IEI Technology Corp.

MODEL:

MODAT-100

Industrial PDA with Barcode Scanner for Ticketing, Membership Verification, Real-time Transactions

User Manual

Rev. 1.03 – 9 September, 2011

RoHS Lead Free

Revision

Date	Version	Changes
9 September, 2011	1.03	Updated Section 1.5 Specifications
8 August, 2011	1.02	Added printing notice to Pg. 4 Update to Section 2.3: Charging the System Added Section 2.6: Synchronized with Windows 7 System Added text size adjustment information
1 April, 2011	1.01	Minor update to Section 1.4.1. Front Panel
17 March, 2011	1.00	Initial release

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WARNING

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, 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.

However, 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.

—When printing for more than thirty seconds, let the system rest for a moment before printing again.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: MODAT-100

The MODAT-100, built-in Windows Mobile 6.5, offers real-time information for staff to provide their guests with better, faster service and more information.

The MODAT-100 links staff to real-time, online data through Wi-Fi connectivity. The Bluetooth function allows devices such as headsets and thermal printers to be paired with the MODAT-100, increasing the productivity of your staff while on the go. A built-in vibrator alerts staff immediately allowing them to provide prompt service to customers.

1.2 Feature

The MODAT-100 features the following:

- 624 MHz Marvell® PXA 310 CPU
- 3.5” sunlight readable high brightness transflective TFT touchscreen with stylus input
- MicroSD Slot (Supports Micro SDHC up to 8 GB)
- USB client (for ActiveSync and battery charging)
- Wi-Fi 802.11b/g
- Bluetooth 2.0 + EDR
- IP 54 compliant
- Windows Mobile 6.5 preinstalled

- Supports Visual Studio .NET and .NET Compact Framework development tools
- Mobile application downloads: Windows Marketplace for Mobile (http://www.windowsmarketplace.com)

1.3 Applications

The MODAT-100 can be applied in the following places:

- Retail
- Sales Automation
- Field Services
- Hospitality

1.4 External Overview

The MODAT-100 combines its features in a stylish enclosure. The MODAT-100 consists of a screen, rear panel, top panel, bottom panel and two side panels (left and right). The panels are described in detail in the following sections.

1.4.1 Front Panel

The front panel of the MODAT-100 is shown below.

Figure 1-2: MODAT-100 Front Panel

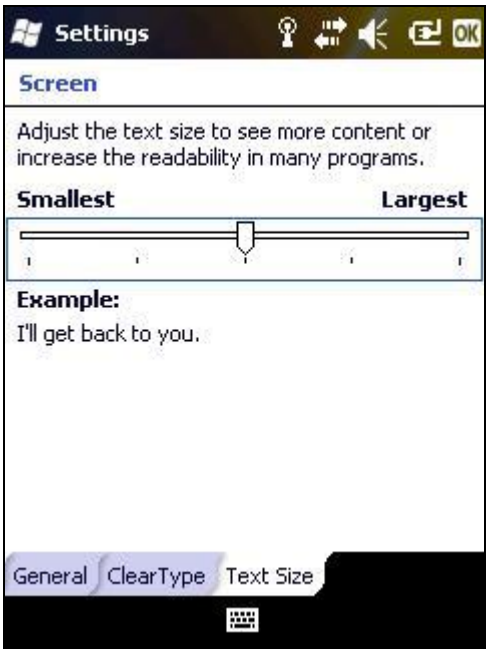
1 x 2” Thermal Printer	1 x Magnetic Stripe Reader
1 x Smart Card Reader	1 x 3.5G WiFi
1 x Battery LED	1 x Keypad

The two LEDs on the front panel indicate battery, 3.5G and barcode status as described below.

	Battery LED (Left)	**3.5G/Barcode LED (Right)**
Charging	Red	--
Fully Charged	Green	--
3.5G Connection	--	Green

NOTE:

The user can adjust the text size showed on the screen by going to "Start" → "Settings" → "System" → "Screen".



1.4.1.1 Keypad

The keypad and its functions are shown below.

