AWS-825B/PB

Industrial Workstation with 15" Color CRT Display

Copyright Notice

Acknowledgments

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警告使用者

這是甲類的資訊產品，在居住的環境中使用時，
可能會造成射頻干擾，在這種情況下，使用者會
被要求採取某些適當的對策。

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Printed in Taiwan, October l998

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with this user's manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Packing List

Before you set up the AWS-825B/PB, make sure that the following items have been included in your package, and that this manual is in good condition. If anything is missing or damaged, contact your dealer immediately.

- One AWS-825B/PB with 15" CRT monitor
- User's manual
- Accessories for AWS-825B/PB:
  - KB transfer wire
  - Flat cable (40P) for 2 AT-bus HDD
  - Two power cords (USA type and French type)
  - Utility disk for keyboard translator
  - Screw bag with screws

Additional Information and Assistance

1. Visit the Advantech web site at **www.advantech.com.tw** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - Complete description of the problem
   - Exact wording of any error messages

Safety Instructions

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, the equipment should be opened only by qualified service personnel.
14. If any of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. 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.

The sound pressure level at the operator's position according to IEC 704-1:1982 is equal to or less than 70 dB(A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Wichtige Sicherheishinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim AnschluB an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

    a - Netzkabel oder Netzstecker sind beschädigt.

    b - Flüssigkeit ist in das Gerät eingedrungen.

    c - Das Gerät war Feuchtigkeit ausgesetzt.

    d - Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioni ert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

    e - Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

    f - Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

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Contents

CHAPTER 1

Introduction

- Description
- Specifications
- Front and rear panel layout
- Dimensions

1.1 Description

We designed the AWS-825B/PB 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.

It includes a 15" color CRT monitor, 7-slot passive backplane, slide-out “work drawer” card cage, 260-watt power supply, 3½" floppy disk drive (slim CD-ROM and 3½" HDD optional), front and rear 5-pin keyboard connectors and a sealed front panel that conforms to NEMA 4 and NEMA 12 specifications. All of these features are housed in a rugged workstation chassis which provides protection from dust, vibration and moisture.

15" color CRT

- Vertical and flat screen for better display quality
- High resolution display (1280 x 1024)
- Anti-static treatment on the glass surface to minimize dust accumulation on the monitor
- Low EMF emissions, meeting Sweden's tough MPR II national standard
- Digital screen adjustment for accurate picture quality

39-key sealed-membrane operating keypad

You can enter numerical data using the workstation’s convenient 39-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.

Programmable macro function keys

An additional membrane keypad offers 10 ordinary function keys (F1 ~ F10) and 10 programmable macro keys (SF1 ~ SF10). Macro keys automate common key sequences, even inside application programs.

Front-accessible control panel

You can easily access the workstation's controls from the front of the unit via a sturdy protective door. Controls include LEDs, and switches for power and system reset. The front panel also holds a 3½" 1.44 MB FDD.

The aluminum door protects the controls from the environment outside. The door has a waterproof foam-rubber seal and captive handscrew to hold it closed. In addition, the door offers protection against accidental operation of the unit's controls.

Passive backplanes

The AWS-825B/PB offers two types of passive backplanes, the PCA-6108C and the PCA-6107P2. They allow you to run your industrial applications from a variety of full-featured CPU cards.

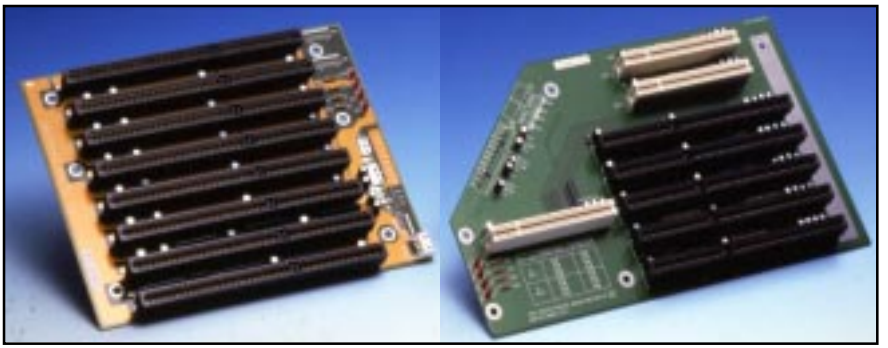


Figure 1-1: The PCA-6108C and PCA-6107P2 passive backplanes

The backplanes are formed from four-layer PCBs with ground and power planes to reduce noise and power-supply impedance. They have LED power indicators for +5 V, +12 V, -5 V and -12 V.

Advantech's PCA-6107P2 passive backplane can be installed into the AWS-825PB. It contains two PCI-compatible slots, four PC/AT-compatible (ISA-bus) slots and one dedicated slot for a CPU card. Three power connectors are also included in the PCA-6107P2.

Alternatively, Advantech's PCA-6108C passive backplane can be installed into the AWS-825B. It contains eight PC/AT-compatible (ISA-bus) slots, termination resistors for high-speed signals and terminal block connectors to supply power from the board.

Convenient work drawer

The AWS-825B/PB's "work drawer" card cage slides out in a snap for reduced MTTR. It makes adding or exchanging plug-in cards and changing power supplies quick and easy.

Our standard PC/AT compatible passive backplane lets you run your industrial applications from a variety of full-featured CPU cards. We offer 80386, 80486 and Pentium®-based CPU cards; along with Flash/RAM/ROM disk, data acquisition and control (DA & C), and I/O cards.

1.2 Specifications

General

- **Construction**: Heavy-duty aluminum and steel chassis
- **Disk drive housing**: Holds one 3½" FDD, one slim CD-ROM and one 3½" HDD (slim CD-ROM and HDD optional)
- **Cooling system**:
  - One 32 CFM fan (flow out) on rear panel for power supply
  - One 29 CFM fan (flow in) for monitor on rear panel
  - One 36 CFM fan in the chassis for plug-in cards
- **Dimensions**:
  Width: 482 mm (19.0")
  Depth: 450 mm (17.7")
  Height: 356 mm (14.0")
- **Weight**: 29 kg (63.9 lbs)

CRT display

- **Size**: 15" diagonal
- **Screen**: Tinted antiglare CRT shield
- **Max. resolution**: 1280 x 1024
- **Dot pitch**: 0.28 mm
- **Horizontal freq.**: 30 ~ 64 KHz
- **Vertical freq.**: 40 ~ 100 Hz (non-interlaced)
- **MPR II compliant**
- **Power-on auto-degaussing**
- **Full digital video adjustment on rear panel**

Front panel

- **Keypads**: One with 39 operating keys, one with 10 function keys and 10 programmable macro function keys
- **Keyboard connector**: Pre-wired 5-pin DIN connector with dust-protection cover on front and rear panel
- **Switches**: Reset and power on/off

Passive backplane

- **AWS-825B/AWS-825B-T**:
  8 ISA slot passive backplane
- **AWS-825PB/AWS-825PB-T**:
  4 ISA / 2 PCI / 1 CPU slot passive backplane

Power supply

AC input 260 W (standard offer)

- **Input voltage**:
  85 ~ 130 V_{AC} or 180 ~ 260 V_{AC} @ 47 ~ 63 Hz, switching
- **Output voltage**:
  +5 V @ 25 A; +12 V @ 9 A; -5 V @ 0.5 A; -12 V @ 2.0 A
- **MTBF**: 100,000 hours
- **Safety**: UL/CSA/TUV approved

-48 V_{DC} input 310 W (optional)

- **Input voltage:** -38 ~ -58 V_{DC}
- **Output voltage**:
  +5 V @ 30 A; +12 V @ 10 A; -5 V @ 1.0 A; -12 V @ 5 A
- **MTBF**: 100,000 hours

24 V_{DC} input 250 W (optional)

- **Input voltage:** 19 ~ 32 V_{DC}
- **Output voltage**:
  +5 V @ 25 A; +12 V @ 10 A; -5 V @ 1.0 A; -12 V @ 1.0 A
- **MTBF**: 100,000 hours

Compact CD-ROM kit (optional)

- **24x slim CD-ROM kit with support bracket (model no. CDR-825-0024)**

Environmental specifications

- **Operating temperature**: 0 ~ 50˚ C (32 ~ 122˚ F)
- **Relative humidity**: 5 ~ 85% @ 40ºC, non-condensing
- **Vibration**:
  5 ~ 17 Hz, 0.1" double-amplitude displacement
  17 ~ 500 Hz, 1.0 G peak to peak

