

AWK-3501 Series

15" TFT Flat-panel
Industrial Workstation

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- AWK-3501 series Industrial workstation
- CD-ROM
 - Contains User's Manual, Drivers and Utilities
- Accessories
 - 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

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

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.

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Chapter

1

**General
Information**

1.1 Introduction

The AWK-3501 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. AWK-3501 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 of AWK-3501 series could be opened; removable HDD, CD-ROM and FDD are protected with the front panel. The removable HDD is anti-vibration disk drive bay for 2.5" HDD that easy for install.

1.2 Feature

- 15" XGA color TFT LCD display
- Analog VGA signal input
- Integrated touch pad on the front panel
- OSD (On Screen Display) function for display adjustment
- Heavy-duty steel chassis and aluminum alloy front panel
- Water-proof front panel with IP-65 certification
- 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)

1.3 Specification

Construction: Heavy-duty steel chassis & IP-65 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:

- Removable 2.5" anti-vibration HDD (option)
3.5" anti-vibration HDD space, slim 3.5" FDD space and CD-ROM space

Front panel

- 59-key and 15-key sealed-membrane operating keypad:
You can enter numerical data using the workstation's convenient 59-key and 15-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
The PS/2 connector at CPU card's bracket support external keyboard only.

Note: Because of chip limitation, when using Windows NT, please do not use Logitech M-S34 PS/2 Mouse. When Using LINUX REDHAT8.0 OS, the front panel PS/2 connector only support PS/2 KEBOARD.

Touch Pad

Touch pad is a standard function at AWK-3501 series. It's a standard PC compatible mouse and makes this workstation have full function assist you to control everything with this workstation. Because of chip limitations, the system does not support Window NT for touch pad.

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 anti-vibration disk drive bay for 2.5" HDD , a slim 1.44MB FDD and a CD ROM. The front panel also holds a USB connector to convenient update program and maintain. 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, removable HDD, 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):** 675 x 465 x 455mm (22.6" x 18.3" x 17.9")
- **Carton dimension (W x H x D):** 680 x 510 x 460mm
- **Gross Weight:** 26Kg (57.3 lbs)

LCD Specifications

Display type	15" color TFT LCD
Max. Resolution	1024 x 768
Max. Colors	256K
Dot size (mm)	0.297 x 0.297
Luminance (cd/m²)	250 cd/m ²
Viewing angle	160 (H)
	150 (V)
Back Light MTBF (Hrs)	30,000

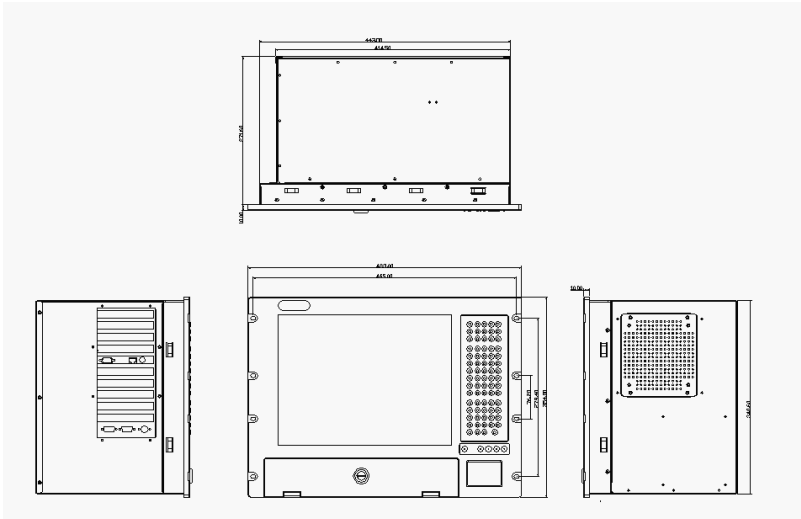
Environmental Specification

- **Operating temperature:** 0 ° to 50 (32~122)
- **Storage temperature:** -20 ° to 60 (-4~140)
- **Storage humidity:** 5 to 95% @ 40 , non-condensing
- **Vibration:** 1.0G / 5~500Hz (Random) / operation
- **Shock:** 10G peak acceleration (11 msec. duration) / operation
- **EMC:** CE/FCC Class A
- **Waterproof / Dustproof:** Front Panel IP65 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 2000, Windows XP

1.4 Dimension



Chapter

2

**Hardware
Installation**

2.1 2.5" HDD Installation

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.

