

# User Manual

## PV10M/R Near-infrared Palm Device

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Version: 1.0

Date: June 2020

# Preface

Thank you for choosing our product PV10M/R Near-infrared Palm Device. Please read this User Manual carefully before use.

We strongly believe that Palm Vein Device brings you and your customers an excellent user experience and will uplift your Brand Image and the Management to a higher level.

Considering the stability of the product quality and service life, please do not intentionally dismantle the product or modify the system settings without professional instructions. For further queries, please contact the local dealers.

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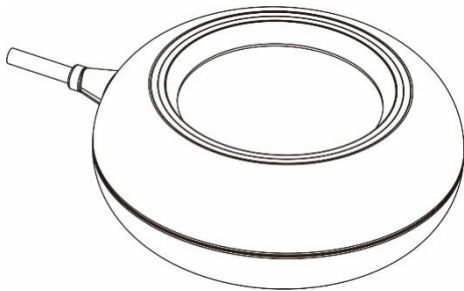
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# 1. Introduction

PV10M/R is a touchless device which is used to capture the palm and vein features. It uses a near-infrared fill light, a wide dynamic image sensor, and an aspherical distortion-free camera system. It can capture the palm and vein images under the palm skin, thus offering an excellent anti-spoofing performance.

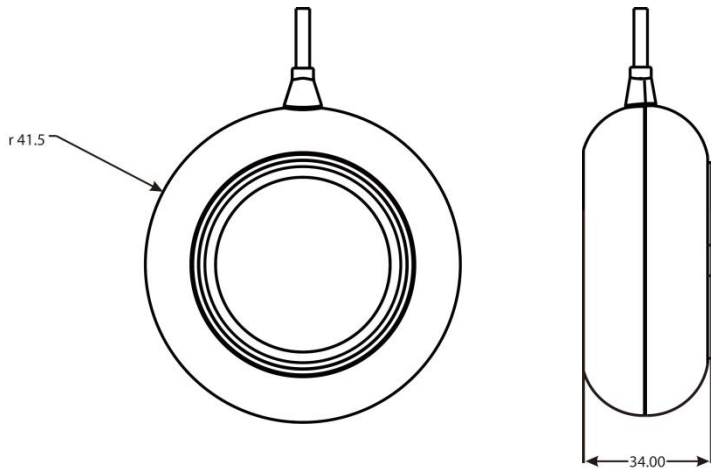
It has a built-in high-performance, low-power-consumption processor with a frequency up to 400MHz, a USB interface for power supply and communication, supporting the mainstream operating system.

By combining with the ZKPalm SDK, customers can easily develop a palm recognition system.

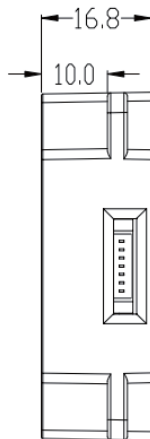
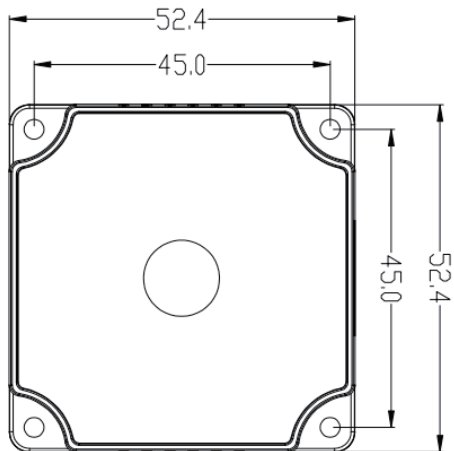


## 2. Dimensions

PV10R



## PV10M



| Connector pinout<br>(7pin 1.25mm) |            |
|-----------------------------------|------------|
| Pin 1                             | +5V        |
| Pin 2                             | GND        |
| Pin 3                             | Shield GND |
| Pin 4                             | USB D-     |
| Pin 5                             | USB D+     |
| Pin 6                             | Reserved   |
| Pin 7                             | Reserved   |