1.3 Front and rear panel layout

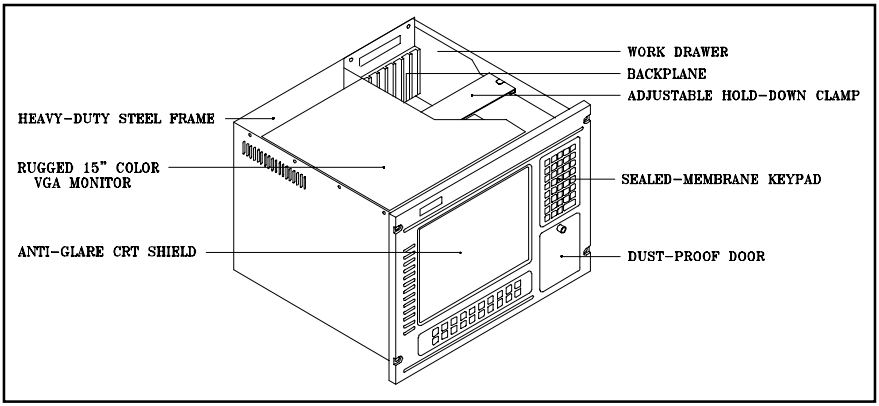


Figure 1-2: Front panel layout

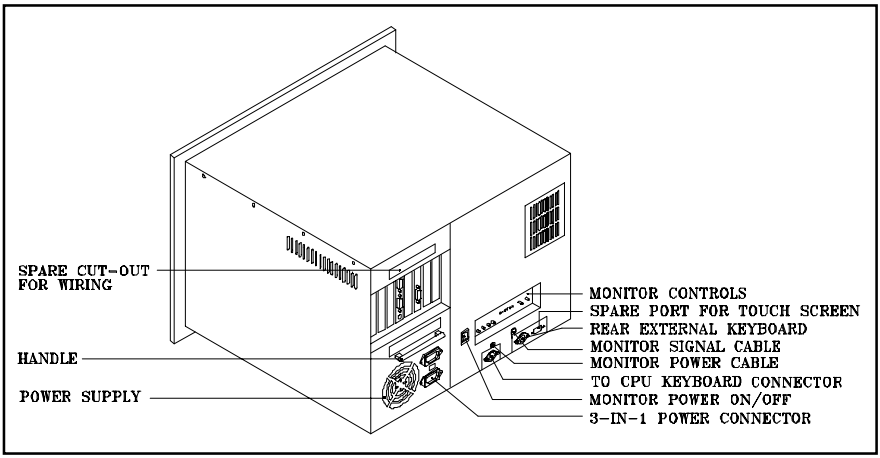


Figure 1-3: Rear panel layout

1.4 Dimensions

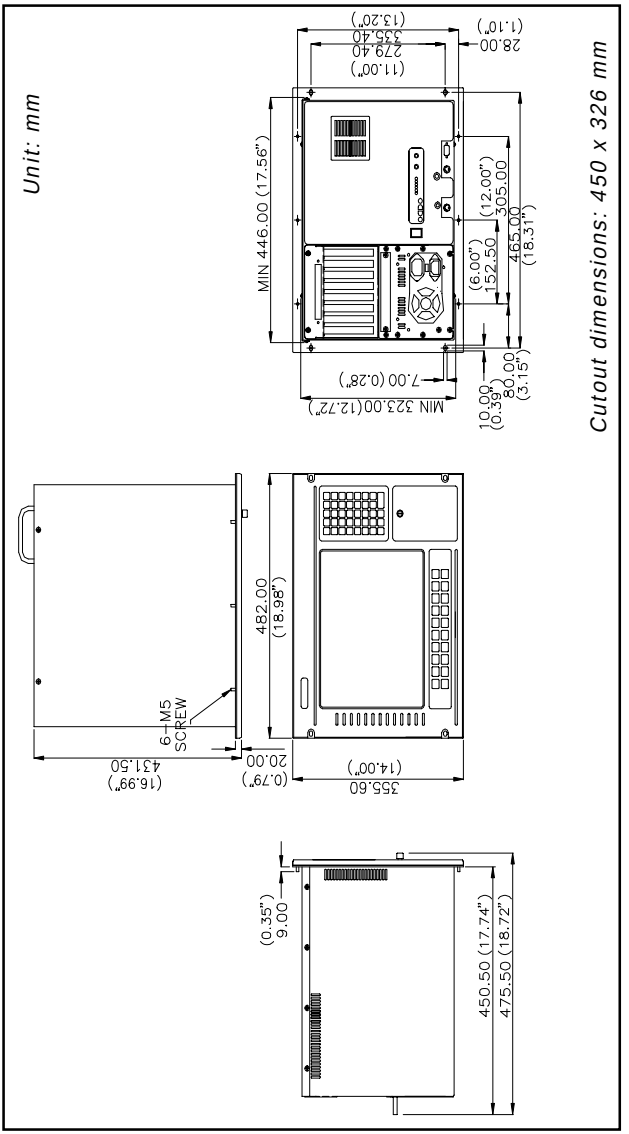


Figure 1-4: AWS-825B/PB dimensions

CHAPTER 2

System Setup

- General
- Detaching the work drawer
- Adding cards
- Installing optional drives
- Attaching cables
- Rack/Panel mounting

2.1 General

When you receive your workstation you will find a backplane, power supply, and floppy disk drive already installed. Further setup of the AWS-825B/PB is easy. All you have to do is slide out its work drawer module, install a CPU card, optional hard disk drive and whatever additional I/O cards your application requires. You can then mount your workstation into a 19-inch rack or into a panel.

Warning! 

1. Do not begin your installation until you are sure there is no power flowing within the AWS-825B/PB. Power must be switched off and the main power cord unplugged.

2. Every time you service the AWS-825B/PB, you should switch the power off and unplug the main power cord.

2.2 Detaching the work drawer

The work drawer is a card cage that slides in and out of the body of the AWS-825B/PB, providing easy access to your cards, drives and power supply.

1. Detach the cables that connect the work drawer to the main chassis.
2. Detach the main power cord, keyboard and video connectors from the work drawer.
3. Four screws on the back of the AWS-825B/PB hold the drawer in the chassis. Remove the screws, and the drawer can then slide out freely.

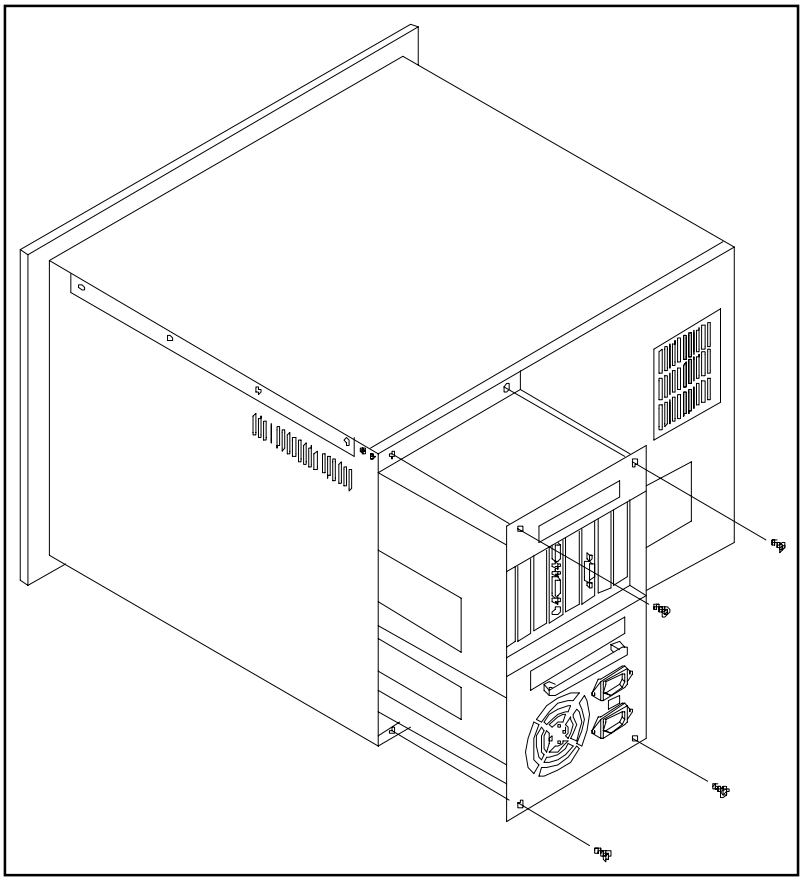


Figure 2-1: Detaching the work drawer

2.3 Adding cards

Remove the cover of the work drawer by either removing the 10 screws that attach it or by sliding it out. Remove the screw that fixes the card hold-down clamp, and remove the clamp.

Slowly slide the card in and carefully press it into the backplane socket. Secure it by screwing it into the top mounting bar. (See Fig. 2-2.) Connect the card wiring. Add any additional cards or take out cards you need to service. Reattach the hold-down clamp. When you have finished, reattach the cover.

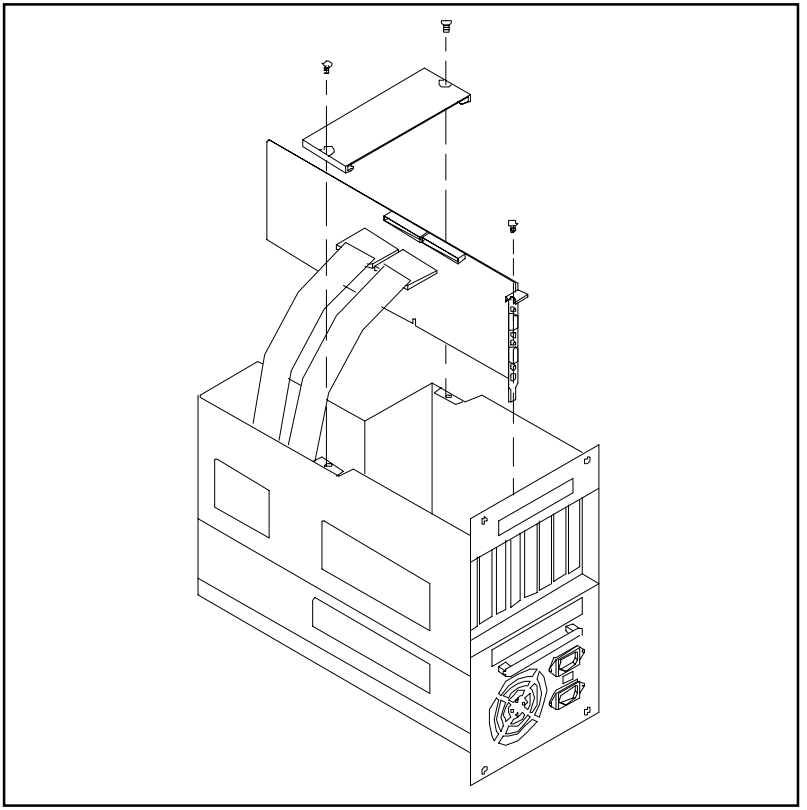


Figure 2-2: Installing add-on cards

2.4 Installing optional drives

The AWS-825B/PB provides space for three disk drives underneath the work drawer. That is, one floppy disk drive, one hard disk drive and one slim CD-ROM drive. If you wish, you can add an extra hard disk drive and an extra slim CD-ROM drive above the power supply. (See Figs. 2-1 and 2-3.)

1. Remove the six screws at the rear of the work drawer and pull down the power supply assembly using the handle. You will find a drive bay for fixing an HDD and a slim CD-ROM drive.
2. Detach the four screws from the drive bay, and slide out the two drive-support brackets.
3. Attach the HDD by fixing it to the drive support brackets with the six screws.
4. Add the optional CD-ROM (CDR-825-0024) over the HDD, and tighten it with the six screws.
5. Slide the assembled HDD and CD-ROM drive into the drive bay.
6. Attach a 40-pin ribbon cable with two connectors; one being a power connector to the HDD, and the other being a power connector to the CD-ROM.
7. Secure the drive in the drive bay with the screws, and attach this assembly to the work drawer.

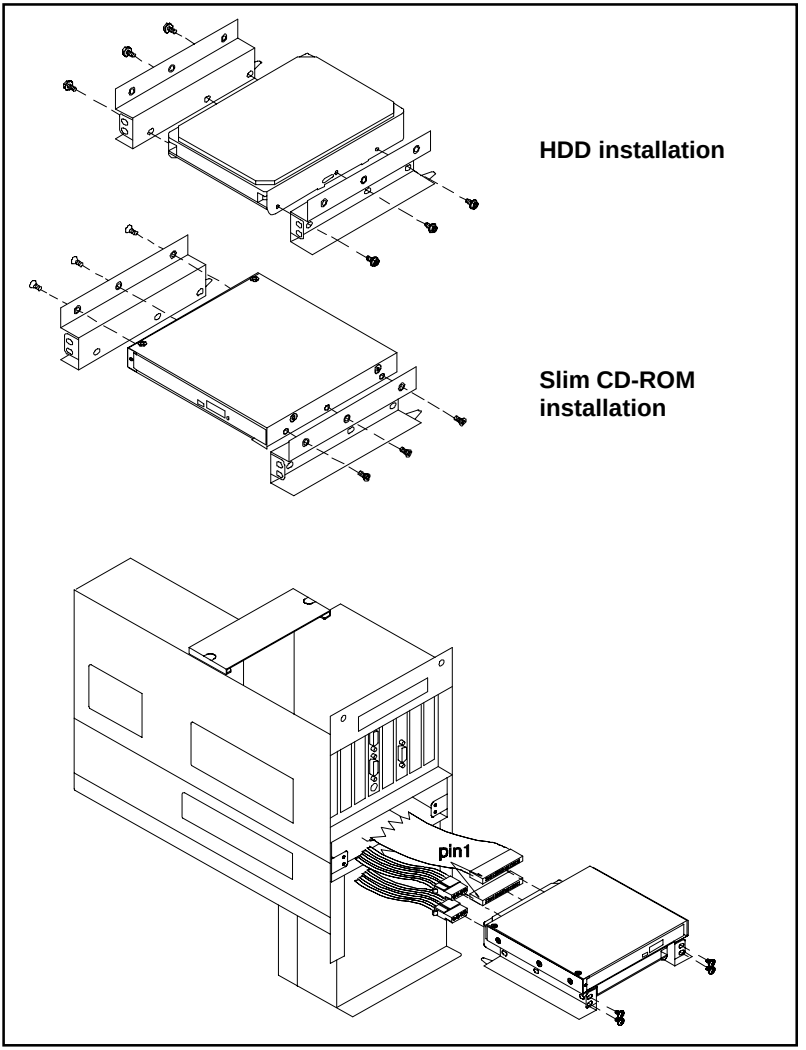


Figure 2-3: Installing optional drives

2.5 Attaching cables

Once you have added your cards, drives and other equipment, and reattached the cables on the rear panel (see Fig. 2-4), you should switch on the AWS-825B/PB and confirm that it works.

