

**AMB-2450-A Series**

15" TFT Flat-panel

Industrial Workstation

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## Packing List

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Before installing your workstation, please check if the package contains the following items.

- AMB-2450-A series Industrial workstation
- CD-ROM
  - Contains User's Manual, Drivers and Utilities
- Accessories
  - Keyboard/ Mouse cable
  - Screws bag
  - Mounting brackets
  - VGA Cable
  - Power cord
- With Touch Screen Option
  - RS-232 cable for 2.0 pitch and 2.54 pitch

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

## Safety & Warranty

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1. Read these safety instructions carefully.
2. Keep this user's manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment checked by service personnel:
- The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the users manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). IT MAY DAMAGE THE EQUIPMENT.

## FCC Safety

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**Warning!**



**This device complies with Part 15 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.**

## Contents

Copyright Notice .....	2
Acknowledgments .....	3
Packing List .....	4
Safety & Warranty .....	5
FCC Safety.....	6
General Information.....	8
Introductions .....	9
Features .....	10
Specifications.....	11
Dimensions .....	15
Hardware Installation.....	16
Installing 3.5” HDD, FDD and CD-ROM.....	17
VGA Cable Installation.....	17
VGA Cable Installation.....	18
Installing Touchscreen cable to CPU card.....	19
BIOS & Jumper Setting.....	20
Drivers Installation .....	22
CPU Card Drivers Installation.....	24
On Screen Display Control.....	25
On Screen Display (OSD) Controller .....	26
Troubleshooting .....	30

Chapter

1

**General  
Information**



## Introductions

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The AMB-2450-A series Industrial workstation are PC-based industrial computers that are designed to serve specifically for the factory floor and other harsh industrial environments. This 19" rack/panel-mount workstation offers full state-of-the-art industrial computing technology packaged within one compact unit. They are bare-bone PC-based systems that could be configured with different levels of full size CPU cards with a 15" XGA (1024 x 768) color TFT high brightness, long lifetime LCD displays. AMB-2450-A are equipped with Analog VGA input 15" LCD monitor, customer can easily choose any type of CPU cards with on-board VGA function. A heavy-duty steel chassis and aluminum alloy front panel is designed for any harsh environment of industrial standards.

The front panel for the Modular System Design of AMB-2450-A series could be opened with a key lock; CD-ROM & FDD are protected with the front panel. Front panel is removable when you install. This makes LCD and control box as two systems as well as increasing the reliability.

## Features

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- 15" XGA color TFT LCD display
- Analog VGA signal input
- OSD (On Screen Display) function for display adjustment
- Heavy-duty steel chassis and aluminum alloy front panel
- Water-proof front panel with IP-44 certification (option)
- 10 slots ISA/PCI-bus passive backplane
- Anti-vibration disk drive bay for HDD
- Hold-down clamp to protect add-on cards from vibration
- Easy-disassembled cooling fan filter
- P3 (SBC-780) or P4 (SBC-860) level full-size CPU card (optional)
- Resistive Touchscreen (optional)

## Specifications

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- **Construction:** Heavy-duty steel chassis & IP-44 certified aluminum alloy front panel.
- **Display:** 15" XGA (1024 x 768) color TFT LCD
- **CPU:**
  - SBC-780: Supports Socket 370 based Intel Pentium III Coppermine processor up to 1.4 GHz (FSB 66/100/133 MHz)
  - SBC-860: Supports Socket 478 based Intel Pentium 4 processor up to 3.06 GHz (FSB 400/533 MHz)
- **Memory:**
  - SBC-780: Supports up to 1 GB (SDRAM DIMM x 2)
  - SBC-860: Supports up to 2 GB (DDR SDRAM DIMM x 2)
- **Disk Drive Housing:** 3.5" anti-vibration HDD space, 3.5" FDD space and Slim CD-ROM space
- **Front panel**
  - 59-key and 24-key sealed-membrane operating keypad:  
You can enter numerical data using the workstation's convenient 59-key and 24-key sealed-membrane operating keypad. The keypad has excellent tactile response. You can also attach an external keyboard through a connector on the front panel.
  - Keyboard connector:  
PS/2 connector with dust-protection cover on front panel  
If you would like to connect external keyboard or mouse, please

notice:

1. The PS/2 connector on front panel supports external keyboard only
2. The PS/2 connector at CPU card's bracket will be useless.

### - **Finger Mouse**

Finger mouse is a standard function at AMB-2450-A series. It's a standard PC compatible mouse and makes this workstation have full function assist you to control everything with this workstation.