### 3. Technical Specifications

|        | Feature              | Specifications                                                               |
|--------|----------------------|------------------------------------------------------------------------------|
| Sensor | Grayscale            | 256 levels                                                                   |
|        | Image Size           | 480 * 640 pixels                                                             |
|        | Distortion Rate      | Less than 1%                                                                 |
| H/W    | Connector            | 7-pin 1.25mm USB 2.0                                                         |
|        | Power Consumption    | 0.5W (Standby) / 1.5W (Operating)                                            |
|        | Interface            | USB 2.0 (High speed)                                                         |
|        | Power Requirements   | USB 5V                                                                       |
|        | Temperature          | -10°C to 45°C / 14°F to 113°F                                                |
|        | Humidity             | 0 to 90% RH                                                                  |
|        | Lighting Environment | Enrollment <800 Lux; Authentication <2000 Lux                                |
|        | Dimensions           | PV10M : 52.4 * 52.4 * 16.8mm (±1 mm)<br>PV10R : 41.5 * 34 mm (Radius*Height) |
| OS     | Windows              | Windows XP / Windows 7 / Windows10 (32/64bits)                               |
|        | Android              | Android 4.1 or higher version                                                |

|                       |                    |                                            |
|-----------------------|--------------------|--------------------------------------------|
| <b>ZKPalm SDK</b>     | Recognition Angle  | Roll $\pm 60^\circ$ , Pitch $\pm 30^\circ$ |
|                       | Recognition Method | 1:1 and 1:N                                |
|                       | Capacity           | 6,000 templates                            |
|                       | Accuracy           | FRR=0.68% when FAR=0.001%                  |
|                       | Recognition Time   | <300ms (Quad-core Cortex-A9 up to 1.6GHz)  |
| <b>Certifications</b> | CE, FCC, RoHS      |                                            |



## 4. Technical Features

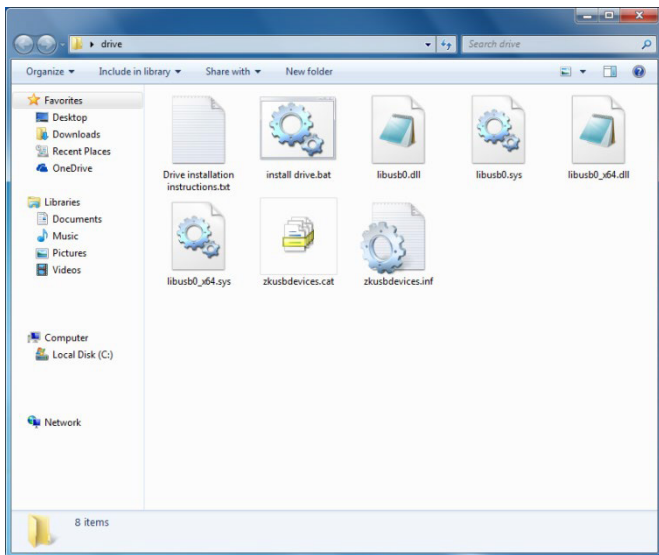
- Touchless technology with small size, and easy integration
- Built-in distance detection sensor effectively reduces the standby power consumption
- Wide dynamic image sensor to adapt ambient light in a wide range
- Palm recognition range from 20cm to 35cm
- Captures high-quality palm vein images even when the palm is dry & wet

## 5. Installation Procedure

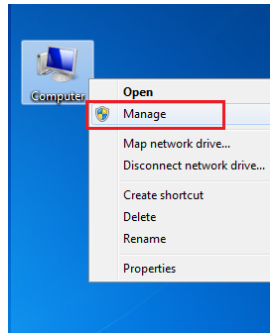
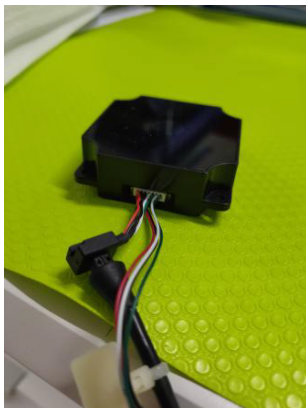
### PV10M/R Drive Installation

**Note:** You need to install the driver when you use the device for the first time only. The users who have installed the driver before do not need to install it again.