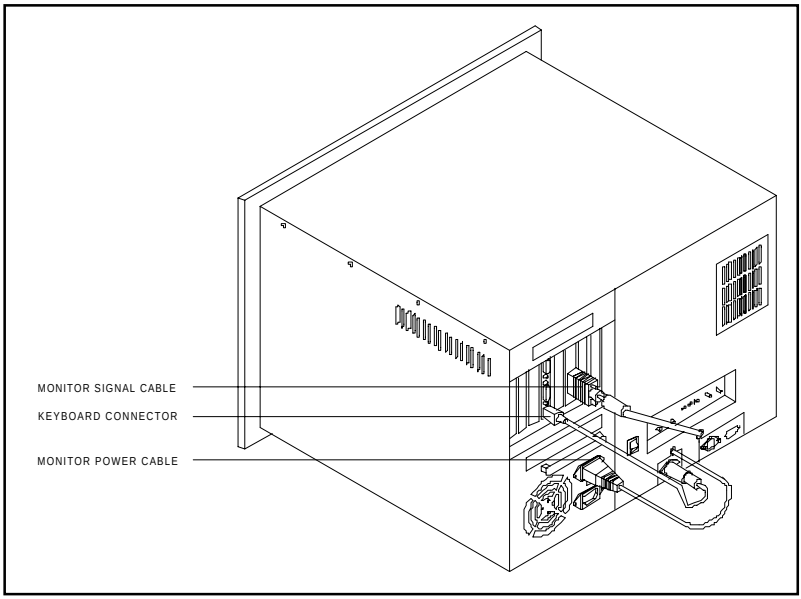


Figure 2-4: Cables on the rear panel

2.6 Rack mounting

The AWS-825B/PB can be mounted in a 19" rack. Ensure that all additional equipment has been installed correctly and that the cabling has been reattached. (See Fig. 2-5.) Remove the screw covers on the front panel. Attach the case to the rack using screws on both sides.

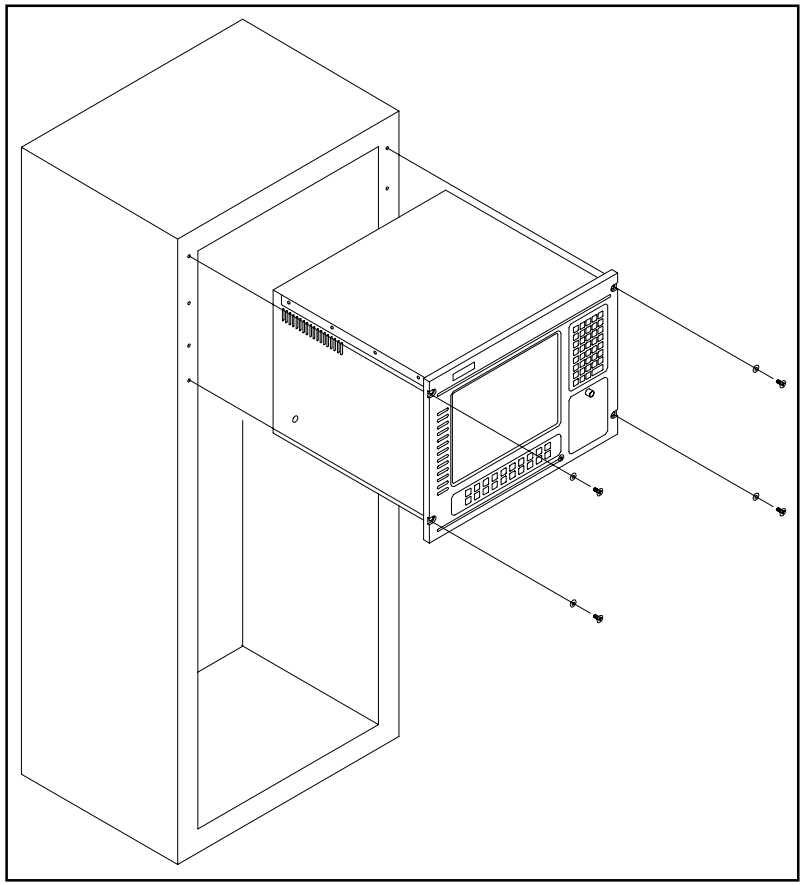


Figure 2-5: Rack mounting the AWS-825B/PB

2.7 Panel mounting

Panel mounting the AWS-825B/PB is easy. Just line up the holes in the panel aperture and the holes on the panel, and then secure the AWS-825B/PB to the panel with the mounting bolts. (See Fig. 2-6.)

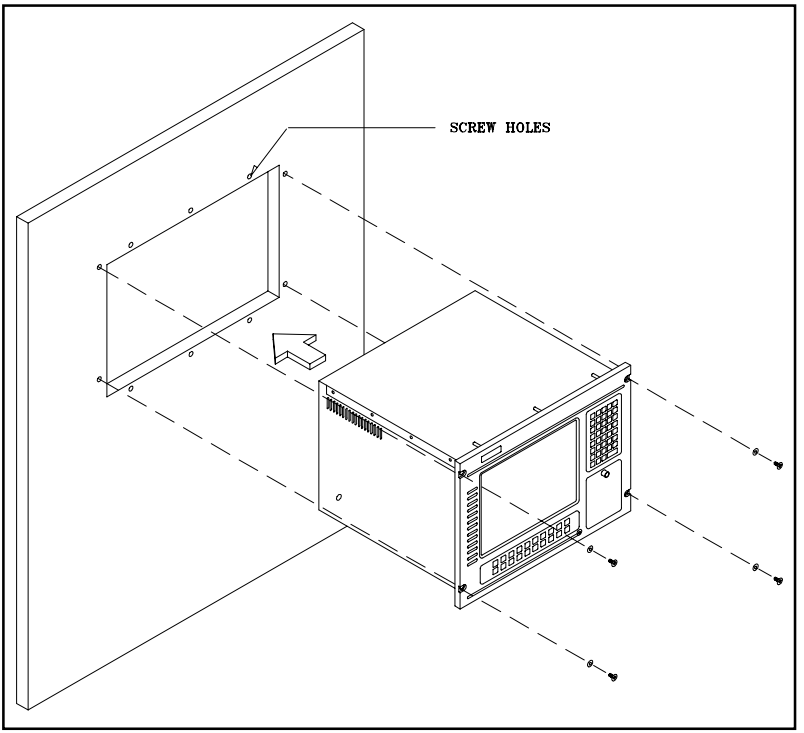


Figure 2-6: Panel mounting the AWS-825B/PB

CHAPTER 3

Maintenance

- Passive backplane
- Power supply
- CRT monitor
- Keyboard translator
- LED board
- Floppy disk drive (FDD)
- Membrane keyboard
- Touchscreen sensor (optional)

3.1 Passive backplane

Before detaching the backplane, you must slide out the work drawer. Follow these steps:

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go. Detach the holding clamp, cables and all the installed cards.
4. Detach the P8 and P9 power connectors by pulling them down. Unscrew the seven screws and detach the backplane. (See Fig. 3-1.)

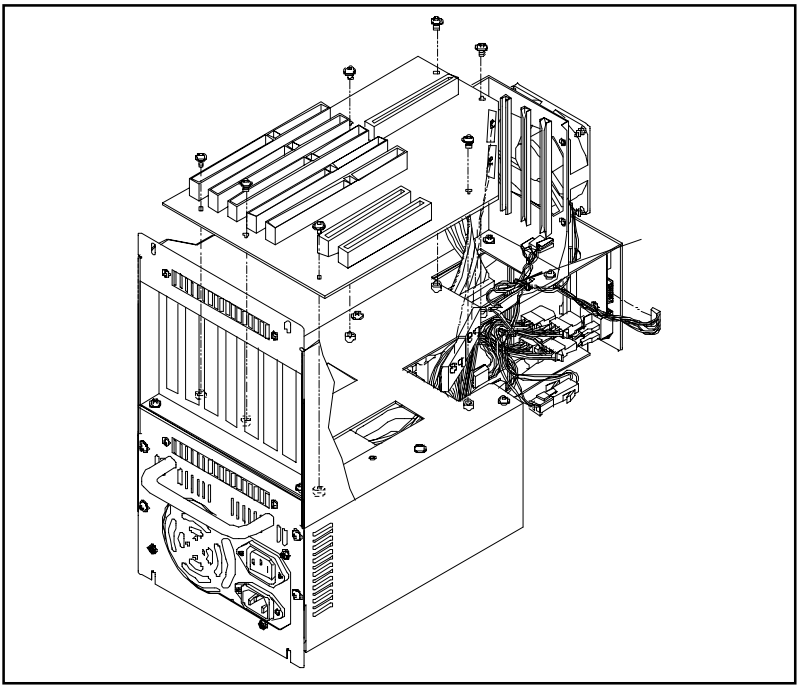


Figure 3-1: Removing the passive backplane

3.2 Power supply

The power supply provides 260 watts and meets UL, CSA and TUV standards. To repair it, you must slide out the work drawer.

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Detach the P8 and P9 power connectors by pulling them down.
5. Remove the four screws at the rear of the work drawer. Pull down the power supply assembly using the handle. (See Fig. 3-2.)
6. Remove the four screws at the rear of the power supply holding plate.
7. Detach the power supply and replace it.

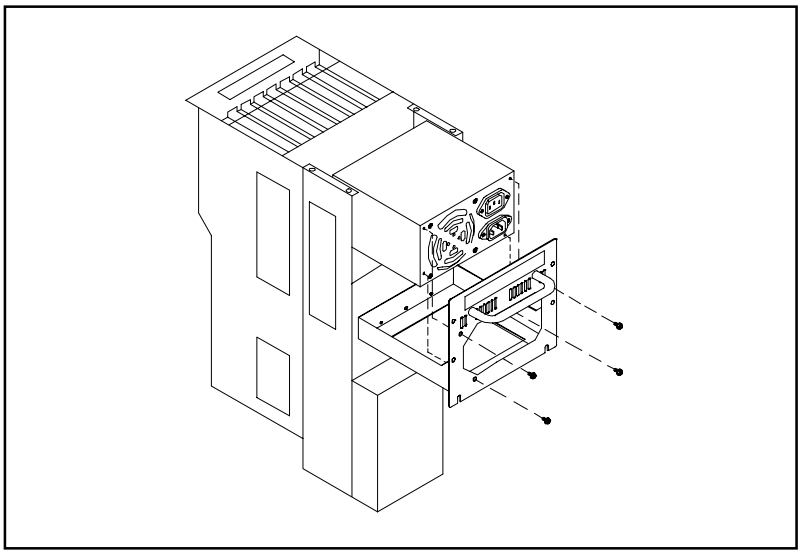


Figure 3-2: Removing the power supply

3.3 CRT monitor

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer and cover from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Unscrew the 29 screws which hold the monitor. There are ten at the rear, eleven on the right, four underneath, and two inside the main chassis. There are also two screws which hold the chassis support bracket that spans between the two side covers. (See Figs. 3-3 and 3-4.)
5. Pull out the CRT monitor.