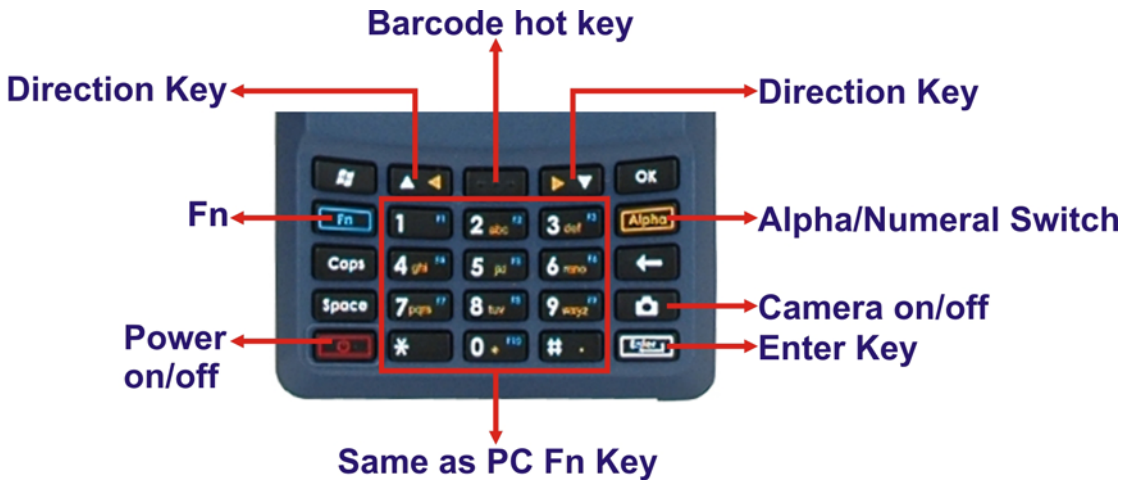


Figure 1-3: MODAT-100 Keypad

- Press the “Alpha” key to use the orange characters.
- Press the “Fn” key to use the blue characters.

1.4.2 Left Panel

The left panel of the MODAT-100 is shown below.

Figure 1-4: MODAT-100 Left Panel

- 1 x Barcode Scanner Trigger
- 1 x MicroSD card slot
- 1 x Reset button

1.4.3 Right Panel

The right panel of the MODAT-100 is shown in **Figure 1-5**.

Figure 1-5: MODAT-100 Right Panel

- 1 x Barcode Scanner Trigger
- 1 x Stylus

1.4.4 Bottom Panel

The bottom panel of the MODAT-100 is shown below.

Figure 1-6: MODAT-100 Bottom Panel

- 1 x 16-pin cradle charging connector
- 1 x Headset port
- 1 x DC-IN Adapter port

1.4.5 Back Panel

The rear panel of the MODAT-100 is shown below.

Figure 1-7: MODAT-100 Rear Panel

- 1 x LED FlashLight
- 1 x 1D Laser Barcode Scanner
- 1 x 3 Megapixel Camera
- 1 x Speaker
- 1 x 7.4V 1880mAh Battery

1.5 Specifications

The technical specifications for the MODAT-100 systems are listed in Table 1-1.

Specification	MODAT-100
Microprocessor	Marvell® PXA 310 624MHz
OS	Windows Mobile 6.5

Specification	MODAT-100
Memory	256 MB DDR SDRAM 128 MB NAND Flash
Display	3.5” (89mm) TFT LCD ▪ QVGA (240 x 320) ▪ 64 K color ▪ LED backlight (sunlight readable) ▪ Resistive touchscreen
Camera	3 Megapixel CMOS camera with LED Flash Light
Communication	Wi-Fi 802.11 b/g Bluetooth 2.0 EDR 3.5G supports 850/900/1800/1900 MHz GSM/GPRS; 850/1900/2100MHz HSDPA GPS with internal antenna
Storage	One MicroSD slot (supports Micro SDHC up to 8GB)
Audio	1 x Speaker 1 x Microphone 1 x Audio jack for headset
Input Methods	Touch panel (by stylus) 25-Key keypad (Start, Calendar, OK, Message, Numeric, Alpha, Power, F1, F2)
Buttons/Keys	2 x Barcode hotkeys (Default: BarcodeL, BarcodeR. Optional: Quick Print, Quick Shot)
Indicators	1 x Battery charging status LED 1 x HSDPA/Barcode status LED
I/O	16-pin connector (RS-232, battery charging, OTG-Host, OTG-Client) 2” Thermal Printer Smart Card Reader Magnetic Stripe Reader

Specification	MODAT-100
Vibrator	Yes
Power	7.4 V 1880 mAh battery (with GasGauge)
Power Adapter	Input: 100 V AC to 240 V AC ~ 50-60 Hz 1.5 A Output: 12 V/3 A Wattage: 36 W
Temperature	Operating: 0°C ~ +50°C Storage: -20°C ~ +70°C
Humidity	5%~95%, non-condensing
Electrostatic Discharge	+/- 8k Vdc air discharge +/- 6k Vdc contact discharge
Impact Resistance	1.2 m drop survival (excluding SCR/MSR/Printer)
Dimensions (LxWxD)	230 mm x 84 mm x 54 mm
Net Weight	546 g
Barcode Scanner	1D Laser Scan Engine
Certifications	CE, FCC, CCC

Table 1-1: MODAT-100 System Specifications

1.6 Dimensions

Figure 1-8: MODAT-100 Dimensions (units in mm)

Chapter

2

Installation

The installation steps below should be followed in order.

