.2”(W) x 3”(L) | |
| | Roll sensing area | 40mm(W) x 38mm(L), 1.6”(W) x 1.5”(L) | |
| | Image size | Slap image : 1600(W) x 1500(H) pixels<br>Roll image : 800(W) x 750(H) pixels | |
| | Indicate | LEDs and Magnetic buzzer | |
| | Extra buttons | Supported two buttons | |
| | Supply voltage | USB Level 4.40V ~ 5.25V | |
| | Static Discharge | IEC61000-4-2<br>Air Discharge : ±15kV<br>Contact Discharge : ±8kV | |
| | Sunlight | Has no effect on fingerprint image | |
| Mechanical | Scanner Package | 114.8mm x 131.9mm x 85.1mm (±1mm) | |
| | Product Weight | <750 grams | |

## 7.2. Software Specification

| Section | Spec. | Remarks |
|---|---|---|
| API Interface | Capture One finger | |
| | Capture Two finger | |
| | Capture Four finger | |
| | Capture roll image | |
| Supported Operating System | Windows, Linux, Android | |

## 7.3. Environmental

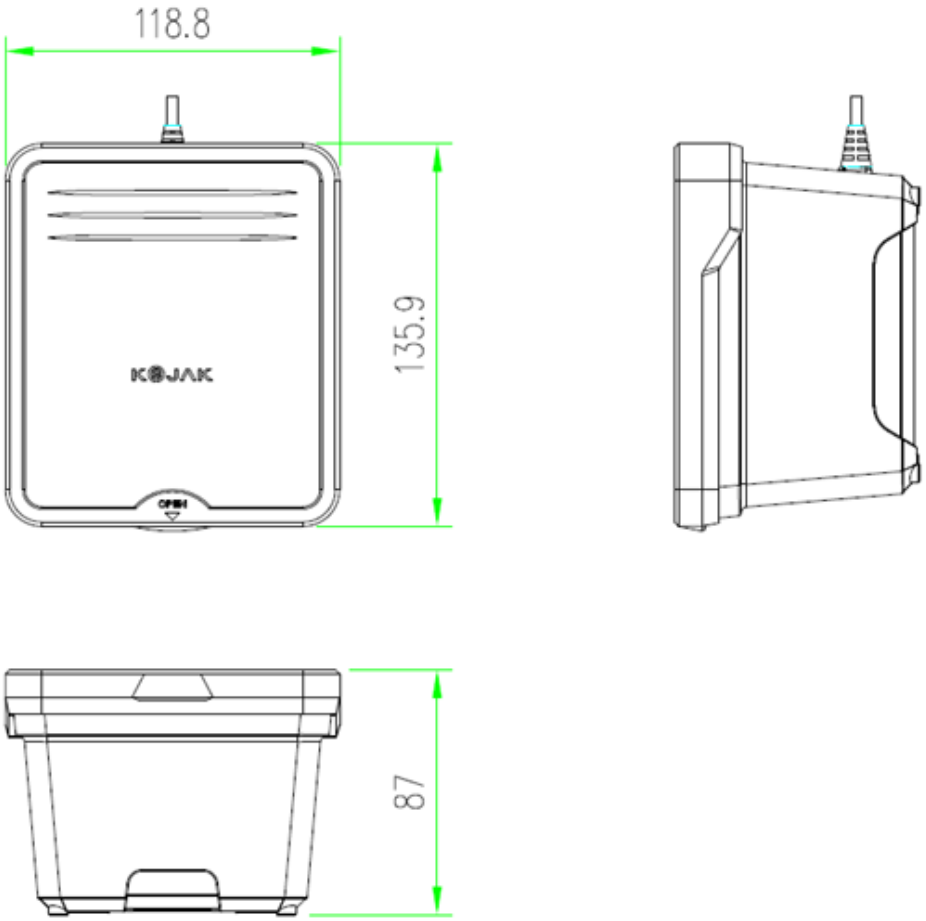
| Section | Spec. | Remarks |
|---|---|---|
| Operating Temperature | -10℃ ~ 55℃ | |
| Humidity | 20 ~ 95 %RH < 40℃, Non-condensing | |
| Hazardous Material | RoHS 2002/95/EC Compliant | |
| Storage Temperature | -30℃ ~ 80℃ | |
| Enclosure | IP65 Compliant | |