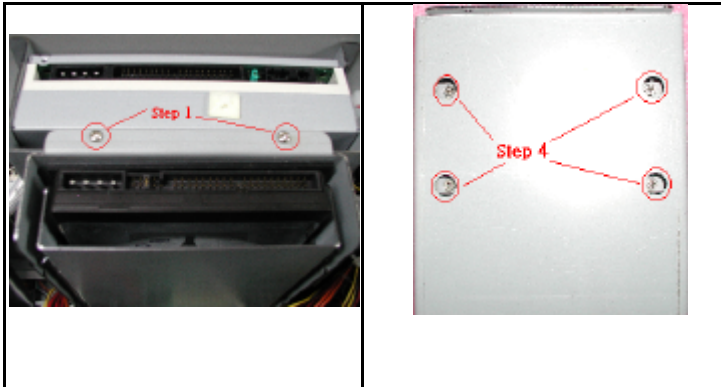
1. Open front panel door.
2. Unscrew the HDD disk drive module
3. Take the disk drive module out
4. Install 2.5" HDD in the module
5. Slide the HDD disk drive module back and tighten it



2.2 3.5" HDD Installation

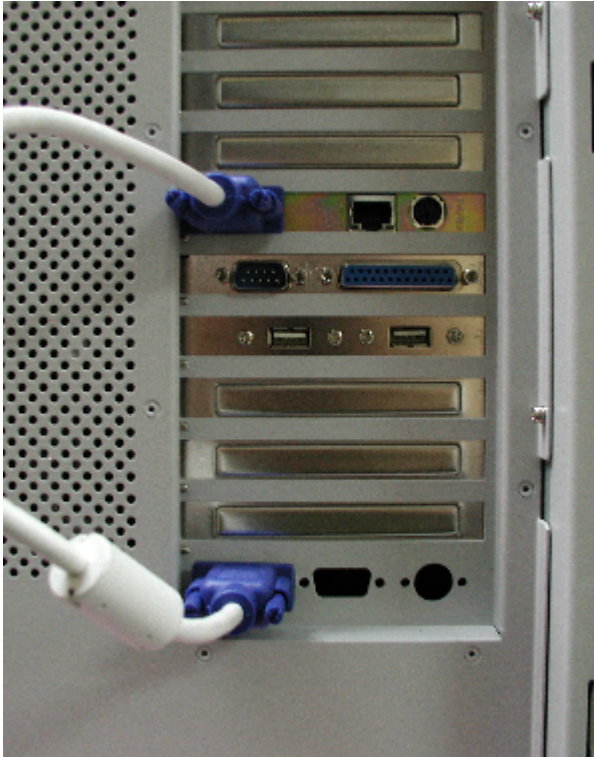
The Industrial Workstation is a PC-based industrial computer that is housed in aluminum alloy front panel and steel chassis. Any maintenance or hardware upgrades can be easily completed after removing the rear cover case.

1. Unscrew the bottom cover.
2. Take the disk drive module out by screws.
3. Slide the HDD in.
4. Fix 3.5" HDD with screws in the bracket.
5. Fix the disk drive module with screws on the CD-ROM module.



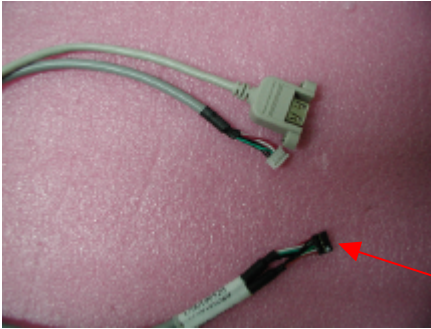
2.3 VGA Cable Installation

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



2.4 USB / Touch pad cable to CPU card Installation

If you only order AWK-3501HTT-A bare bone, you need to install touch pad cable to USB pin header on CPU card.



The white end is Pin 1



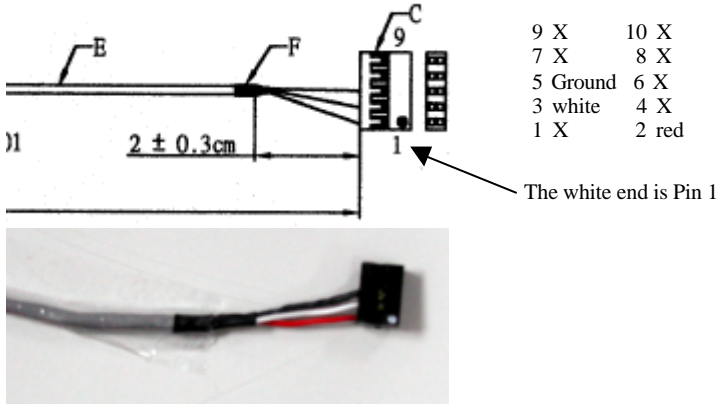
2.0 pitch to 2.54 pitch cable

USB/Touch pad Pin Assignment

PIN	FUNCTION	PIN	FUNCTION
1	Vcc +5v (RED)	2	Ground (BLACK)
3	(-) Data (WHITE)	4	Ground (BLACK)
5	(+) Data (GREEN)	6	(+) Data (GREEN)
7	Ground (BLACK)	8	(-) Data (WHITE)
9	Ground (BLACK)	10	Vcc +5v (RED)

2.5 Touch screen cable to CPU card Installation

If you only order AWK-3501HTT-A bare bone, you need to install touchscreen cable to RS-232 pin header on CPU card.