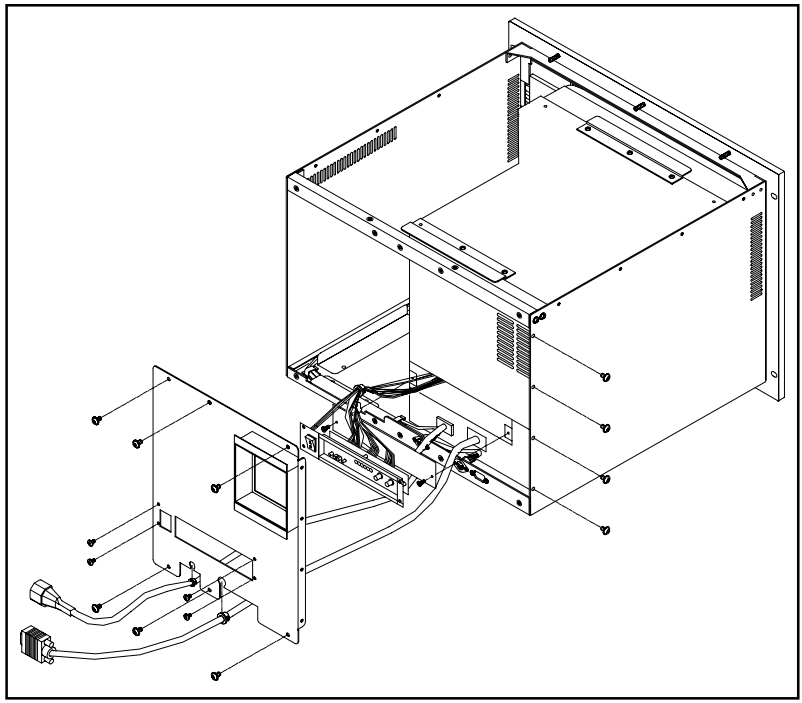


Figure 3-3: Removing the CRT monitor - first steps

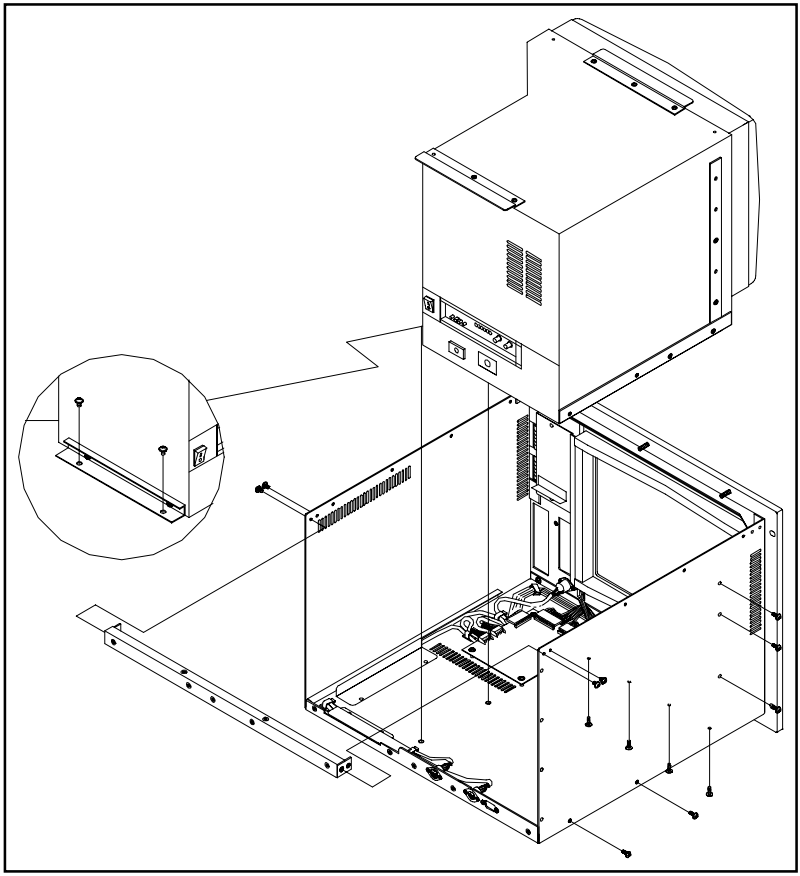


Figure 3-4: Removing the CRT monitor - final steps

3.4 Keyboard translator

The keyboard translator is an interface between a standard AT keyboard layout and a specific keypad layout. The output side is connected to the keyboard connector of the CPU card. The input side is connected to three flat cables leading to the membrane keypad and two 5-pin external keyboard jacks.

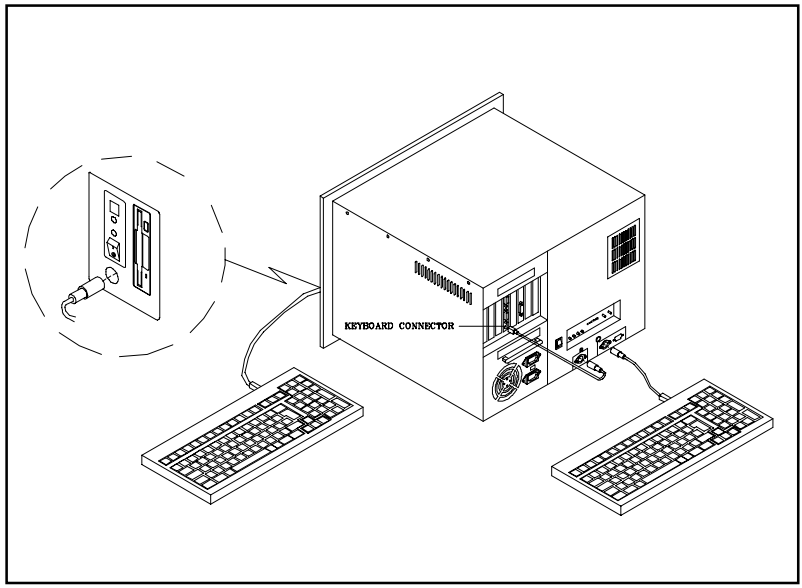


Figure 3-5: Keyboard translator input/output (actual)

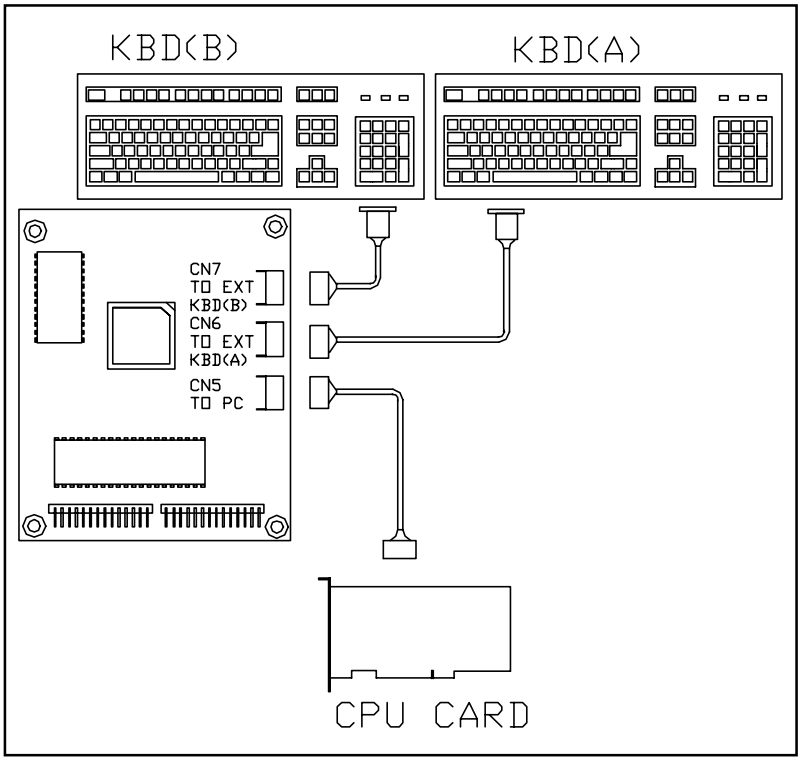


Figure 3-6: Keyboard translator input/output (schematic)

To service the keyboard translator:

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer and cover from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Detach all cables connected to the keyboard translator. These include cables to the keyboards, the cable to the CPU card, and the cable to the function keypad.
5. Detach the cables which connect the keyboard translator to the operating keypad. You should also detach these cables from the operating keypad. To do so, remove the membrane keypad connector protective bracket, and carefully pull off the two membrane keypad cables.
6. Unscrew the three screws, pull out the keyboard translator, and replace it.

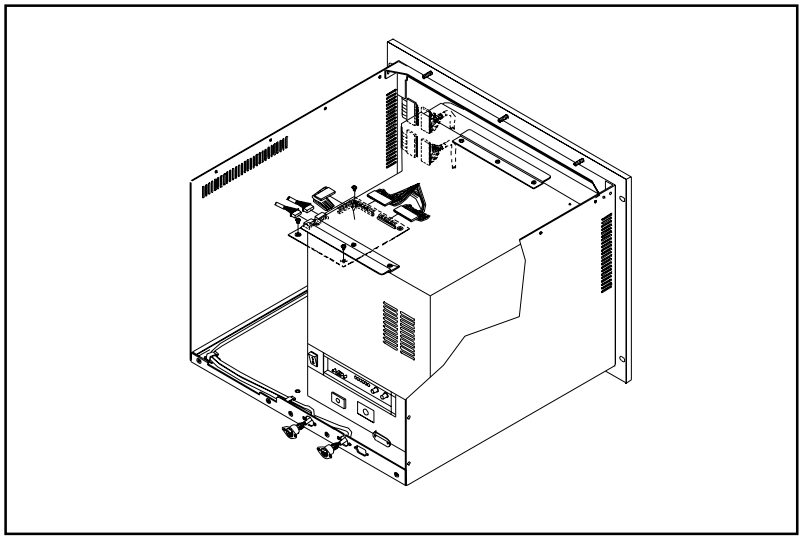


Figure 3-7: Removing the keyboard translator

3.5 LED board

Before replacing the LED board, you must slide out the work drawer. Follow these steps:

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer from the AWS-825B/PB unit. (See Fig. 2-1).
3. Slide the work drawer out as far as it will go.
4. Pull off the LED cable.
5. Unscrew the two screws, and replace the LED board. (See Fig. 3-8.)

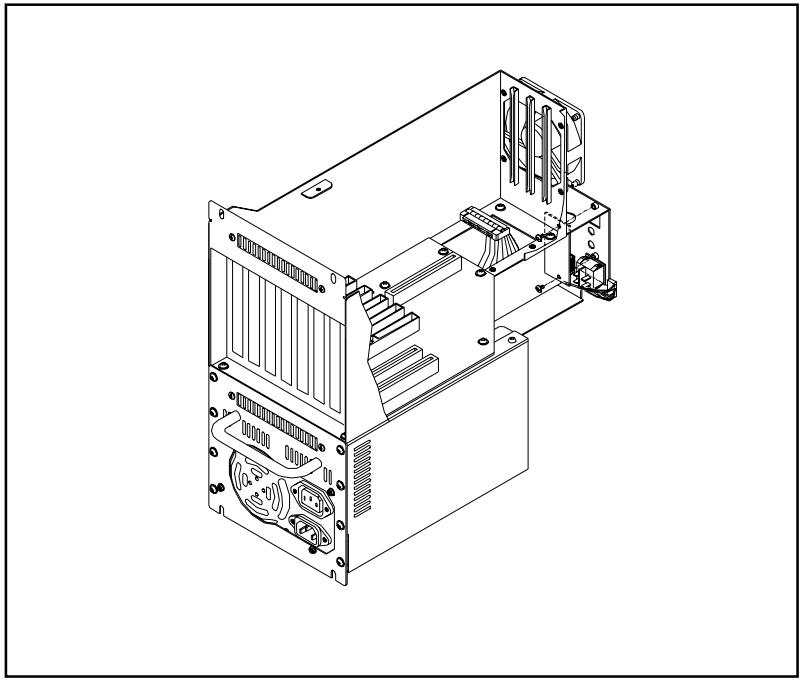


Figure 3-8: Removing the LED board

3.6 Floppy disk drive (FDD)

Before replacing the FDD, you must slide out the work drawer. Follow these steps:

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Pull off the flat cable and the power cable.
5. Unscrew the four screws on the outside of the side panel of the AWS-825B/PB unit, and remove the FDD. (See Fig. 3-9.)