Step 1: Unpack the device.

Step 2: Check that all parts are included.

Step 3: Charge the MODAT-100.

Step 4: Power up the system.

2.1 Unpacking the Device

WARNING!

Only remove the protective plastic cover stuck to the front screen after installation. The plastic layer protects the screen surface during the installation process.

To unpack the MODAT-100, follow these steps:

Step 1: Cut the sealing tape. Only cut deep enough to cut the tape.

Step 2: Open the box.

Step 3: Lift out the device.

Step 4: Remove all the peripheral parts from the box.

2.2 Packing List

The MODAT-100 is shipped with the following components:

Quantity	Item	Image
1	MODAT-100	
1	Battery Pack **P/N:** 31603-000014-RS	
1	Carrying Case **P/N:** 7Z000-MODAT100POUCH-RS	
1	Power Adapter **P/N:** 63000-FSP036RAB613-RS	
1	Stylus **P/N:** 7Z000-MODAT100STYLUS-RS	
1	Headset **P/N:** Z000-EMI164001S-RS	

Table 2-1: Packing List

2.2.1 Optional Items

The following items are optional accessories for the MODAT-100:

Quantity	Item	Image
1	MODAT-100 charging cradle **P/N:** MODAT-100-CR01-R10	
1	16-pin cable **P/N:** 32024-001500-100-RS	

Table 2-2: Optional Items List

2.3 Charging the System

To start using the MODAT-100, the user must charge the MODAT-100 by the power adapter. To charge the MODAT-100, please follow the steps below.

Step 1: Connect the adapter plug of the power cable to the DC-IN port on the bottom panel of the MODAT-100.

Figure 2-1: MODAT-100 DC-IN Adapter Port

Step 2: Plug the power adapter into a power source.

Step 3: The battery LED lights up red to indicate that the battery is charging. When the battery is fully charged, the battery LED turns green.

Figure 2-2: Battery LED

2.3.1 Using the Optional Cradle

To charge the MODAT-100 using the optional charging cradle, follow the steps below.

Step 1: Connect the cable to the rear side of the charging cradle (the MODAT-100 is only supported by the USB driver from the Windows XP system).

Step 2: Plug the power adapter to a power source.

Step 3: Insert the MODAT-100 into the cradle to start charging the battery.

Figure 2-3: Connect the MODAT-100 to the Charging Cradle

2.4 Installing a SIM/SAM Card

WARNING:

When inserting the SIM or SAM card, make sure the notch on the card is in the correct orientation to avoid damage to the card slot.

The MODAT-100 supports a Subscriber Identity Module (SIM) and a Security Identification Module (SAM) card slot.

To install a SIM or SAM card please follow the steps below:

Step 1: Push the battery latch out while lifting the cover away (A).

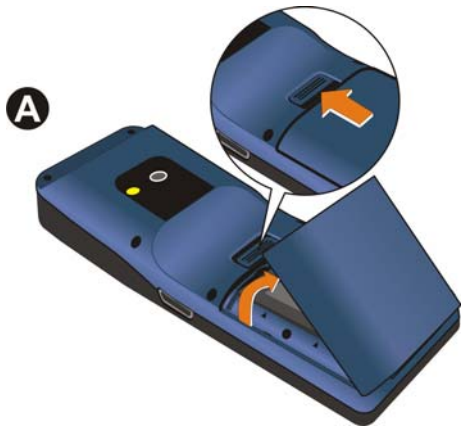


Figure 2-4: Removing the Battery Cover

Step 2: Lift the battery out of the battery bay (B).

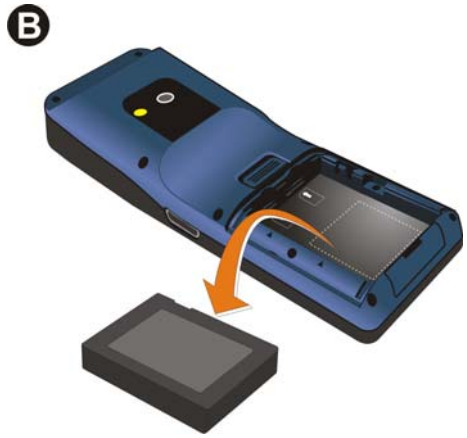


Figure 2-5: Removing the Battery

Step 3: Align the card notch with the upper left hand corner of the MODAT-100.

