

# **Handset Hardware Operation**

**Version V1.0**

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## 1. Preface

In today's information age, no matter traditional industries or governments, health cares, banks, or retails, have become increasingly dependent on e-commerce transactions. With the increase in electronic transactions, fraud also increases. In order to prevent this threat, the consumer must prove himself the power to approve a transaction. In all biometric technologies, fingerprint image is the most accurate and the most matured products. It is also very convenient to use. The product has a wide range of commercial value and can be used in commercial electronic cash registers, bank savings, ATM machines, border control, time attendance, vehicle management, social security, population management, and customer loyalty surveys etc. Hand-set fingerprint POS machine is a management system developed by basing on my latest fingerprint identification module and Pocket PC with smart card. This system adopts security mechanisms and encryption technologies of IC cards for data encryption, and adopts biometric technologies to confirm the identity of the cardholder, so ensures the safety and legality.

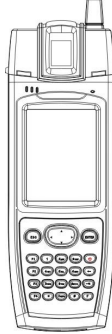
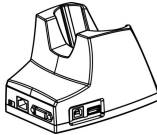





## 2. Features

- Adopt high-performance 32-bit embedded processor of ZK6001, CPU: speed of 400MHz, run WINDOWS CE 5.0
- Integration of universal high-performance UPEK silicon fingerprint sensor with the resolution as 500DPI
- Support contactless IC cards, ID cards etc., which are compliant with the ISO14443-A/B standard. The optional equipments support

the contact IC card with the standard ISO7816 and the contactless IC card with the standard ISO15693.

- Adopt the hardware-encrypted chip to ensure that each machine has a hardware ID, and bind with user software to protect the intellectual property rights of software, so improve the terminal security, and make it wider application and the upgrade more safe and convenient.
- Extension function: can extend the optional camera with 130-500 ten thousands pixels, GPRS, WIFI module, USB HOST/DEVICE. It can connect the external U disk and itself can also be used as a U disk.
- Low consumption, long standby time, unique energy-saving design ensures a longer use time.
- The battery of certification handset adopts lithium battery.

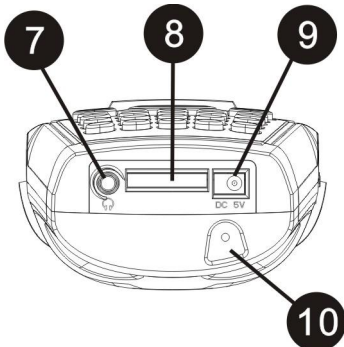
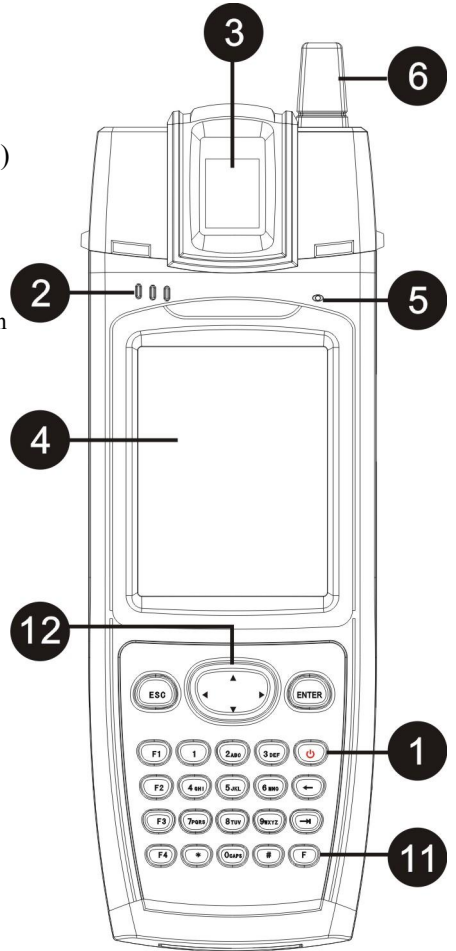
### 3. Package Accessories

Name	Quantity	Picture
Handset	1	
Cradle	1	
USB cable 1	1	
USB cable 2	1	
4000mA lithium battery	1	
Charger	1	
Disk	1	