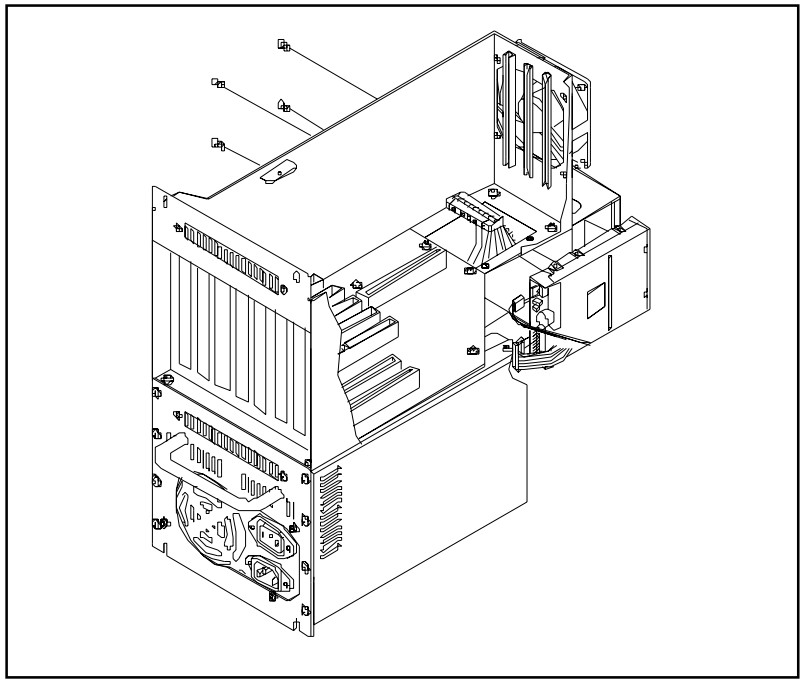


Figure 3-9: Removing the FDD

3.7 Membrane keypad

This eventually wears out after exhaustive and prolonged use. The metal dome switches lose their elasticity, the contact surfaces wear down, and chemical corrosion sets in. The membrane keypad film can become torn.

If more than, say, three metal domes are broken, this may indicate that the keypad tail series is broken, or that the single cable connecting the keypad tail is defective.

Replacing the membrane keypad is now easier than before. You must, however, slide out the work drawer.

To replace the operating membrane keypad:

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer and cover from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Remove the membrane keypad connector protective bracket, and carefully pull off the two membrane keypad cables. (See Fig. 3-10.)
5. Tear the operating membrane keypad from the aluminium panel, and replace it.

To replace the function membrane keypad:

1. Tear the function membrane keypad from the aluminium panel directly.
2. Carefully pull off the membrane keypad cables connecting the keypad tail. (See Fig. 3-10.)
3. Remove the function membrane keypad, and replace it.

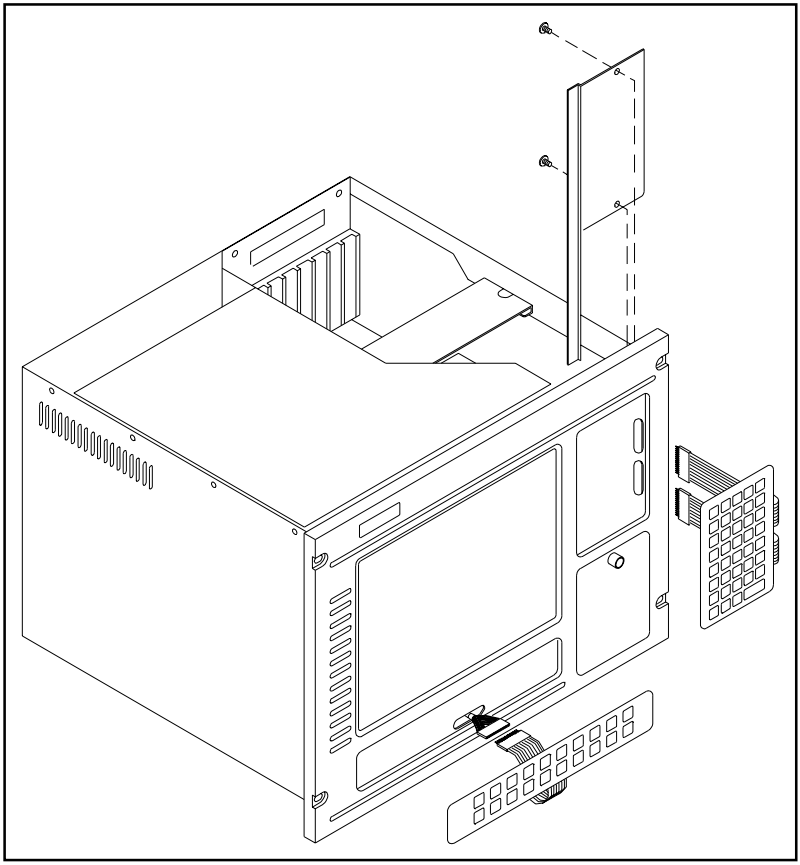


Figure 3-10: Replacing the membrane keypad

3.8 Touchscreen sensor (optional)

The touchscreen sensor may eventually wear out after exhaustive and prolonged use. Before you replace it, you must slide out the work drawer.

1. Switch off the power, and detach the main power cord.
2. Detach the work drawer and cover from the AWS-825B/PB unit. (See Fig. 2-1.)
3. Slide the work drawer out as far as it will go.
4. Remove the operating membrane keypad connector protective bracket, and carefully pull off the two operating membrane keypad cables.
5. Detach the external keyboard cable from the keyboard translator.
6. Detach the four waterproof sponges.
7. Unscrew the 12 screws around the perimeter of the front panel which hold the panel to the main chassis.
8. Separate the front panel from the chassis, the touchscreen cable from the touchscreen sensor, and the function keypad cable from the function keypad. (See Fig. 3-11.)
9. Detach the four shock-absorbing sponges, and detach the touchscreen sensor. Remove any residual adhesive from the aluminium panel.
10. Apply new adhesive, and attach the touchscreen sensor to the aluminium panel. Make sure that the sensor is oriented correctly.

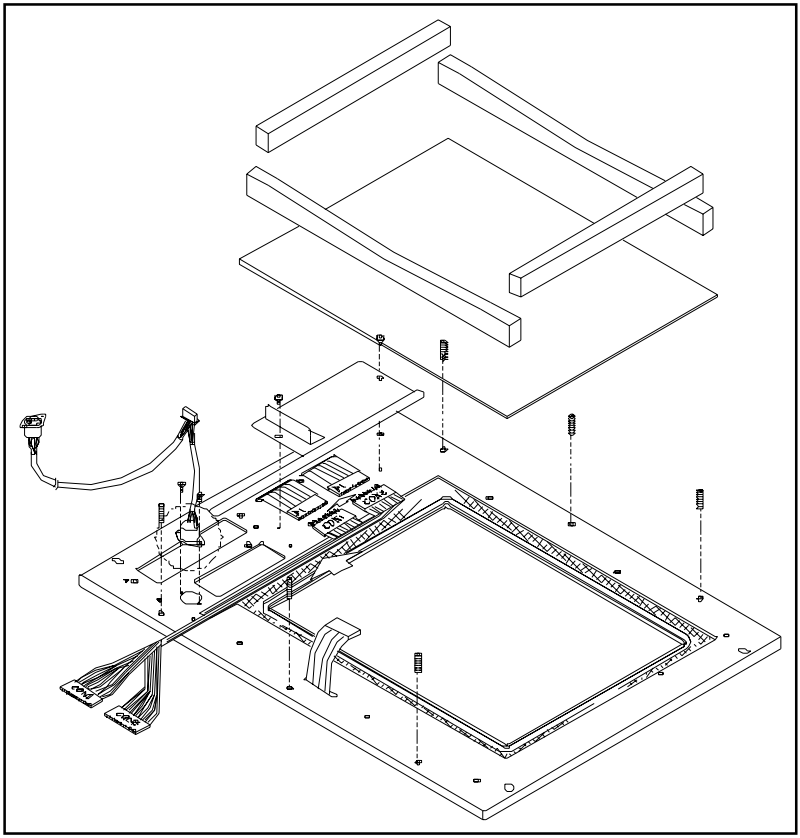


Figure 3-11: Replacing the touchscreen sensor

CHAPTER 4

Macro Key Programming

- Introduction
- Macro key overview
- Syntax
- Using SFED825.COM
- Examples

4.1 Introduction

Our workstations are equipped with programmable function keys (macro keys) that greatly enhance the operator interface. Macros, which are far more powerful than batch files, automate the most commonly used input sequences. They extended their functional reach to within application programs.

4.2 Macro key overview

Chapter 4 of this manual explains how to use and program the function keys. The complete macro function consists of the following elements:

Macro keys (SF1 , SF2, ... SF10)

Ten programmable macro keys that are located on the dust-proof door on the front panel of your workstation.

Macro EEPROM

Holds the key sequences that are activated when the corresponding macro key is pushed.

Macro programming utility

On the keyboard translator utility disk, you will find a program called SFED825.COM. The SFED825 software provides an edit function to produce an ASCII file that contains key stroke sequences for every macro key. After you have finished editing the file, the program will ask you whether you want to save the macro script and/or transmit it to the EEPROM. Macros consist of keystroke sequences to automate the most common procedures in your application. The way they function is much like batch files (.BAT) under DOS, but there are some differences. In a Macro, you have to specify the ENTER key explicitly. Also, macros give you the option of entering key sequences in an application that was executed by the macro itself.

4.3 Syntax

Macro definitions consist of ASCII characters or character codes for special characters (ALT, ENTER, SHIFT, F1, SF2, and so on). These codes are predefined, and SFED825.COM will display them on the screen for you. They are easily recognizable, appearing between the square brackets, "[" and "]".

For example:

ALT is represented by [26]

ENTER is represented by [33]

In your macro script, you can enter ordinary text (ASCII characters) or the code(s) of the required special character(s).

For example:

CD\TOOLKIT[33] means CD\TOOLKIT [ENTER]

For combination keystrokes (ALT/SHIFT/CTRL + another key) enter the codes of the special characters, followed by [90] (RELEASE).

For example:

ALT-F1 is represented by [26][44][90]

CRTL-C is represented by [28]C[90]

SHIFT-B is represented by [27]B[90]

ALT-X is represented by [26]X[90] or [26]x[90]

ALT-F1 is represented by [26][44][90]

SHIFT-X is represented by [27]X[90]

SHIFT-F1 is represented by [27][44][90]

CTRL-X is represented by [28]X[90]

CTRL-F is represented by [28][44][90]

CTRL-ALT-DEL is represented by [28][26][41][90] (reboot)

CTRL-ALT-A is represented by [28][26]A[90]

CTRL-SHIFT-1 is represented by [28][27]1[90]

Another useful function is the DELAY instruction. You can instruct the macro program to wait before executing the next keystroke. SFED825.COM displays the codes that you can use for various delays.