Step 4: Insert the SIM card into the left hand slot until the card clicks into place (C).

Step 5: Insert the SAM card into the right hand slot until the card clicks into place (C).

NOTE:

When inserted properly, the card should sit flush with the inside of the MODAT-100.

Figure 2-6: Inserting the SIM/SAM Card

Step 6: Replace the battery.

Step 7: Replace the battery cover.

2.5 Power-On/Off Procedure

To power-on/off the MODAT-100 please follow the steps below:

Power-On: Push the power button once. The start up screen should display.

Figure 2-7: Power Button

Power-Off: Hold the power button down for a few seconds until the screen shuts off.

2.6 Synchronized with Windows 7 System

The MODAT-100 can be synchronized with a PC through USB connection. To synchronize with the Windows 7 system, please make sure to switch the USB mode to RNDIS mode (USB to PC) in the MODAT-100. To switch the USB mode, follow the steps below:

Step 1: Power on the MODAT-100.

Step 2: Go to "Start" → "Settings" → "Connections" → "USB to PC".

Step 3: Check the "Enable advanced network functionality" option.

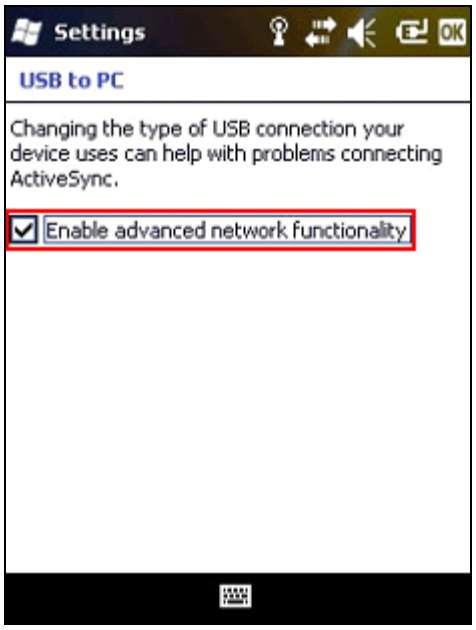


Figure 2-8: USB to PC Window

Appendix

A

Safety Precautions

WARNING:

The built-in 1880mAh Li-ion battery of the MODAT-100 is a non-swappable battery. The user can not open the back cover and remove the battery.

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the MODAT-100.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the MODAT-100 is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the MODAT-100 is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the MODAT-100 chassis is opened when the MODAT-100 is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the MODAT-100.
- ***If considerable amounts of dust, water, or fluids enter the MODAT-100***, turn off the power supply immediately, unplug the power cord, and contact the MODAT-100 vendor.

- **DO NOT**:
  - Drop the MODAT-100 against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch the LCD panel with a sharp object
  - Use in a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the MODAT-100 may result in permanent damage to the MODAT-100 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the MODAT-100. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the MODAT-100 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

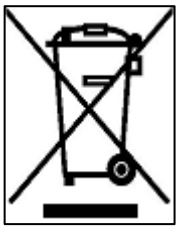
- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

A.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type.
Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the MODAT-100, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the MODAT-100, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.

- The interior of the MODAT-100 does not require cleaning. Keep fluids away from the MODAT-100 interior.
- Be cautious of all small removable components when vacuuming the MODAT-100.
- Turn the MODAT-100 off before cleaning.
- Never drop any objects or liquids through the openings of the MODAT-100.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the MODAT-100.
- Avoid eating, drinking and smoking within vicinity of the MODAT-100.

A.2.2 Cleaning Tools

Some components in the MODAT-100 may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the MODAT-100.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the MODAT-100.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the MODAT-100.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the MODAT-100 as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the MODAT-100. Dust and dirt can restrict the airflow in the MODAT-100 and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

International Standards Compliance

B.1 EN 60601-1, EN 60601-2

The LCD monitor complies with the EN 60601-1 and EN 60601-2 of related European standards.

B.2 FCC

We hereby declare that the equipment specified above conforms to the technical standards as specified in the FCC Rules.

B.3 CCC

声 明

此为 A 级产品 ，在生活环境中，该产品可能会造成无线电干扰，在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Appendix

C

Hazardous Materials Disclosure

C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						