



IEI Technology Corp.



MODEL:  
**MODAT-328**

**Multi-functional Stocktaking PDA featuring Marvell PXA310  
and Microsoft® Windows® Mobile 6.5 OS**

# User Manual

Rev. 1.03 – February 2012



# Revision

Date	Version	Changes
February 2012	1.03	Updated Power Adapter
December 2011	1.02	Added note to Section 2.3 Charging the System and Section 2.4 Powering-On/Off
August 2011	1.01	Updated Section 2.3: Charging the System Added Section 2.6: Synchronized with Windows 7 System Added text size adjustment information
May 2011	1.00	Initial release

# Copyright

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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 radiates 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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

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Chapter

1

# Introduction

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## 1.1 Overview



**Figure 1-1: MODAT-328**

The MODAT-328, with built-in Microsoft® Windows® Mobile 6.5, is a stocktaking PDA which provides an all-in-one warehouse management solution.

The MODAT-328 packs advanced data acquisition technologies such as RFID, 1D/2D bar code reading, and a 3 Megapixel CMOS camera into a compact, ergonomic design. Your staff is connected to real-time, online data through Wi-Fi connectivity while the Bluetooth function allows devices such as headsets and thermal printers to be paired with the MODAT-328, increasing productivity on the go.

## 1.2 Feature

The MODAT-328 features the following:

- 624 MHz Marvell® PXA 310 CPU
- 2.8" high brightness transfective TFT touchscreen with stylus input
- microSD Slot

## MODAT-328

- Mini USB client (for ActiveSync and battery charging)
- Wi-Fi 802.11b/g
- Bluetooth 2.1 + EDR
- 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-328 can be applied in the following areas:

- MES
- Retail
- Logistics
- Warehouse

### 1.4 External Overview

The MODAT-328 combines its features in a stylish and ergonomic enclosure. The MODAT-328 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-328 is shown below.



**Figure 1-2: MODAT-328 Front Panel**

1 x Speaker	1 x Keypad
1 x 2.8" TFT LCD (Touch Screen)	1 x Function Key
1 x 5D Navigation Key	1 x Microphone

The two LEDs on the front panel indicate battery and WiFi status as described in the following table.

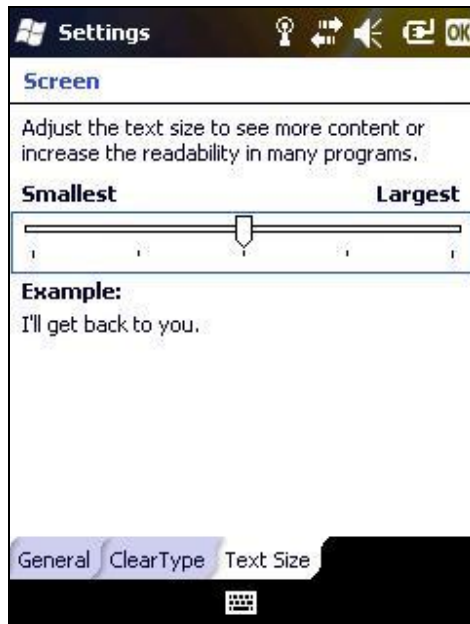
## MODAT-328

	Battery LED (Right)	WiFi LED (Left)
<b>Charging</b>	Orange	--
<b>Fully Charged</b>	Green	--
<b>WiFi Connection</b>	--	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-328 Keypad

- Press the “Alpha” key to switch between using the blue characters and the numeric keys.

## MODAT-328

### 1.4.2 Left Panel

The left panel of the MODAT-328 is shown below.

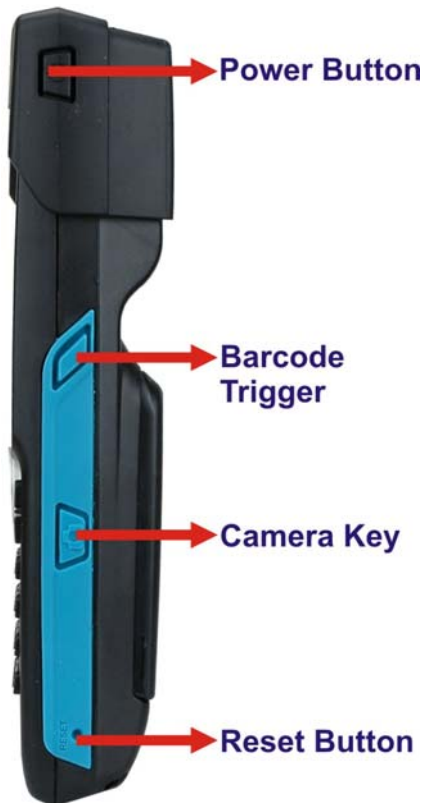


**Figure 1-4: MODAT-328 Left Panel**

- 1 x Barcode Scanner Trigger
- 1 x microSD card slot
- 1 x Mini USB

### 1.4.3 Right Panel

The right panel of the MODAT-328 is shown in **Figure 1-5**.



