User Manual

UHF5 Pro/UHF10 Pro Reader

Date: October 2020
Doc Version: 1.0
English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.

For further details, please visit our Company’s website www.zkteco.com.
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If there is any issue related to the product, please contact us.

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About the Company

ZKTeco is one of the world’s largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader Door Locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual introduces the operations of UHF5 Pro/UHF10 Pro Reader.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.
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1 Overview

UHF5 Pro/UHF10 Pro is the ZKTeco’s third generation UHF reader which has a more stable performance, longer reading distance and faster recognition speed. It is equipped with a passive UHF card, which could be widely used in Vehicle management and Personnel management applications. The product also meets the CE, FCC technology requirements, and yet to obtain the CE, FCC, and other security certifications.

Antenna operating frequency

- European Standard: 865MHz-868MHz
- American Standard: 902MHz-906MHz (optional)

Card reading range

- UHF5F / E hand-held test up to 10m, driving car test around 4m
- UHF10F / E hand-held test up to 20m, driving car test around 8m
2 Side View & Wiring

![Diagram of Side View & Wiring]

<table>
<thead>
<tr>
<th>No.</th>
<th>Colour</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red</td>
<td>DC +12V</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>Wiegand D0</td>
</tr>
<tr>
<td>4</td>
<td>White</td>
<td>Wiegand D1</td>
</tr>
<tr>
<td>5</td>
<td>Purple</td>
<td>Trigger Point</td>
</tr>
<tr>
<td>6</td>
<td>Gray</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>USB</td>
<td>Connect to PC</td>
</tr>
<tr>
<td>8</td>
<td>Brown</td>
<td>RS485+</td>
</tr>
<tr>
<td>9</td>
<td>Orange</td>
<td>RS485-</td>
</tr>
</tbody>
</table>
# 3 Specifications

<table>
<thead>
<tr>
<th></th>
<th>UHF5E /F Pro</th>
<th>UHF10E/F Pro</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Distance</strong></td>
<td>2 to 8 meters (Hand-held test) Actual scenario test is around 4m</td>
<td>10 to 20 meters (Hand-held test) Actual scenario test is around 8m</td>
</tr>
<tr>
<td><strong>Antenna Gain</strong></td>
<td>9dBi</td>
<td>12dBi</td>
</tr>
<tr>
<td><strong>Dimension</strong></td>
<td>308.5<em>308.5</em>67.5 mm</td>
<td>445<em>445</em>67.5 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>1.8kg</td>
<td>3kg</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>1.2 to 4.2 W</td>
<td>1.2 to 4.5 W</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>E: 865MHz to 868MHz</td>
<td>F: 902MHz to 906MHz (supports adjustment)</td>
</tr>
<tr>
<td><strong>Communication Interface</strong></td>
<td>Wiegand; RS485; USB Configuration parameters (Wiegand, RS485 requires one of the two options)</td>
<td></td>
</tr>
<tr>
<td><strong>Interface Protocol</strong></td>
<td>EPC global UHF Class 1 Gen 2 / ISO 18000-6C</td>
<td></td>
</tr>
<tr>
<td><strong>Working Mode</strong></td>
<td>Read Always (Default) &amp; Read by Trigger</td>
<td></td>
</tr>
<tr>
<td><strong>Output Power</strong></td>
<td>19dBm to 30dBm</td>
<td></td>
</tr>
<tr>
<td><strong>Protection Class</strong></td>
<td>IP66</td>
<td></td>
</tr>
<tr>
<td><strong>Working Voltage</strong></td>
<td>DC 9 to 15V</td>
<td></td>
</tr>
<tr>
<td><strong>Working Temperature and Humidity</strong></td>
<td>-20°C  to 65°C, &lt;85%</td>
<td></td>
</tr>
<tr>
<td><strong>Storage Temperature and Humidity</strong></td>
<td>-20°C  to 80°C, &lt;85%</td>
<td></td>
</tr>
<tr>
<td><strong>RS485 Communication</strong></td>
<td>Optional baud rate (9600, 19200, 38400, 57600, 115200). The default is 115200</td>
<td></td>
</tr>
</tbody>
</table>
4 Dimensions

UHF5 E/F Pro:

UHF 10E/F Pro:
5 Software Configuration

5.1 Introduction

5.1.1 Main Interface

Take the operation of the American standard reader as an example:
**Reader Connection**
Click **Connect** to connect the Reader, and click **Disconnect** to disconnect the Reader.

![Reader Connection]

**Work Mode Configuration**
Click **Read Always** to make the Reader always in the read status. Click **Read by Trigger** to enable the reader to read only after it is triggered.

![Work Mode Configuration]

**RF Settings**
The RF Settings helps to set the Power and Frequency values.

![RF Settings]
**Buzzer**
Select the Buzzer check box to enable the Buzzer.