For example:

[86] - wait for 10 seconds before executing next keystroke

[88] - wait for 1 minute before executing next keystroke

[26]A[90][86][26]B[90] means ALT-A, wait 10 seconds, ALT-B

4.4 How to use SFED825.COM

First, copy all the files to your hard disk and/or make a backup disk. When starting the macro editor, you will have to specify either an existing macro script file or a new macro script file. Here we will create a new file by typing SFED825 NEWKEY.TXT [Enter].

The following screen will appear:

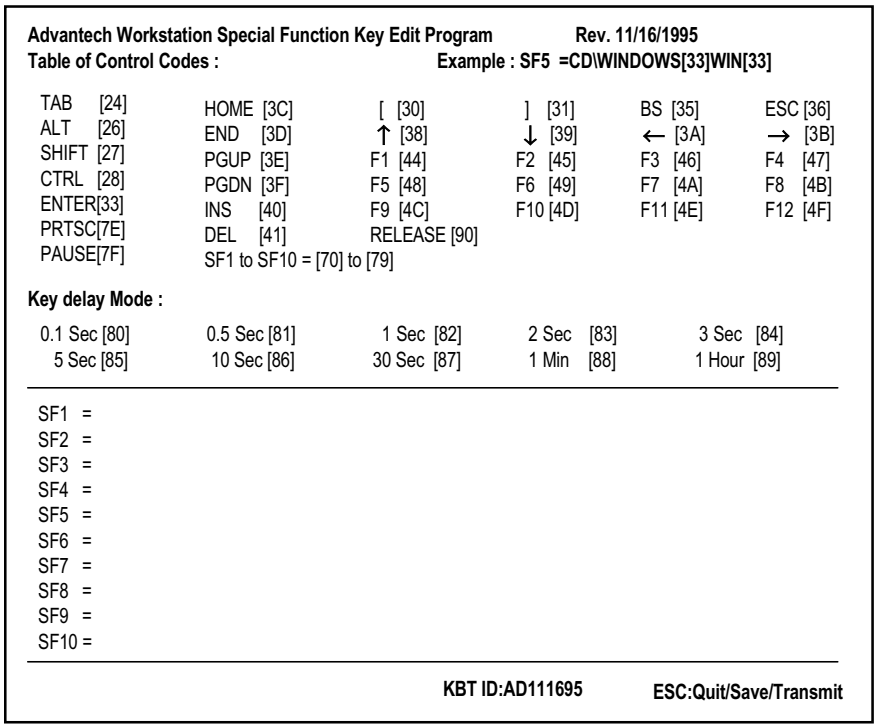


Figure 4-1: The Macro Editor screen

When you have finished editing, press the ESC key. At the bottom line of the screen you will be prompted to choose if you want to save the file and/or if you want to transmit it to the EEPROM.

After confirmation with the Enter key, the tasks are carried out and you return to DOS.

4.5 Examples

We will explain all macro functions that you can find in the EXAMPLE.TXT macro script file. When typing SFED825 EXAMPLE.TXT the following editor screen will appear:

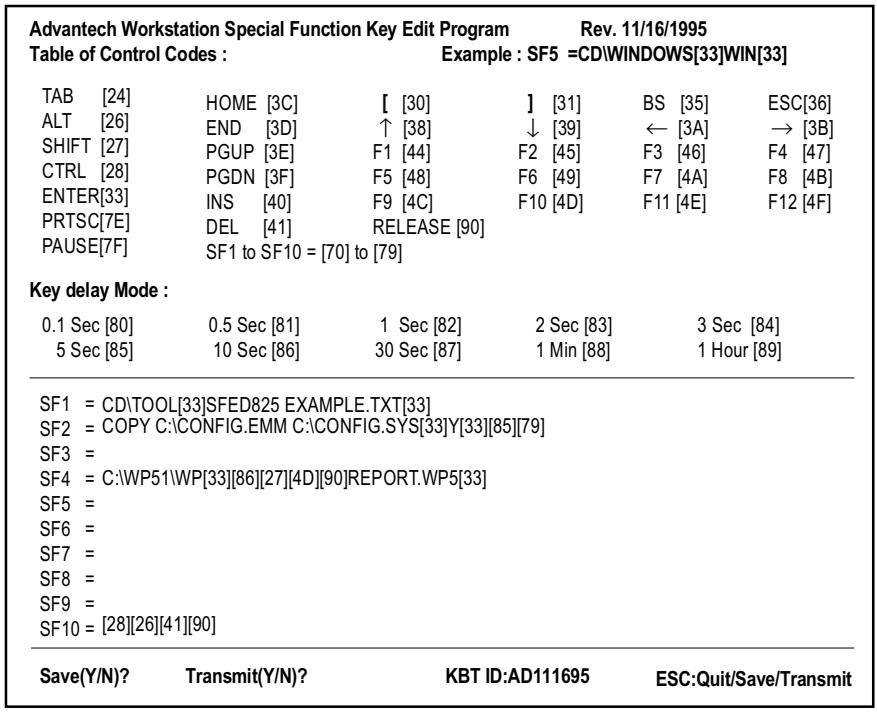


Figure 4-2: Macro examples

SF1 = CD\TOOL[33] SFED825 EXAMPLE.TXT[33]

This macro changes to the TOOL directory, then starts up SFED825.COM with EXAMPLE.TXT.

SF2 = COPY C:\CONFIG.EMM C:\CONFIG.SYS [33] Y [33] [85] [79]

The configuration information is changed by copying CONFIG.EMM to CONFIG.SYS. After a delay of 5 seconds, [85], the macro invokes macro function key SF10, [79], which was defined to reset the system.

SF4 = C:\WP51\WP[33][86][27][4D][90]REPORT.WP5[33]

This example shows that after a macro executes, it is able to direct the program to accomplish several tasks. WordPerfect is started. After a delay of 10 seconds (time to load the program), the command Shift-F10, [27][4D], is issued to import a text file. The name of the text file (REPORT.WP5) is inserted; and finally ENTER, [33], causes the text file to be loaded and displayed on the screen.

SF10 = [28][26][41][90]

Restarts the computer (CTRL-ALT-DEL).

CHAPTER 5

Rear Panel Display Controls

- Factory presets
- Custom presets
- Troubleshooting
- Care and maintenance
- Timing guide for factory modes
- Input terminal pin assignments

5.1 Factory presets

This unit has eight built-in factory presets. During normal operation, a microprocessor within the monitor automatically selects the appropriate factory presets according to the software. The factory presets can be saved after adjustments by pressing the "Function" and "∨" buttons simultaneously. All the LED lights of the monitor will flash down the line to confirm that the setting has been saved.

You can also customize your presets through the custom preset function. (See "Custom presets" below.)

5.2 Custom presets

If you are using software that does not match any of the factory video presets, you will have to set it yourself. Before proceeding, you can verify the compatibility of the factory presets by following the procedure below:

1. Check for severe image distortion (pincushions and barrels), and odd picture size.
2. Press "Reload". If the image remains unchanged, you will need to do your own mode programming.

When you are in custom preset mode, the microprocessor in the monitor will automatically choose the next available memory for your setting. Press "Function" to select the item you want to adjust (check the six function indicators), and make adjustments with the "∧" or "∨" control buttons. The CPU will automatically assign those adjustments to that particular software.

There are 19 sets of memory in the microprocessor reserved for custom settings.

1. [BRIGHTNESS]

The BRIGHTNESS control functions in exactly the same way as the contrast control on a conventional television set. It varies the overall intensity of the light put out by the screen, or, in technical terms, the black level of the monitor. Initially, set the BRIGHTNESS control to its center position. Do not operate the set with brightness set at maximum levels for long periods of time, especially when a still frame image is displayed. Such a practice can damage the phosphors in the picture tube.

2. [CONTRAST]

The CONTRAST control also functions in the usual manner. It varies the contrast between light and dark. In technical terms, it sets the white level of the monitor. Initially, set the contrast to its maximum clockwise position and start adjusting from that point.

3. [V-POSITION]

The V-POSITION control moves the image toward the upper or lower edge of the screen. Pressing the pointer up control moves the image up, while the pointer down control moves the image down.

4. [H-SHIFT]

H-SHIFT stands for horizontal shift. The pointer up control moves the image toward the right of the screen, while the pointer down control moves the image toward the left.

5. [V-HEIGHT]

V-HEIGHT stands for vertical height. By pressing the pointer up control, you increase the height of the image. The pointer down control reduces the height.

6.  [H-WIDTH]

H-WIDTH stands for horizontal width adjustment. By pressing the pointer up control, you increase the width of the image on screen. The pointer down control narrows the width.

7.  [PCC]

PCC stands for pincushion controls. The pincushion controls are normally used in conjunction with a test grid to eliminate picture distortion. The pointer up control bends the grid lines outward from the center. The pointer down control bends the grid lines inward toward the center.

8.  [ROTATION]

The magnetic field from the earth normally causes some tilting in the image when you turn the monitor around. You can eliminate the tilt with this function. The pointer up control rotates the image clockwise, while the pointer down control rotates the image counter-clockwise.

9.  [RELOAD]

RELOAD is a default setting. It is part of the eight permanent factory presets which have been programmed into the memory of this monitor. If you wish to return to the parameters of the particular preset your monitor has selected, press RELOAD, and the standard settings will be restored.

10.  [POINTER DOWN]

The pointer down control button is for decreasing the size of the screen, bending the grid lines inward toward the center of the screen, moving the image to the left, or rotating the screen counter-clockwise.

11. ^ [POINTER UP]

The pointer up control button is for increasing the size of the screen, bending the grid lines outward from the center of the screen, moving the image to the right, or rotating the image clockwise.

12.  [FUNCTION]

This selects any of the six functions available. Each time the control button is pressed, one of the six indicators located at the left will light up, telling you which function is currently available. The pointer up or pointer down controls will help you obtain the desired setting.

13. ⏻ [POWER INDICATOR]

This monitor is designed to have the "Green" feature (power-saving mode). Your PC must support this "Green" feature to be able to use this function. It has two indicators (green and amber) that show the power status.

- Green - the monitor is in normal operation.
- Amber - the monitor is in standby or suspend mode. The picture disappears and most of the electronic components are turned off. It takes about two seconds to retrieve the image on receiving signals from the PC, 7 ~ 8 seconds to resume from suspend mode, and 10 ~ 15 minutes for the picture color to come back to normal.

14. ON/OFF [POWER]

The power control turns the monitor on and off.

5.3 Troubleshooting

Before calling for service personnel, please check the following tables for a possible cause of the problem.

Table 5-1: Troubleshooting symptom: no picture

Possible problem	Solution
AC power cord is not plugged in	Check connection
Brightness and contrast controls are turned down	Adjust video controls

Table 5-2: Troubleshooting symptom: poor contrast

Possible problem	Solution
Video signal level is low	Adjust contrast

5.4 Care and maintenance

Your monitor only needs occasional cleaning. When cleaning, unplug the main power cord. Dust with a clean soft cloth, or, if the cabinet is soiled, you can use a slightly damp clean cloth soaked in mild detergent. The screen may be cleaned with household window cleaning products, but avoid using alcohol based solutions or strong acids and bases.

5.5 Timing guide for factory modes

Recommendation: To get a flicker-free picture, the modes with refresh rates of 70 Hz or higher and NON-INTERLACED (NI) scanning are recommended.