**Figure 1-5: MODAT-328 Right Panel**

- 1 x Power Button
- 1 x Barcode Scanner Trigger
- 1 x Camera Key
- 1 x Reset Button



## MODAT-328

### 1.4.4 Bottom Panel

The bottom panel of the MODAT-328 is shown below.



**Figure 1-6: MODAT-328 Bottom Panel**

- 1 x 16-pin cradle charging connector

### 1.4.5 Back Panel

The rear panel of the MODAT-328 is shown below.



**Figure 1-7: MODAT-328 Rear Panel**

- 1 x LED FlashLight

- 1 x 3 Megapixel Camera
- 1 x RFID
- 1 x 1880mAh Battery
- 1 x Lock Key

## 1.5 Specifications

The technical specifications for the MODAT-328 systems are listed in Table 1-1.

Specification		MODAT-328
<b>Microprocessor</b>		Marvell® PXA 310 624MHz
<b>OS</b>		Windows Mobile 6.5
<b>Memory</b>		256 MB Flash 128 MB SDRAM
<b>Display</b>	<b>LCD Size</b>	2.8" TFT LCD
	<b>Brightness (cd/m<sup>2</sup>)</b>	240 cd/m <sup>2</sup>
	<b>Max Resolution</b>	240 (H) x 320 (V) QVGA
	<b>Viewing Angle</b>	70/50/70/70 Deg.
	<b>Touch Screen</b>	4-Wire Resistive Type Touch
<b>Data Collection</b>	<b>RFID</b>	13.56 MHz RFID support ISO 15693 and 14443A/B compliant
	<b>Barcode</b>	1D Laser/2D Imager Scan Engine
	<b>Camera</b>	3 Megapixel CMOS camera with LED Flash Light
<b>Communication</b>		Wi-Fi 802.11 b/g Bluetooth 2.1 EDR
<b>Storage</b>		One microSD slot
<b>Audio</b>		1 x Speaker 1 x Microphone 1 x Audio jack for headset
<b>Buttons/Keys</b>		2 x Barcode hotkeys 1 x Camera key

## MODAT-328

Specification	MODAT-328
<b>Indicators</b>	1 x Charging Status / Full LED (Orange/Green) 1 x Wi-Fi Enabled / Disabled LED (Green)
<b>I/O</b>	1 x Mini USB (OTG) 1 x 16-pin connector (RS-232, battery charging, OTG-Host, OTG-Client)
<b>Power</b>	3.7V 1880 mAh battery
<b>Power Adapter</b>	Input: 100 V AC to 240 V AC ~ 50 - 60Hz 0.2A Output: 5 V 2.1A
<b>Temperature</b>	Operating: -10°C ~ +50°C Storage: -20°C ~ +60°C
<b>Humidity</b>	5%~95%, non-condensing
<b>Impact Resistance</b>	1.5 m drop survival
<b>Dimensions (LxWxD)</b>	172 mm x 55 mm x 31 mm
<b>Net Weight</b>	245 g
<b>Certifications</b>	CE, FCC