## 4. Appearance, Installation and Connection

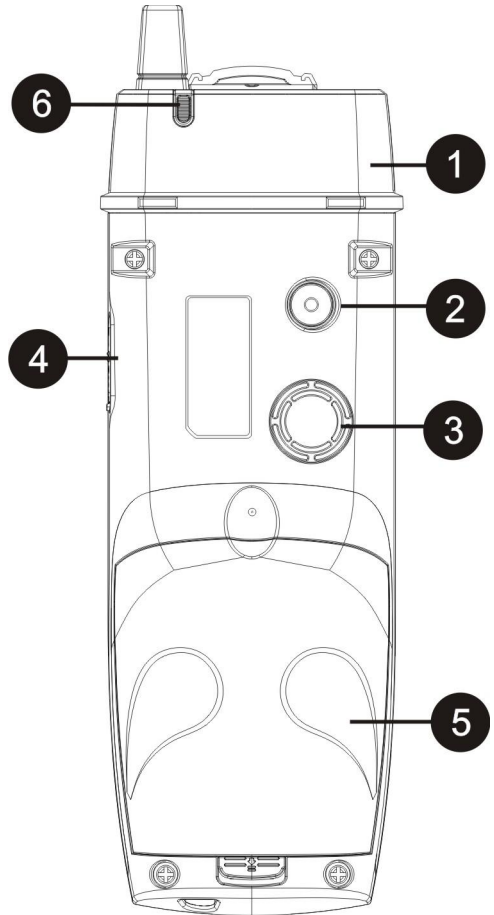
### 4.1 Front View

1. On/Off key (long press for 3 seconds)
2. Indicator light (from left to right)  
Power light is on since power on  
Charging light is on when in charge  
Status light flashes during normal operation
3. UPEK fingerprint sensor
4. Color screen
5. Earphone
6. GPRS/WIFI antenna
7. Microphone hole
8. Cradle communication connector
9. Head-set adapter
10. Hand strap attachment
11. Function key
12. Navigation key  
(Left, Right, Up, Down)



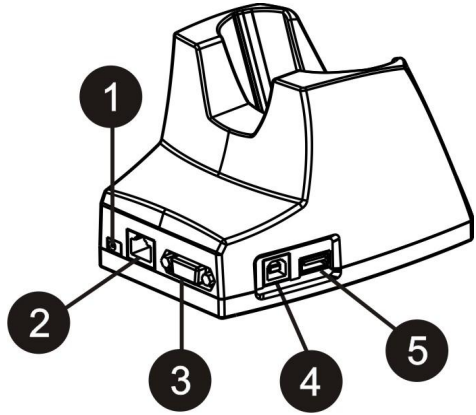
## 4.2 Back View

1. The removable module
2. 1,300,000 pixels camera
3. Speaker
4. USB connector
5. Lithium battery cover
6. Touch pen



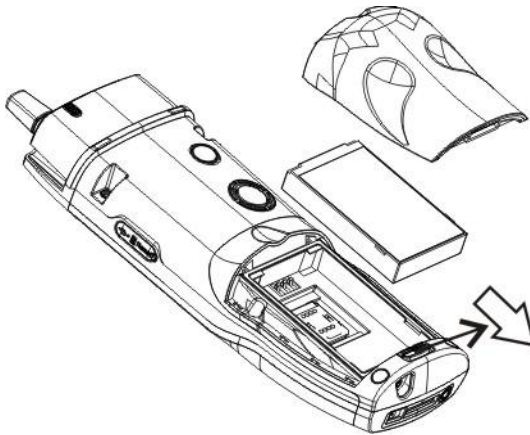
### 4.3 Cradle

1. Power interface
2. Ethernet interface
3. RS232 interface
4. USB client:  
communication interface
5. USB host:  
connect the external USB



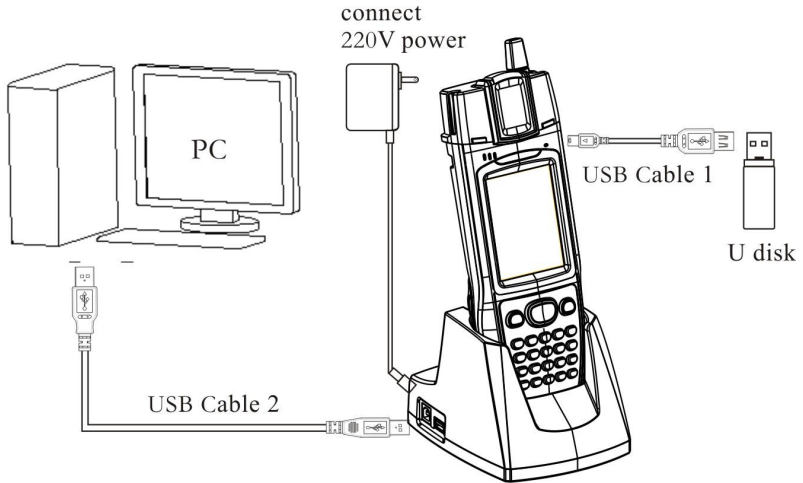
### 4.4 Lithium Battery Installation

Press the bottom button down and then remove the battery cover. When loading lithium battery, please place the face with metal contacts down into the box. After loading, close the battery cover.