Table 5-3: Timing guide for factory modes 1 ~ 4

FEATURE	MODE NUMBER			
	1	2	3	4
Resolution (H dots x V lines)	640 x 350	720 x 400	640 x 480	800 x 600
Horizontal Frequency (KHz)	31.47	31.47	31.47	35.16
Refresh Rate (Hz)	70.09	70.08	59.94	56.25
Dot Rate (MHz)	25.18	28.32	25.18	36.00
Sync. Polarity (H,V)	+, -	-, +	-, -	-, -
Scanning	NI	NI	NI	NI

Table 5-4: Timing guide for factory modes 5 ~ 8

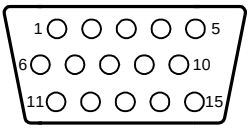
FEATURE	MODE NUMBER			
	5	6	7	8
Resolution (H dots x V lines)	800 x 600	800 x 600	1024 x 768	1024 x 768
Horizontal Frequency (KHz)	37.88	48.08	48.37	56.48
Refresh Rate (Hz)	60.32	72.08	60.53	70.07
Dot Rate (MHz)	40	50	64	75
Sync. Polarity (H,V)	-,-	-,-	+,+	-,-
Scanning	NI	NI	NI	NI

Note: Modes numbered 9 - 27 are reserved for the user's programming.

5.6 Input terminal pin assignments

Table 5-5: Input terminal pin assignments

Pin	Assignment
1	Red
2	Green
3	Blue
4	Ground
5	Ground
6	Red - ground
7	Green - ground
8	Blue - ground
9	NC
10	H - ground
11	V - ground
12	NC
13	H - sync
14	V - sync
15	NC



APPENDIX A

15" Monitor Specifications

General

Power source:	100 ~ 240 V_{AC}, 60/50 Hz
Picture tube size:	15.0" diagonal
Visible screen size:	13.8" diagonal
Dimensions (H x W x D):	367 x 357 x 390 mm (14½" x 14" x 15¼")
Net weight:	12.5 kg (27.5 lb)
Gross weight:	14.5 kg (32.0 lb)
Adapter (cable included):	Captive to mini DB-15
Signal compatibility:	1280 x 1024 non-interlaced
	1024 x 768 non-interlaced
	800 x 600 (Super VGA)
	640 x 480 (VGA)

Input signals

R.G.B.:	Analog 0.7 V p-p, 75 Ω (positive)
SYNC:	Separate sync: Horizontal and vertical, TTL positive or negative
Active display area (typical):	264 x 198 mm (10 3/8" x 7 3/4")
Operating temperature:	0 ~ 50° C (32 ~ 122° F)
Operating humidity:	20% ~ 90%
Storage temperature:	–40 ~ +60° C (–40 ~ +140° F)
Storage humidity:	10% ~ 90%

Operational features

Frequency:	Variable
Max. non-interlaced resolution:	1280 x 1024
Video bandwidth:	85 MHz
Vertical scanning frequency:	44 ~ 100 MHz
Horizontal scanning frequency:	30 ~ 64 kHz
Max. vertical refresh rate:	1280 x 1024 60 Hz
	1024 x 768 75 Hz
	800 x 600 75 Hz
	640 x 480 100 Hz
Phosphor persistance:	Medium ~ short
Dot pitch (aperture grill pitch):	0.28 mm
Control:	Digital

Max. power consumption:

On:	< 85 W (typical)
Standby:	< 20 W (115 V) or < 24 W (230 V)
Suspend:	< 3 W (115 V) or < 6 W (230 V)

Number of simultaneously stored settings: 8

Number of user defined settings: 19

User adjustable controls: Brightness/contrast
Horizontal/vertical size
Horizontal/vertical position
Pincushion distortion, rotation

Note: Specifications are subject to change without notice.

APPENDIX B

Power Supply Specifications

- 260 watt power supply
- -48 V_{DC} power supply
- 24 V_{DC} power supply

B.1 260 watt power supply

The AWS-825B/PB off-line switching power supply is ideal for use in workstations. It has been designed to meet UL, CSA and TUV safety standards. It 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 when the equipment is operated in a commercial environment.

Specifications

Input voltage: 85 ~ 130 V_{AC} and 180 ~ 260 V_{AC}

Input frequency: 47 ~ 63 Hz

Inrush current: Not exceeding 35 A @ 115 V_{AC} or 70 A @ 230 V_{AC}; cold start @ 25° C

Output load range:

Table B-1: 260 watt power supply output load range

Output No.	Output	Min. load	Rated load	Peak load	Voltage accuracy
1	+5 V	1.0 A	25 A	28 A	4.90 ~ 5.10 V
2	+12 V	0.1 A	9 A	10 A	11.28 ~ 12.72 V
3	-12 V	0 A	2.0 A	-	-11.40 ~ -12.60 V
4	-5 V	0 A	0.5 A	-	-4.75 ~ -5.25 V

At the factory, the +12 V output was set at 40% of its rated load, and other outputs were set at 60% of their respective rated loads. The +5 V output was set between 5.00 and 5.10 V. The other outputs were confirmed to be within their respective voltage accuracy ranges.

Output power:

Total DC continuous power does not exceed 260 W. Total DC peak power does not exceed 280 W. When the input voltage is less than 100 V_{AC}, total DC continuous power should not exceed 220 W.

Ripple and noise:

Peak to peak ripple and noise for +12 V is less than 140 mV. Peak to peak ripple and noise for other outputs is less than 1% of each output's respective voltage at the rated load (namely 115/230 V_{AC}). Measurements were performed with a 15 MHz bandwidth limited oscilloscope, and each output was terminated with a 0.47 µF capacitor.

Line regulation:

The output line regulation for +12 V is less than ±2%. The output line regulation for other outputs is less than ±1%, when measured at each output's respective rated load and under ±10% changing input voltage conditions.

Load regulation:

The values for each of the following output numbers were obtained by changing each output load ±40% from the 60% rated load, whilst simultaneously keeping all other outputs at 60% of their respective rated loads.

Table B-2: 260 watt power supply load regulation

Output No.	Load regulation
1	±3%
2	±5%
3	±1%
4	±1%

Hold up time:

14 ms typical @ 115 V_{AC}

This figure was obtained from the last AC line charging pulse to the point where +5 V dropped down to +4.75 V.

Power good signal:

When the power is turned on, the power good signal will activate 100 to 500 ms after all output DC voltages are operating within thier respective regulation limits.

Power fail signal:

This will activate at least 0.5 ms before any of the output voltages fall below their respective regulation limits.

General features

Output protection:

If for some reason the power supply fails to control itself, the built-in over-voltage protection circuit will shut down the outputs to prevent damage to external circuits. The trip point of the crowbar circuit is approximately 5.9 ~ 7.0 V. The power supply will go into hiccup mode under short circuit or overload conditions, and will recover automatically when such conditions cease to exist.

Environmental specifications

Operating temperature: 0 ~ 50° C, input 104/244 V

Storage temperature: -40 ~ 75° C

International standards compliance

Safety:	UL 1950, CSA 22.2 No. 234, TUV EN 60950	
EMI:	Conductivity:	FCC Docket 20780 (Curve B) VCCI II, CISPR 22 Level B
	Radiation:	FCC Docket 20780 (Curve B) VCCI I, CISPR 22 Level A
EMS:	IEC-801-2:	8 KV (air discharge), Criteria B
	IEC-801-3:	10 V/M unmodulated, Criteria A
	IEC-801-4:	2 KV, Criteria B
Lifetime:	More than 3 years @ 70% load @ 25° C	

B.2 -48 V_{DC} power supply

The following specifications describe the physical and electrical characteristics of a 310 W, four output, DC to DC switching power supply housed in a standard size PS II casing.

Specifications

Input voltage:	-38 ~ -58 V_{DC} (continuous operation) -48 V_{DC} (normal operation)
Input current:	10 A max. @ -48 V_{DC} input
Inrush current:	5 A max. @ -48 V_{DC} input
Efficiency:	70% min. @ full load and normal line voltage

Output characteristics:

Table B-3: -48 V_{DC} power supply output characteristics

Output voltage	Loading current			Total regulation tolerance		Noise plus ripple
	Min.	Max.	Surge	Max.	Min.	Max.
+5 V_{DC}	2 A	25 A	30 A	+3%	-3%	50 mV p-p
+12 V_{DC}	0 A	10 A	12 A	+3%	-3%	120 mV p-p
-5 V_{DC}	0.0 A	1.0 A	-	+5%	-5%	50 mV p-p
-12 V_{DC}	0.0 A	5 A	-	+3%	-3%	120 mV p-p

Note 1: Total regulation tolerance includes temperature change, warmup drift and dynamic load.

Note 2: Ripple and noise were measured differentially at the power supply using loads that were each shunted by at least a 0.1 μF ceramic disc capacitor and a 10 μF electrolytic capacitor, each capacitor having a bandwidth up to 20 MHz.

Overshoot (resistive load):

Any output overshoot when the power is turned on does not exceed 10% of the nominal output voltage.

Output power: Maximum continuous: 310 W

Power good and power fail signals (optional):

When the power is turned on, the power good signal will activate 100 to 500 ms after all output DC voltages are operating within their respective regulation limits.

The power fail signal will activate at least 1 ms before the +5 V output voltage falls below its regulation limit.

Short circuit protection:

A short circuit placed on any output to ground is shut down. When the short circuit conditions have ceased to exist, power will then be recycled to restart the power supply.

Over-current protection:

The power supply will shut down all the DC outputs when any output is overloaded beyond its current limit or beyond its nominal line voltage limit. When the over-current conditions have ceased to exist, power will then be recycled to restart the power supply.

Current limit ranges:	5 V:	32 ~ 45 A
	12 V:	13 ~ 20 A
	-12 V:	6 ~ 12 A
	-5 V:	1.5 ~ 3 A

Over-voltage protection:

The power supply will shut down all the DC outputs when any output maximum voltage limit is exceeded. When the over-voltage conditions have ceased to exist, power will then be recycled to restart the power supply.

Voltage limit ranges:	5 V:	6.25 ±0.75 V
	12 V:	14 ±1 V
	-5 V:	6.25 ±0.75 V
	-12 V:	14 ±1 V

Reset time:

When the power supply has automatically shut down, and the short circuit, over-current and/or over-voltage conditions have ceased to exist, power will be automatically recycled to restart the power supply within 3 seconds of such return to normal conditions.

No load start:

When the power supply is switched on but with no load connected, the power supply does not get damaged, and it is still completely safe for users.

Transient response:

Dynamic load change: ±50% of maximum rating load

Recovery time: 500 μs max.

Reliability

Mean time between failures (MTBF): 100,000 hours min.

Environmental specifications

Operating temperature:	0 ~ 50° C
Storage temperature:	-40 ~ 60° C
Operating and storage humidity:	10 ~ 95% RH
Operating altitude:	sea level ~ 15,000 ft
Storage altitude:	sea level ~ 50,000 ft

International standards compliance

Safety: UL 1950
CSA 22.2 No. 234
TUV EN 60950

EMI: FCC Part 15 Subpart J Class B

DC output wire list

All DC output cables use UL 1007 type wires.