### - **Front-accessible control panel:**

You can easily access the workstations' controls from the front sturdy protective panel. Controls include switches for power. The front panel also holds a 3½ " 1.44MB FDD and a slim CD ROM. The aluminum door protects the controls from the environment outside. The door has a waterproof foam-rubber seal and captive hand screw to hold it closed. In addition, the door offers protection against accidental operation of the unit's controls.

### - **Key Lock:**

This design is like a key, which makes the front panel open and closed, also could secure Power switch, CD-ROM and FDD.

- **Front panel color:** RAL-7035

- **Mounting:** Rack Panel mount, 8U height

- **Cutout Size:** 439 x 342 mm

- **Power supply:** AC ATX – 300W, AC-in 90~264V

Input Current: 6A (AC in 110 V), 3A (AC in 220 V)

Frequency: 47~63 Hz

24V DC – 300W 24V DC-DC (optional)

Input Range: 19~32VDC

Maximum input current: 20A at +24VDC input

- **Dimension (W x H x D):** 483 x 355 x 235mm (18.9" x 13.9" x 9.2")
- **Carton dimension (W x H x D):** 620 x 520 x 395mm
- **Gross Weight:** 20.6Kg (45.32 lbs)

## LCD Specifications

<b>Display type</b>	15" color TFT LCD
<b>Max. Resolution</b>	1024 x 768
<b>Max. Colors</b>	256K
<b>Dot size (mm)</b>	0.297 x 0.297
<b>Luminance (cd/m<sup>2</sup>)</b>	250 cd/m <sup>2</sup>
<b>Viewing angle</b>	160 (H)
	150 (V)
<b>Back Light MTBF (Hrs)</b>	30,000

## Environmental Specification

- **Operating temperature:** 0 ° to 50 (32~122 )
- **Storage temperature:** -20 ° to 60 (-4~140 )
- **Storage humidity:** 5 to 95% @ 40 , non-condensing
- **Vibration:** 1.2G / 5~500Hz (Random) / operation
- **Shock:** 10G peak acceleration (11 msec. duration) / operation
- **EMC:** CE/FCC Class A
- **Waterproof / Dustproof:** Front Panel IP44 Certification