**Table 1-1: MODAT-328 System Specifications**

### 1.6 Dimensions

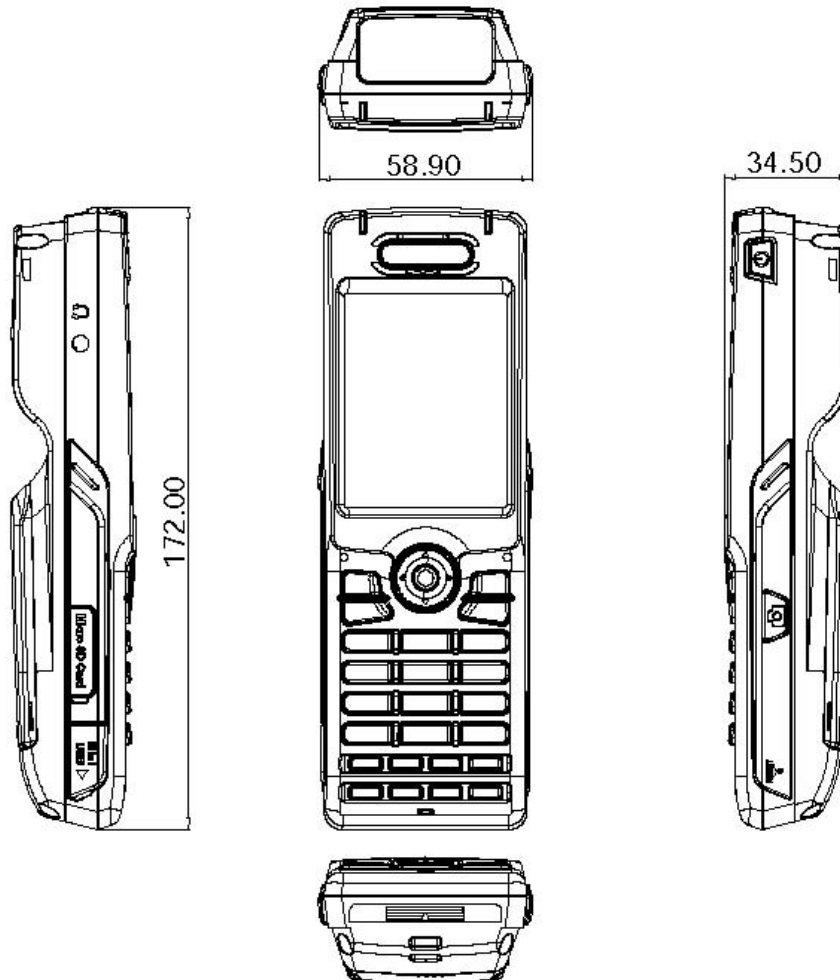


Figure 1-8: MODAT-328 Dimensions (units in mm)

Chapter

2

# Installation

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## 2.1 Getting Started

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-328.
- Step 4:** Power up the system.

## 2.2 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-328, 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.

### 2.2.1 Packing List



### NOTE:


If any items from the packing list are missing, please contact your distributor immediately.

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## MODAT-328

The MODAT-328 is shipped with the following components:




Quantity	Item	Image
1	MODAT-328	
1	Battery Pack (3.7V 1880 mAh) <b>P/N:</b> 31603-000015-RS	
1	Belt Clip Case <b>P/N:</b> 7Z000-MODAT-328POUCH-RS	
1	USB Cable <b>P/N:</b> 32001-000301-100-RS	
1	Power Adapter <b>P/N:</b> 63040-330010-000-RS	
1	Stylus <b>P/N:</b> 7Z000-6051D0320101-RS	
1	Headset <b>P/N:</b> 7Z000-EMI164001S-RS	
1	Hand Strap <b>P/N:</b> 7Z000-MODAT300STRAP-RS	

Quantity	Item	Image
1	User's Manual CD ROM <b>P/N:</b> 7B000-000550-RS	

**Table 2-1: Packing List**

### 2.2.2 Optional Items

The following items are optional accessories for the MODAT-328:

Quantity	Item	Image
1	MODAT-328 charging cradle <b>P/N:</b> MODAT-300-CR01-R10	
1	Battery Pack (3.7V 3000 mAh) <b>P/N:</b> 31603-000017-RS	
1	16-pin cable <b>P/N:</b> 32024-001500-100-RS	

**Table 2-2: Optional Items List**

### 2.3 Charging the System


**NOTE:**

Before using the MODAT-328 for the first time, the battery must be charged for at least 4 hours. After that, the battery may be charged as needed.



## MODAT-328

To start using the MODAT-328, the user must charge the MODAT-328 by the power adapter. To charge the MODAT-328, please follow the steps below.

- Step 1:** Fold back the protective rubber flap to expose the mini-USB port.
- Step 2:** Connect the mini-USB plug of the USB cable to the mini-USB connector on the left side panel of the MODAT-328 (**Figure 2-1**).



**Figure 2-1: MODAT-328 Mini USB Port**

- Step 3:** Connect the USB cable to the USB connector of the power adapter (**Figure 2-2**). Then plug the power adapter to a power source.
- OR** connect the USB cable directly to a computer installed with the Windows XP operating system (the MODAT-328 is only supported by the USB driver from the Windows XP system).



**Figure 2-2: Power Adapter USB Connector**

**Step 4:** The battery LED lights up orange to indicate that the battery is charging (**Figure 2-3**). When the battery is fully charged, the battery LED turns green.

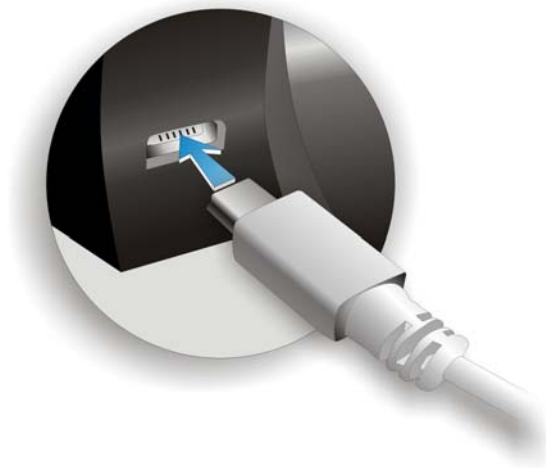


**Figure 2-3: Battery Charging LED**

### 2.3.1 Using the Optional Cradle

To charge the MODAT-328 using the optional charging cradle, follow the steps below.