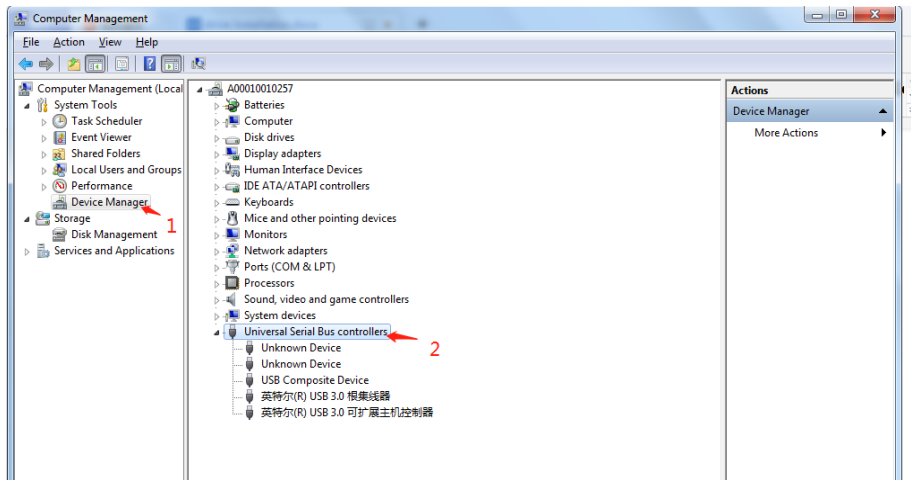
1. Save the installation package in your system. Unzip and open the driver installation package.



2. Connect the **PV10M/R** to your system.

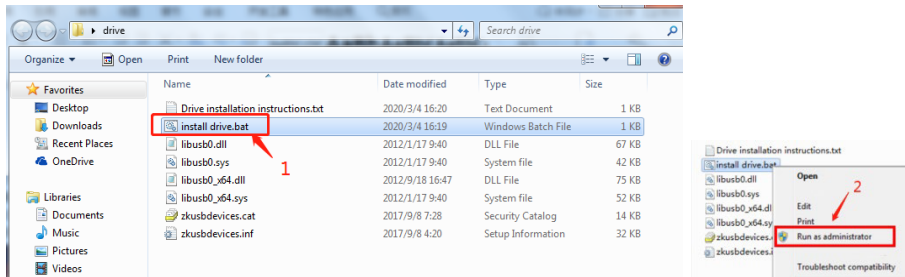


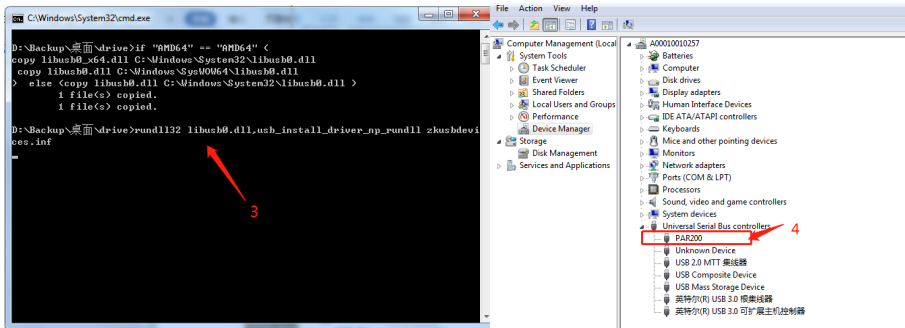
3. Open the **Device Manager** of your system. First select **Computer**, right-click and then select **Manage**. Since the relevant driver is not installed initially, the device is regarded as an unknown device as shown in the below figure.



4. Now install the driver. At this time, return to the location where the driver installation folder is placed, and open the Drive installation instructions.txt file in the folder, and follow the description in the second article

of the file. First select **install drive.bat**, then right-click and select **"Run as administrator"**. After selecting, interface 3 appears. Wait for 3 to 5 seconds, the current interface disappears automatically. Wait for 1 minute and return to the device management interface. Then unplug and insert the device USB port, you can see that the computer can recognize the device **PV10M/R**, as shown in 4 in the figure below. Finally, the driver installation is successful.