## Touchscreen (optional)

**Type:** 8-wire, analog resistive

**Interface:** RS-232 interface

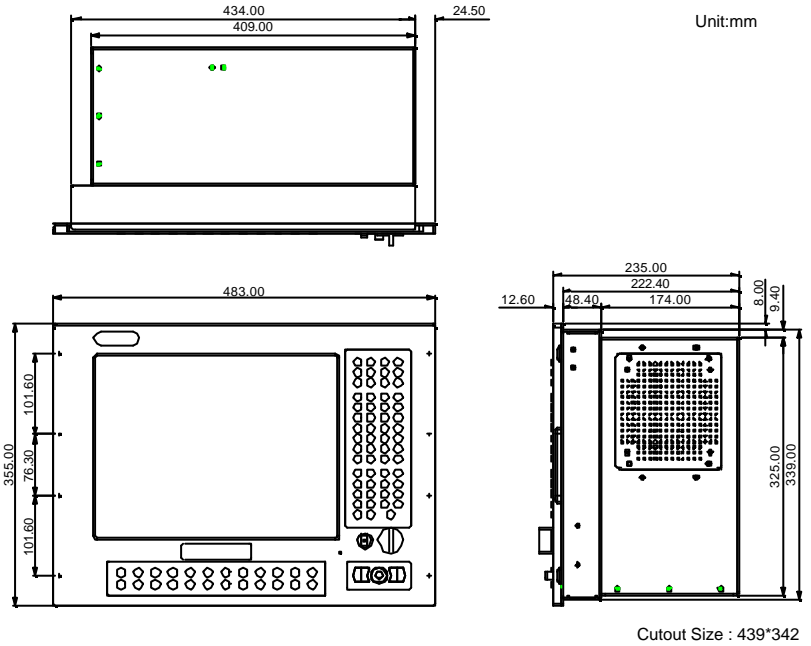
**Resolution:** 1024 x 1024

**Light transmission** > 75%

**Lifetime:** 1 million activations

**OS support:** MS DOS, Windows 98/SE, Windows NT4.0, Windows 2000, Windows XP

## Dimensions



Chapter

2

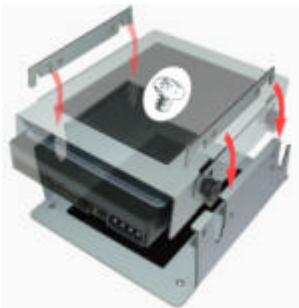
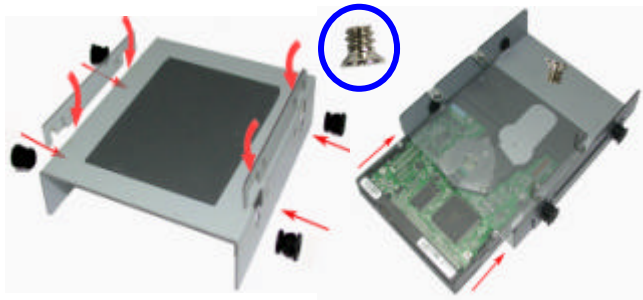
**Hardware  
Installation**



## Installing 3.5" HDD, FDD and CD-ROM

The Industrial Workstation is a PC-based industrial computer that is housed in aluminum alloy front panel and steel chassis. Any maintenance or hardware upgrades can be easily completed after removing the rear cover case.

1. Unscrew the bottom cover.
2. Take the disk drive module out by screws.
3. Slide the FDD in and tighten it.
4. Slide the CD-ROM in and tighten it.
5. Fix 3.5" HDD with screws in the bracket.
6. Fix the disk drive module with screws in the steel chassis and connect the HDD, FDD and CD-ROM cable.



## VGA Cable Installation

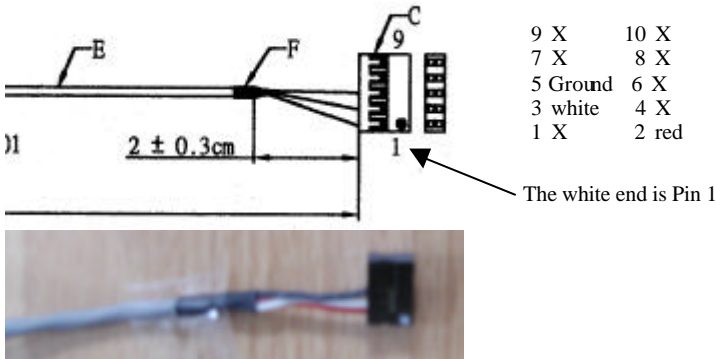
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Make sure that the VGA cable is securely connected before turning on the power switch.



## Installing Touchscreen cable to CPU card

If you only order AMB-2450HTT-A bare bone, you need to install touchscreen cable to RS-232 pin header on CPU card.



### RS-232 Touchscreen Pin Assignment

Pin defined	Standard RS-232 Signal	Touchscreen cable
#1	DCDA	NC
#2	DXA	RXA
#3	TXA	TXA
#4	DTRA	NC
#5	GND	GND
#6	DSRA	NC
#7	RTSA	NC
#8	CTSA	NC
#9	RIA	NC
#10	NC	NC

Chapter

3

**BIOS  
&  
Jumper  
Setting**

The AMB-2450-A provides two options:

1. Built in SBC-780 CPU card (Pentium III Level)
2. Built in SBC-860 CPU card (Pentium 4 Level)

**In regard to Jumper setting and BIOS for each CPU card, please refer to User manual of SBC-780 or SBC-860.**

**(Manual:// CPU card/ SBC-780 or SBC-860)**

Chapter

4

**Drivers  
Installation**

The AMB-2450-A comes with a CD that contains most of the drivers and utilities of your needs.

There are several ways of installation depending on the driver package under different Operating System application.

***We recommend that the system driver installation procedure must be performed first.***

If you utilize Windows NT series OS, you are strongly recommended to download the latest version Windows NT Service Pack from Microsoft website and install it before installing any driver.

As for the rest of Drivers Installations of CPU cards, please refer to the individual manual for each CPU cards.

In regard to Touchscreen installation, please refer to the Excel file: **ReadMe\_All-Prds-Touch-list.xls** to find out the right touchscreen type and follow the installation guide in respective folders.

**Note:** AMB-2450-A provides optional Dynapro Resistive Touch.

## CPU Card Drivers Installation

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The AMB-2450-A provides two options:

1. Built in SBC-780 CPU card (Pentium III Level)
2. Built in SBC-860 CPU card (Pentium 4 Level)

**In regard to Drivers Installation for each CPU card, please refer to User Manual of SBC-780 or SBC-860.**

**(Manual:// CPU card/ SBC-780 or SBC-860)**



Chapter

5

**On Screen  
Display Control**

## On Screen Display (OSD) Controller

The LCD monitor is very easy and simple to operate. There are five controls below on the rear panel. You can see their respective indicators.