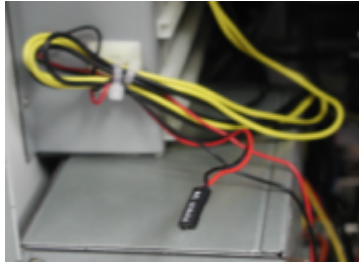


RS-232 Touchscreen Pin Assignment

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

2.6 Power Switch Cable Installation

If you only order AWK-3501HTT-A bare bone, you need to install power switch cable (see picture) to Power-SW pin header on CPU card.



2.7 PS/2 Cable Installation

If you only order AWK-3501HTT-A bare bone, you need to install PS/2 cable (see picture) to PS/2 connector on CPU card.



PIN	FUNCTION
1	Mouse clock (BROWN)
2	Mouse data (RED)
3	GND (YELLOW)
4	VCC (GREEN)

2.8 External 5V SB/PWDRG Cable Installation

If you only order AWK-3501HTT-A bare bone, you need to install 5V SB/PWDRG cable. (refer to the illustration)



PIN	FUNCTION
1	NA
2	GND (BLACK)
3	Power GOOD (GRAY)
4	N.C. (WHITE)
5	5V SC (GREEN)
6	5V SB (PURPLE)

Chapter

3

**BIOS &
Jumper
Setting**

The AWK-3501 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)

SBC-860 LAN connector CN-15 is LAN 1; CN-17 is LAN 2.

Note:

The system works only on CRT mode. If the touch pad function doesn't work well, please make sure USB keyboard support and USB Mouse support have been set to "Enabled".

Chapter

4

**Driver
Installation**

The AWK-3501 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-Prods-Touch-list.xls** to find out the right touchscreen type and follow the installation guide in respective folders.

Note: AWK-3501 provides optional Dynapro Resistive Touch.

4.1 CPU Card Driver Installation

The AWK-3501 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)

4.2 Touch Pad Driver Installation

Please follow the instructions when you start to install touch pad drivers.

1. Insert the AWK-3501 CD-ROM into the CD-ROM drive.
2. Select the OS folder you will install.
3. After enter the OS folder that you will install, double click on the **setup.exe**, and the system will help you install touch pad driver automatically.
4. After you double click the setup.exe., follow the instructions shown in the window to finish the installation.

Chapter

5

**On Screen
Display Control**

5.1 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 AWK-3501 series were designed to provide the best quality in 70MHz VGA frequency range. We recommend keeping the screen refresh rate in 70MHz 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.

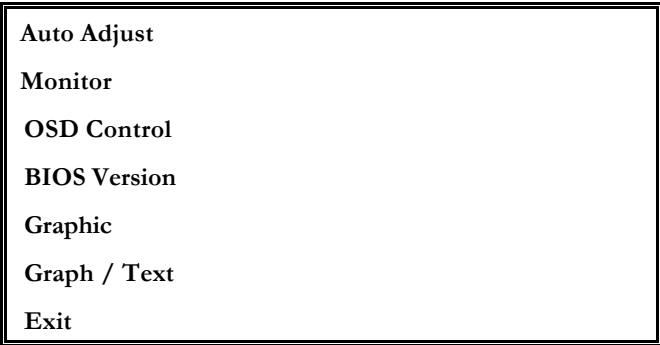
**Power Switch**

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

Display Menu

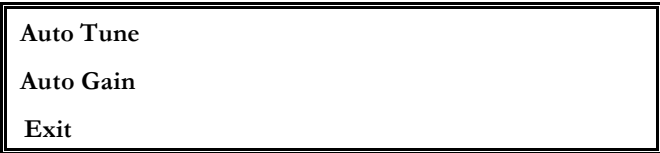
There are twelve options in the OSD Menu. Press the Menu button to choose the items you would like to adjust.

<Main Menu>

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

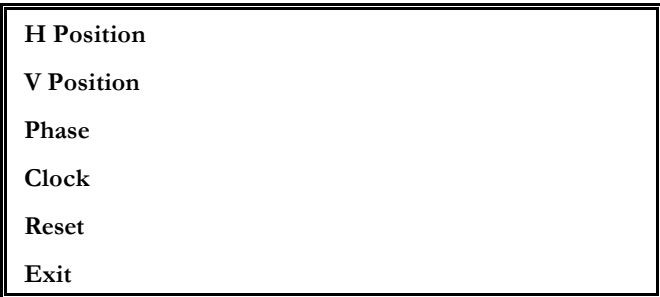
Auto Adjust
Monitor
OSD Control
BIOS Version
Graphic
Graph / Text
Exit

<Auto Adjust>

A screenshot of the Auto Adjust OSD, enclosed in a double-line black 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, enclosed in a double-line black 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>

<p>Contrast</p> <p>Brightness</p> <p>R Color</p> <p>G Color</p> <p>B Color</p> <p>Exit</p>
--

<Graph / Text>

<p>Sharpness</p> <p>Exit</p>

<Exit>

5.2 Troubleshooting

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.