## Operation

### 1. Palm Placement

- Place the palm at 20 to 35cm above the device (The optimal distance is 10 to 12cm).
- Keep the whole palm parallel to the equipment. Ensure that the palm is at the center of the sensor area.
- Stretch the palm normally without any bends.



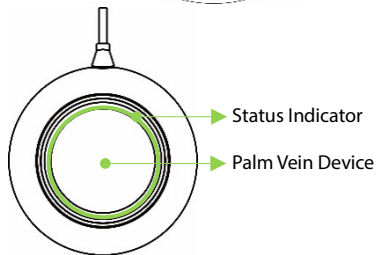
### 2. Indicator Status

Follow the instructions and move your palm back and forth until the registration or matching is successful.

**Blue light:** Detecting.

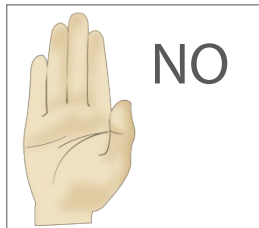
**Green light:** Registration is successful or matching is successful.

**Red light:** Registration is failed or matching is failed.

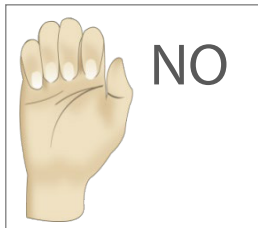




### 3. Incorrect Positions



Fingers together




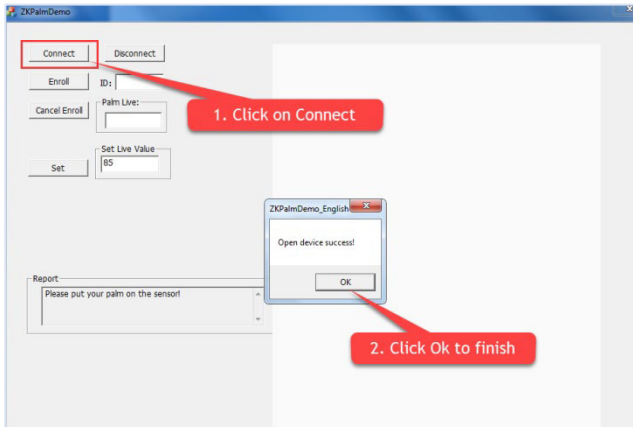
Fingers bent



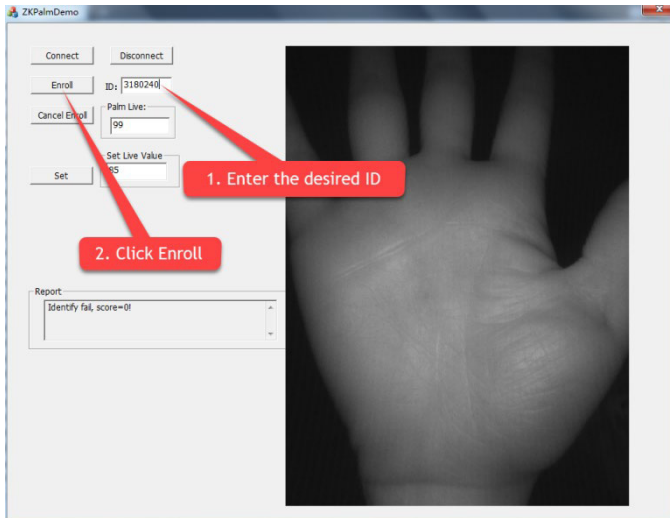
Not parallel to the device

#### 4. Demo Test

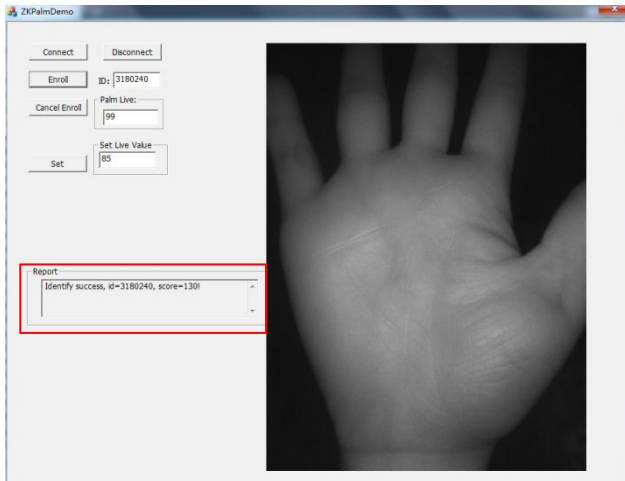
- a) Double-click the **ZKPalmDemo** icon  to open the demo test interface. Once the interface is opened, click **Connect**.



b) Enter the User ID and click **Enroll** to register the palm vein.



- c) After successful registration, the system automatically starts verifying the user's palm vein.



## 5. Precautions

- a) Please keep your palm clean.
- b) Place your palm at the center of the palm vein scanner.
- c) Please avoid bending or tilting your palm.

## 6. Maintenance and Cleanliness Guidelines

### Maintenance

1. Please keep the product away from water.
2. Protect the product from falling, colliding and so on.
3. Do not intentionally power on or power off the product.

### Cleanliness

1. Please Keep the product away from dust.
2. Use an adhesive tape to clean the collecting area.
3. Wipe the sensor with a fine cloth without wool.
4. Keep the sensor clean after use.

## 7. FAQ

1. **What are the steps to be followed when there is no response from the palm vein scanner even if the device is connected?**

**Answer:**

Initially, open the computer management to check if PV10M/R has been successfully connected to the system. Then, check whether the connection button in the demo is enabled or not. If these two potential problems are excluded, please contact the technical support team in time to analyze the other reasons such as hardware failure, demo issues and so on.

2. **What are the steps to be followed if the user registration is failed?**

**Answer:**

Firstly, please confirm that PV10M/R has been already connected to the system, and then open the demo for initialization. Secondly, verify if the palm position, angle, and the palm placing distance are proper. Read the pop-up error code and check the reason for the error by comparing with the development document. If the issue still exists, please contact the technical support team to resolve the issue.