## 4.5 Connect with PC through cradle

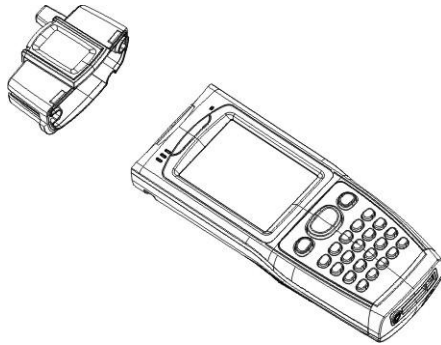
After inserting into the cradle, the handset can connect with PC through USB cable 2.



## 5. Extensible Slots

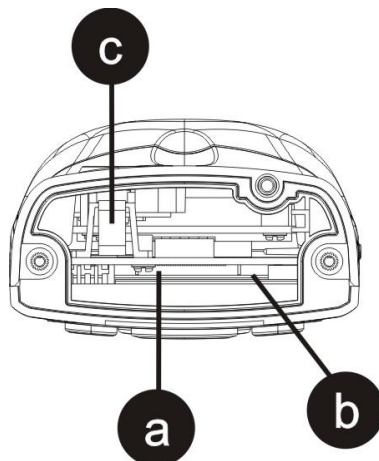
1) Use a screwdriver to loosen two fixed screws at the top, and then you can remove the fingerprint module at the top.

**Note:** Please be careful to avoid pulling out the communication lines between the fingerprint module and the handset. Otherwise, re-fixing communication lines will become very difficult. In general, please don't remove the fingerprint module at the top.



2) Suppose the fingerprint module is removed, the extensive slot at the top is as below shown:

- a) UPEK
- b) ID/MF Antenna
- c) Camera



## 6. Technical Parameters

<b>Basic Parameters</b>	
<b>CPU Speed</b>	ZK6001 400MHZ
<b>Operation System</b>	Windows CE 5.0
<b>Cache</b>	16K I-cache, 16K D-cache
<b>RAM</b>	Two pieces of SDRAM 64M Byte
<b>RAM Bus Frequency</b>	112M
<b>FLASH</b>	1 piece 8-bit Nand Flash, standard configuration 256M byte
<b>LCD Interface</b>	3,2" QVGA TFT LCD LED backlight
<b>Touch Screen</b>	4-wire resistive
<b>Keypad Interface</b>	25-key waterproof and dustproof keyboard
<b>USB Interface</b>	One USB Host 1.1, one USB HOST/Device 1.1 interface, can connect with PC or U disk
<b>Main USB Interface</b>	Connect U disk by the side USB interface
<b>LED Indicator</b>	Status indicator light
	Power indicator light
	Charging indicator light
<b>Audio Output</b>	IIS interface, can play MP3, has a earphone, or a speaker output
<b>High Precision Time</b>	Philips clock chip
<b>ON/OFF key</b>	SW1 Control handset by On/Off key
<b>Reset Key</b>	SW2 System reset
<b>Power Parameters</b>	

<b>Power</b>	Power Adapter Input: 100-240V~50/60Hz 0.5A Max Output: 5V, 2A
	Rechargeable 4000mA lithium battery
<b>Boot Static Power</b>	200mA 3.7V Test condition 3.7V power by the battery
<b>Standby Current</b>	23 mA 3.7V Test condition 3.7V power by the battery
<b>Shutdown Current</b>	Less than 60uA
<b>Charge Mode</b>	DC charge
<b>Charging Power Supply</b>	Voltage :DC5V+/-5%, current 2A, ripple < 50MV
<b>Charging Time</b>	4 hours charging current 1000mA
<b>Work Hour</b>	8-12 hours
<b>Standby Time</b>	2-4 working days
<b>Dimension</b>	245mm*8mm*46mm (length*width*height)
<b>Weight</b>	250 g
<b>Work Temperature</b>	0-50 degree
<b>Protection Level</b>	IP54



## 7. Communication Interface at the bottom

Extension 15PIN extensive interfaces				
Interface PIN number	15 PIN	Status	Signal	Function
1	5VIN	input		Charging power input
2	5VIN	input		
3	GND			ground
4	GND			
5	USB0-			USB Client
6	USB0+			
7	USB1-			USB Host
8	USB1+			
9	5VOUT	output		USB Host's power supply terminal 200mA
10	TXD0		TTL	TTL serial port
11	RXD0		TTL	
12	VCC_ USB0	input	5V	USB Client load Current 300mA USB doesn't charge the battery when supplying power, but can maintain the machine working
13	RD+			Ethernet
14	RD-			
15	TD-			
16	TD+			