### AUTO

To auto adjust image position, pixel clock and phase. Whenever there is flicker happens, always press the AUTO button first.

The setting value will be adjusted correctly and saved automatically.

#### **Notice:**

***The AMB-2450-A series were designed to provide the best quality in 60-75MHz VGA frequency range. We recommend keeping the screen refresh rate within the range in order to obtain the optimum quality.***

### MENU

#### **Menu**

To activate the OSD Menu, press the Button. When locating an item you like to adjust in the OSD Menu, press to bring up the corresponding sub-menu for options.



#### **Increase / Moving UP Button**

To move the locating cursor forward in the OSD Menu, press UP button. To increase the value while adjusting a parameter, press the

▲ button.

**Decrease / Moving DOWN Button**

To move the locating cursor backward in the OSD Menu, press the ▼ button. To decrease the value while adjusting a parameter, press ▼ button.


**Power Switch**

Press the Power Switch to turn on/off the LCD monitor backlight and the power LED will light up Green/Red.

## Display Menu


There are twelve options in the OSD Menu. Press the Menu button to choose the items you would like to adjust.

### <Main Menu>

A screenshot of the Main Menu OSD screen, enclosed in a double-line border. The menu items are listed vertically from top to bottom: Auto Adjust, Monitor, OSD Control, BIOS Version, Graphic, Graph / Text, and Exit.

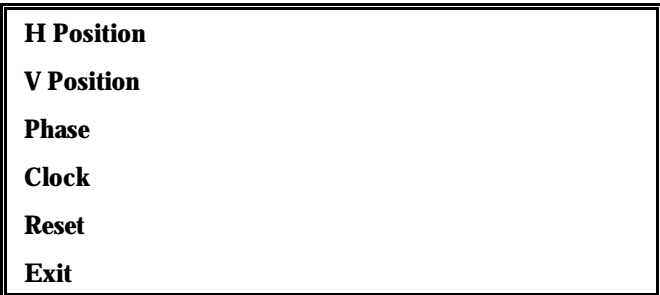
**Auto Adjust**  
**Monitor**  
**OSD Control**  
**BIOS Version**  
**Graphic**  
**Graph / Text**  
**Exit**

### <Auto Adjust>

A screenshot of the Auto Adjust OSD screen, enclosed in a double-line border. The menu items are listed vertically from top to bottom: Auto Tune, Auto Gain, and Exit.

**Auto Tune**  
**Auto Gain**  
**Exit**

### <Monitor>

A screenshot of the Monitor OSD screen, enclosed in a double-line border. The menu items are listed vertically from top to bottom: H Position, V Position, Phase, Clock, Reset, and Exit.

**H Position**  
**V Position**  
**Phase**  
**Clock**  
**Reset**  
**Exit**

**<Graphic>**

**Contrast**

**Brightness**

**R Color**

**G Color**

**B Color**

**Exit**

**<Graph / Text>**

**Sharpness**

**Exit**

**<Exit>**

## Troubleshooting

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To solve the following problems, you may need to refer to **Appendix A Standard Timing** for compatible display specifications.

### 1. Problem: Unclear or Unsteady Display

#### Actions:

Activate the **AUTO** button. You might need to find the balanced values for a good quality repeatedly.

If the **AUTO** button cannot solve the problem, try to manual fine tune following steps below:

1. If the image size does not fit the screen, adjust the **Clock** value under “**Monitor**” menu.
2. If there is image pixel noise appears, adjust the **Phase** setting value under “**Monitor**” menu. Pull and adjust the value bar to find out what is the best clarity range for your LCD display.
3. If the image is not centered after step 1 and 2, adjust **H Position** or **V Position** under “**Monitor**” menu to center the image.
4. If you still have problem to fine-tune the image, call your local technical support for assistance.

### 2. Problem: No Display is shown on the LCD monitor.

#### Actions:

1. Make sure the Panel PC is powered on by checking if the Power LED is lit. Check if all the connections of the external VGA cable are secure and the system is running correctly.
2. If the power LED lights up green, but there is still nothing displayed; connect your PC with another

external monitor. If your PC works properly with that monitor, then it is possible that the VGA card timing of the system may be outside the LCD monitor's synchronous range. You may need a qualified technician for help.

- 3. Problem: The LCD monitor does not work properly under Windows, but it functions all right in DOS mode.**

**Action:**

Make sure the display mode you choose in Windows matches the LCD monitor.