**Step 5:** Connect the mini USB cable to the rear side of the charging cradle (**Figure 2-4**).



**Figure 2-4: Connecting the mini USB cable to the cradle**

**Step 6:** Plug the other end of the cable to a computer USB port.

## MODAT-328

**Step 7:** Insert the MODAT-328 into the cradle to start charging the battery (**Figure 2-5**).



Figure 2-5: Inserting the MODAT-328 to the charging cradle

## 2.4 Powering-On/Off



### NOTE:

Before using the MODAT-328 for the first time, the battery must be charged for at least 4 hours. After that, the battery may be charged as needed.

To power-on/off the MODAT-328, please follow the steps below:

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

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



Figure 2-6: Power Button

2.5 R

## Resetting the System



### CAUTION:

Resetting the MODAT-328 may result in losing unsaved data. Before resetting the MODAT-328, remember to backup unsaved data using ActiveSync or by saving data directly onto a microSD card.

To reset the MODAT-328 please follow the steps below:

**Reset:** Insert the tip of your stylus or a ballpoint pen into the reset button (**Figure 2-7**). The MODAT-328 will shut down and restart after a few seconds.



Figure 2-7: Reset Button

## 2.6 Synchronized with Windows 7 System

The MODAT-328 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-328. To switch the USB mode, follow the steps below:

**Step 8:** Power on the MODAT-328.

**Step 9:** Go to “Start” → “Settings” → “Connections” → “USB to PC”.

**Step 10:** Check the “Enable advanced network functionality” option.

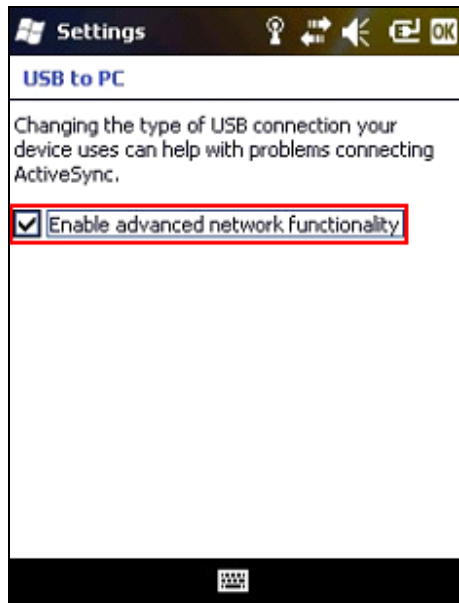


Figure 2-8: USB to PC Window

Appendix

A

# Safety Precautions

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**WARNING:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the MODAT-328.

## 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-328 is opened.
- **Make sure the power is turned off and the power cord is disconnected** whenever the MODAT-328 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-328 chassis is opened when the MODAT-328 is running.
- **Do not drop or insert any objects** into the ventilation openings of the MODAT-328.
- **If considerable amounts of dust, water, or fluids enter the MODAT-328,** turn off the power supply immediately, unplug the power cord, and contact the MODAT-328 vendor.
- **DO NOT:**
  - Drop the MODAT-328 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



## MODAT-328

### A.1.2 Anti-static Precautions

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#### WARNING:

Failure to take ESD precautions during the installation of the MODAT-328 may result in permanent damage to the MODAT-328 and severe injury to the user.

---

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the MODAT-328. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the MODAT-328 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 anti-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

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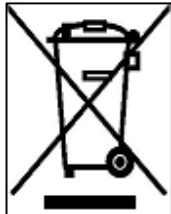
#### CAUTION:

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to instructions and local regulations.

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- 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-328, please follow the guidelines below.

### A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the MODAT-328, 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-328 does not require cleaning. Keep fluids away from the MODAT-328 interior.
- Be cautious of all small removable components when vacuuming the MODAT-328.
- Turn the MODAT-328 off before cleaning.
- Never drop any objects or liquids through the openings of the MODAT-328.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the MODAT-328.
- Avoid eating, drinking and smoking within vicinity of the MODAT-328.

## MODAT-328

### A.2.2 Cleaning Tools

Some components in the MODAT-328 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-328.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the MODAT-328.
- **Water or rubbing alcohol** – A cloth moistened with water or rubbing alcohol can be used to clean the MODAT-328.
- **Using solvents** – The use of solvents is not recommended when cleaning the MODAT-328 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-328. Dust and dirt can restrict the airflow in the MODAT-328 and cause its circuitry to corrode.
- **Cotton swabs** - Cotton swabs 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

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**MODAT-328**

**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.



Appendix

C

# Hazardous Materials Disclosure

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## **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
<p>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</p> <p>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</p>						



## MODAT-328

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。