## 7.4. Electrical DC Characteristics (VDD = 5Vdc, Top = 25℃)

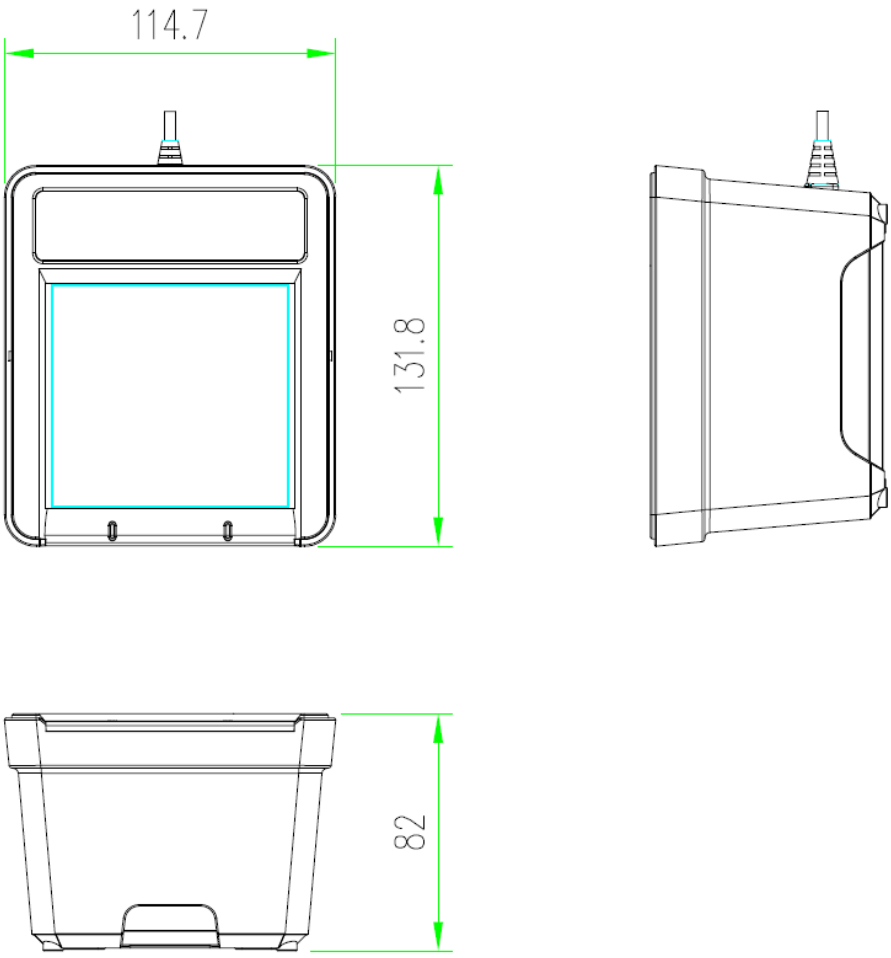
| Section | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Power Supply Voltage (VBUS) | | 4.5 | | 5.5 | V |
| Full Scanning | | - | - | 320 | mA |
| Scanner in Sleep Mode | | - | - | 2 | mA |
| USB only (Driver connection) | | | | 40 | mA |
| Wake-Up Line | On/Off $V_{IH}$ (LVTTL) | 2 | | 3.6 | V |
| | On/Off $V_{IL}$ (LVTTL) | | 0.8 | | V |
| Grounding | | Bezel <5Ω to USB cable shield | | | |
| D+ and D- | | USB | | | |

# 8. Mechanical Specification

## 8.1. Appearance

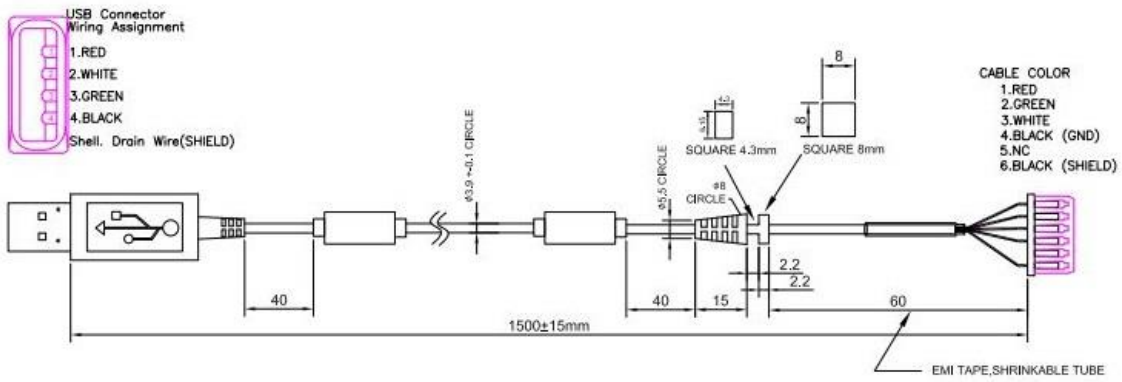



< With Protect Cover >




< Without Protect Cover >

## 8.2. USB cable


USB Connector
Wiring Assignment
1.RED
2.WHITE
3.GREEN
4.BLACK
Shell. Drain Wire(SHIELD)
CABLE COLOR
1.RED
2.GREEN
3.WHITE
4.BLACK (GND)
5.NC
6.BLACK (SHIELD)
SQUARE 4.3mm
SQUARE 8mm
CIRCLE
2.2
2.2
40
40
15
60
1500±15mm
EMI TAPE,SHRINKABLE TUBE

# Support Contact Information:

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