### 3. **What if the product doesn't revert during identification?**

#### **Answer:**

Firstly, confirm that the scanner is successfully connected to the system, and the demo can be opened normally. If there is no response, plug-in the device again. If the problem reappears, check the error code or change the device and continue identification. If the problem cannot be resolved, please contact the technical support team to check if it is a hardware problem.

### 4. **What are the steps to be followed if the user verification is failed after connecting to the device and successful identification?**

#### **Answer:**

If the user is already registered, please confirm that the same palm is being verified. Also, check that the palm is placed at a proper distance and meet the verification requirements. During verification, the palm should be adjusted in time according to the collected image, so that PV10M/R can better recognize the user's palm.

## **Installation Tips**

- The product's operating environment is indoor, please do not use it directly in outdoor bright light.
- It shall not be disassembled without authorization. In case of any violation, it shall not be guaranteed.



## Statements Concerning Human Rights Privacy

### Dear Customers,

First of all, thank you for using the hybrid biometrics products designed and manufactured by ZKTeco. As a world-renowned biometrics core technology provider, we keep on researching and developing hybrid biometrics products. We also pay great attention to the compliance of relevant laws concerning human rights and privacy globally.

### Statements as follows:

1. All of our civilian palm recognition devices only focus on collecting palm. ZKTeco does not save any personal data.
2. The characteristics of the palm cannot be used to picture as an original palm image.
3. ZKTeco, as the equipment provider, shall not take the legal responsibility for any inappropriate use.
4. If you have any disputes about the use of equipment regarding human rights or privacy, please negotiate internally.

ZKTeco's other palm devices or development tools have the ability to collect the original image of a citizen's palm. If users consider it as an infringement act, please contact the Government or the end provider of the equipment. As the original manufacturer of the equipment, ZKTeco will not be responsible for any legal liability. Users can refer to ZKTeco's official website to obtain relevant product information: <http://www.zkteco.com>.

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