**Wiegand Output Setting**
The Wiegand Output Settings consist of Forward Output and Inverted Output. Click **Forward Output** to read the card number in the partition in the progressive order, and click **Inverted Output** to read out the card number in the partition in the reverse order (customers need not set).

**Output Duration Setting**
The time of continuous output signal of the reader can be set, and the maximum setting time is 1s.
**Wiegand Format Setting**
The default Wiegand format is WG26, and it can be set as WG34, WG42, WG50, WG58, WG66, WG74, WG82, WG90, WG98.

![Wiegand Format Setting](image)

**Card Reading Interval Setting**
You can set the card reading interval to prevent the repeated card reading.

![Card Reading Interval Setting](image)
5.1.2 RS485 Setting Interface

The controllers supported by default are inbio260 and inbio460.

**Baud Rate Setting**
The default Baud rate is 96000 and it can be adjusted as per the requirements.

**Device Address Setting**
The Device Address Setting is used to distinguish the readers which are installed in different locations.
RS485 Working Mode
Select Polling Mode to send a command to search for cards, and the reader will reply to the corresponding data after receiving the card search command. Select Auto Work to read the card and automatically upload the data to the Controller.

![RS485 Work Mode](image)

RS485 Output Mode

The RS485 Output Settings consist of Forward Output and Inverted Output. Click Forward Output to read the card number in the partition in the progressive order, and click Inverted Output to read out the card number in the partition in the reverse order.

![RS485 Output Settings](image)
5.1.3 **System Settings**

![System Settings Diagram](image)

**LED Light Setting**
The LED indicator color can be set in the **Standby Status** and the **Read Card Status**. There are seven colors to choose.

![LED Settings](image)

**System Settings**

Set the location of the data import and export.

![System Settings](image)
**Card Reader Output**
There are 3 Card Reader output modes namely Wiegand Mode, RS485 mode and TCP/IP mode.

**Language Settings**
Right click in the blank area of the Demo interface, a pop-up appears as shown below, click **Language Settings** to select the language.
6  Access Controller Connection
7 Installation Procedure

1. Please install the directional antenna with a lower elevation angle of 60° to 75° to suit the correct line of sight.

![Diagram of antenna installation]

**Note:**
Please install the reader as shown in the above picture. The facing direction of the reader and the travel direction of the vehicle must be in a straight line. The distance between the reading head and the parking barrier must be maintained at 50cm or more.

2. Avoid installing the reader opposite to each other.

![Diagram showing avoid installing opposite to each other]
3. The position of the tag/card in the vehicle must be as follows:

![Image of vehicle dashboard with options]

4. The reader detection distance may vary depending on climatic conditions such as rain, snow or wind.

![Clouds and wind symbols]

5. The Reader should be away from any strong magnetic field while working.
### Recommended tags

<table>
<thead>
<tr>
<th>Type</th>
<th>Picture</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| UHF1-Tag1 card        | ![Image](image1) | Operating frequency: 840 to 960MHz  
Data Storage: 32-bit TID, 64-bit Unique TID, 96-bit EPC, 512-bit User.  
Supported Protocol: EPC global class 1 Gen2 / ISO18000-6C  
Product size: 85.6x54.0x0.8mm |
| UHF Parking Tag       | ![Image](image2) | Operating frequency: 840 to 960MHz  
Data Storage: 32-bit TID, 64-bit Unique TID, 96-bit EPC, 512-bit User, etc.  
Support Protocol: EPC global class 1 Gen2 / ISO18000-6C  
Product size: 100.0x23.2x0.4mm |
8 Wiring Diagram

9 FAQ

➢ What to do if the recognition distance of the reader is too close?

Try the following possibilities:

• Connect the demo, and then adjust the power to the maximum.
- Check whether there is any interference of the adjacent reader and power station magnetic field near the reader.
- Check whether the reader is installed correctly and whether the tag is operated correctly.
- Replace the tag or reader.

➤ **What can be done if the reader doesn’t read the card?**

Try the following possibilities:
- When the reader is connected to DEMO, you need to click **Disconnect** so that it could read the card again.
- Connect the Demo to check whether the manual card reading is normal. If the manual card reading does not respond, there is a problem with the reader. If the manual card reading fails after the factory reset, replace the reader.
- Determine whether the tag is our product, replace the tag test.
➢ What to do if the barrier doesn’t open after reading the card?

Try the following possibilities:

• Short circuit the NO and COM terminals of the reader, check whether the switch is open. If it is not open, check whether the connection between the reader controller port and the barrier port is correct.
• Check whether the barrier is open when the UP and GND terminals are short circuited. If not, the barrier is faulty.
• Check whether the tag has registered the information on the software and the data is synchronized to the reader. When swiping the card, pay attention to whether the controller has the sound of relay jumping, and whether the software has the normal door opening record display. If so, check whether the output port of the controller relay signal is connected to the brake in a wrong manner or connected to another output port.