Table B-4: -48 V_{DC} power supply DC output wire list

Connector	Output	Color	Wire #AWG	Length (mm)	Housing	Terminal
P8-1	PG	Orange	18	300 +30/-10	BURNDY GTC 6P-1 or equivalent	BURNDY DCK 18-2TR9 or equivalent
P8-2	+5 V	Red	18			
P8-3	+12 V	Yellow	18			
P8-4	-12 V	Blue	18			
P8-5	COM	Black	18			
P8-6	COM	Black	18			
P9-1	COM	Black	18	300 +30/-10	BURNDY GTC 6P-1 or equivalent	BURNDY DCK 18-2TR9 or equivalent
P9-2	COM	Black	18			
P9-3	-5 V	White	18			
P9-4	+5 V	Red	18			
P9-5	+5 V	Red	18			
P9-6	+5 V	Red	18			
PE-1	+12 V	Yellow	18	300 +30/-10	AMP 480424-0 or equivalent	AMP 61314 or equivalent
PE-2	COM	Black	18			
PE-3	COM	Black	18			
PE-4	+5 V	Red	18			
PF-1	+5 V	Red	20	150 +30/-10	AMP 171822-4 or equivalent	AMP 170262-1 or equivalent
PF-2	COM	Black	20			
PF-3	COM	Black	20			
PF-4	+12 V	Yellow	20			
PA-1	+12 V	Yellow	18	300 +30/-10	AMP 480424-0 or equivalent	AMP 61314 or equivalent
PA-2	COM	Black	18			
PA-3	COM	Black	18			
PA-4	+5 V	Red	18			
PB-1	+12 V	Yellow	18	150 +30/-10	AMP 480424-0 or equivalent	AMP 61314 or equivalent
PB-2	COM	Black	18			
PB-3	COM	Black	18			
PB-4	+5 V	Red	18			

B.3 24 V_{DC} power supply

This is a DC to DC switching mode power supply with a 24 V_{DC} input.

Specifications

Input voltage: +19 ~ +32 V_{DC} (normal operation)

Input current: 16 A max. @ +24 V_{DC} input

Inrush current: 10 A max. @ +24 V_{DC} input

Output load range:

Table B-5: 24 V_{DC} power supply output load range

Output No.	Output	Min. load	Rated load	Peak load	Voltage accuracy
1	+5 V	1.0 A	25 A	30 A	4.90 ~ 5.10 V
2	+12 V	0 A	10 A	12 A	11.28 ~ 12.72 V
3	-12 V	0 A	1 A	2 A	-11.40 ~ -12.60 V
4	-5 V	0 A	1 A	2 A	-4.75 ~ -5.25 V

At the factory, the +5 V output was set between 5.00 and 5.10 V, while other outputs were simultaneously set at 60% of their respective rated loads.

The -5 V and -12 V outputs can be used at their respective rated loads. The +5 V output should carry a load of at least 4 A.

Output power:

Total DC continuous power does not exceed 250 W. Each output should be able to operate continuously under its maximum load.

Ripple and noise:

Peak to peak ripple and noise for each output is less than 1% of each output's respective voltage. Measurements were performed with a 15 MHz bandwidth limited oscilloscope, and each output was terminated with a 0.47 μF capacitor.

Line regulation:

The output line regulation for each output is less than ±1%, when measured at each output's respective rated load and under ±10% changing input voltage conditions.

Load regulation:

The values for each of the following output numbers were obtained by changing each output load ±40% from the 60% rated load, whilst simultaneously keeping all other outputs at 60% of their respective rated loads.

Table B-6: 24 V_{DC} power supply load regulation

Output No.	Load regulation
1	±4%
2	±5%
3	±3%
4	±3%

Power good signal:

When the power is turned on, the power good signal will activate 100 to 500 ms after all output DC voltages are operating within their respective regulation limits.

Power fail signal:

This will activate at least 0.5 ms before any of the output voltages fall below their respective regulation limits.

General features

Efficiency:

65% typical when measured at nominal input and rated load.

Input protection:

Protection against wrong polarity if the +24 V input voltage is mistakenly reversed.

Output protection:

If for some reason the power supply fails to control itself, the built-in over-voltage protection circuit will shut down the outputs to prevent damage to external circuits. The trip point of the crowbar circuit is approximately 5.7 ~ 7.0 V. The power supply will go into hiccup mode under short circuit or overload conditions, and will recover automatically when such conditions cease to exist.

Environmental specifications

Operating temperature: 0 ~ 45° C

Storage temperature: -40 ~ 75° C

International standards compliance

Safety: UL 1950 D3
CSA 234
TUV EN 60950

APPENDIX C

Touchscreen (Optional)

- General information
- General specifications
- Environmental specifications
- Installation of touchscreen driver

C.1 General information

- 75% light transmission
- Advanced second-generation 5-wire resistive technology
- Enhanced visual resolution, antiglare surface treatment
- Enhanced scratch-resistant hard coating
- Accutouch touchscreens are UL-recognized components (file no. E133802)
- When properly installed, ball impact compliance meets UL 1950 standard
- Fire retardation complies with UL-746C, 19 mm (0.75”) flame test
- Systems incorporating these touchscreens, controllers, and cables have been approved to FCC Classes A and B standards

C.2 General specifications

Light transmission:

Typically 75% at 550 nanometers wavelength, optimized for flat-panel displays. All measurements as per ASTM D 10036-61

Visual resolution:

Antiglare: 6:1 minimum. Measured according to USAF 1951 resolution chart, under 30x magnification, with test unit located approximately 3.8 mm (1.5") from surface of resolution chart

Haze: Antiglare: less than 15%, as per ASTM D 103-61

Gloss: Antiglare: 96 ± gloss units, as per ASTM D 2457-70

C.3 Environmental specifications

Temperature: -10° ~ 50° C (operating)
-40° ~ 71° C (non-operating)

Relative humidity:
90 RH at 35° C (operating)
90 RH at 35° C for 240 hours, noncondensing (non-operating)

Chemical resistance:

The active area of the touchscreen is resistant to the following chemicals when exposed for a period of one hour at a temperature of 21° C (71° F):

- Acetone
- Methylene chloride
- Methyl ethyl ketone
- Isopropyl alcohol
- Hexane
- Ammonia-based glass cleaners
- Turpentine
- Mineral spirits
- Food and beverages

C.4 Installation of touchscreen driver

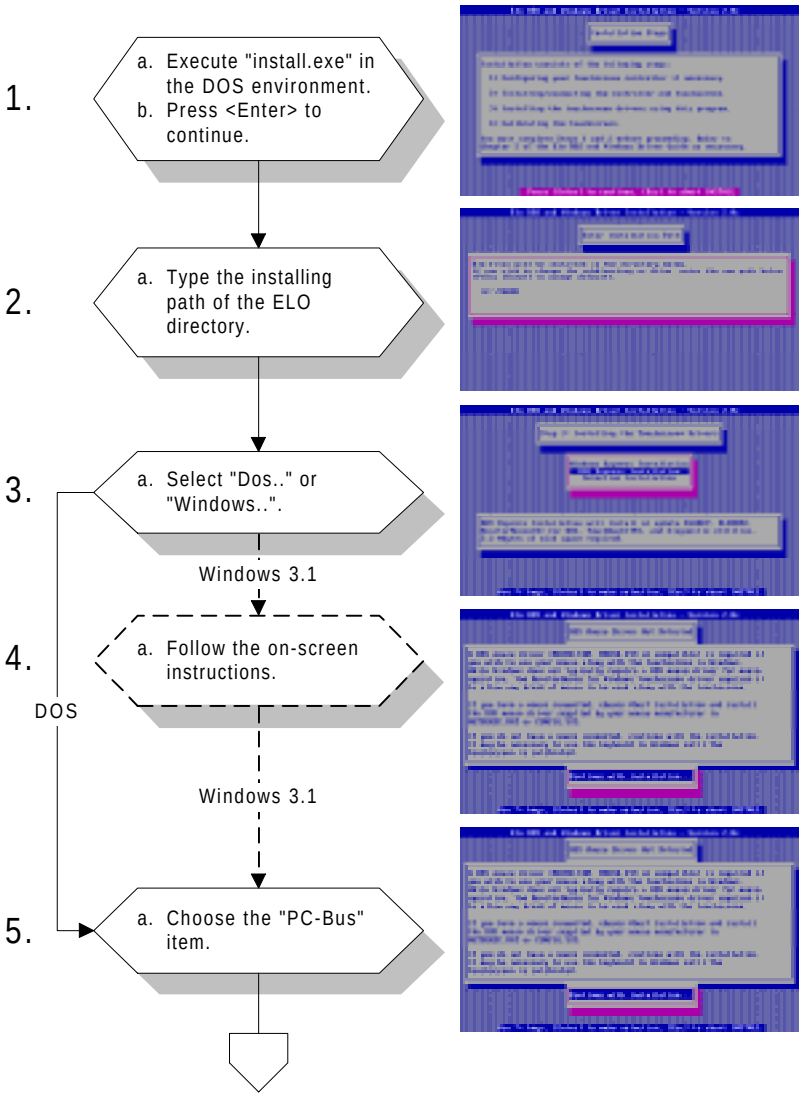
The touchscreen driver for Windows 95 contains a native, 32-bit driver designed for Windows 95 and a 32-bit control panel program for the AWS-825B/PB system.

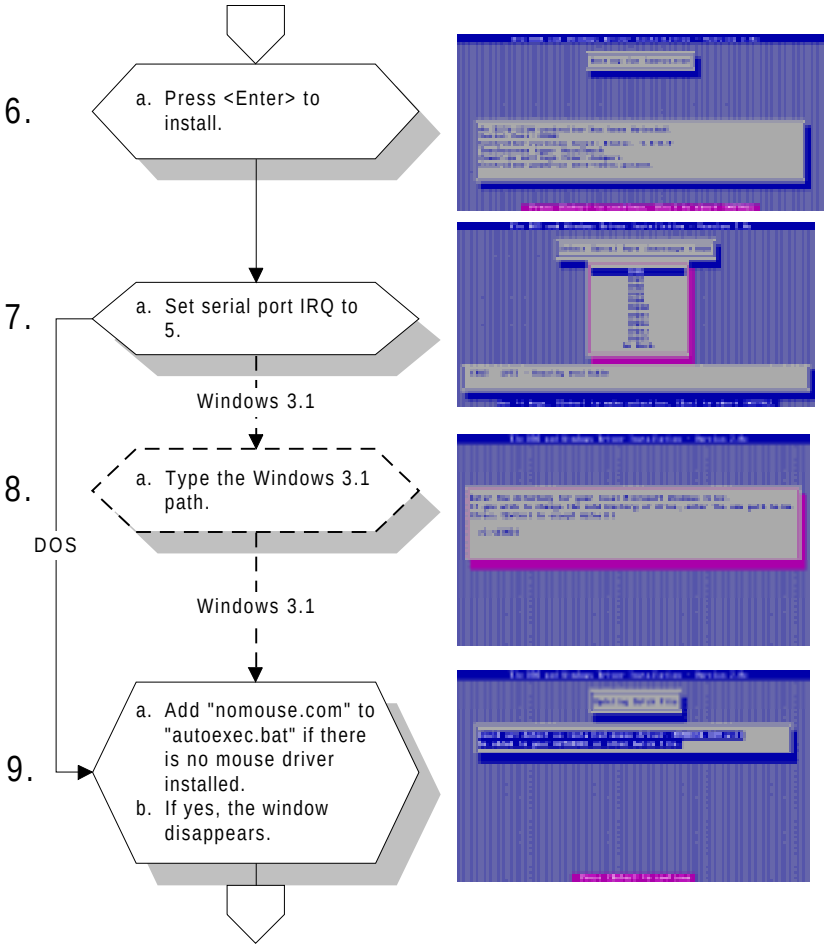
To facilitate the installation of the touchscreen driver, you should read the instructions in this appendix carefully before you attempt installation.

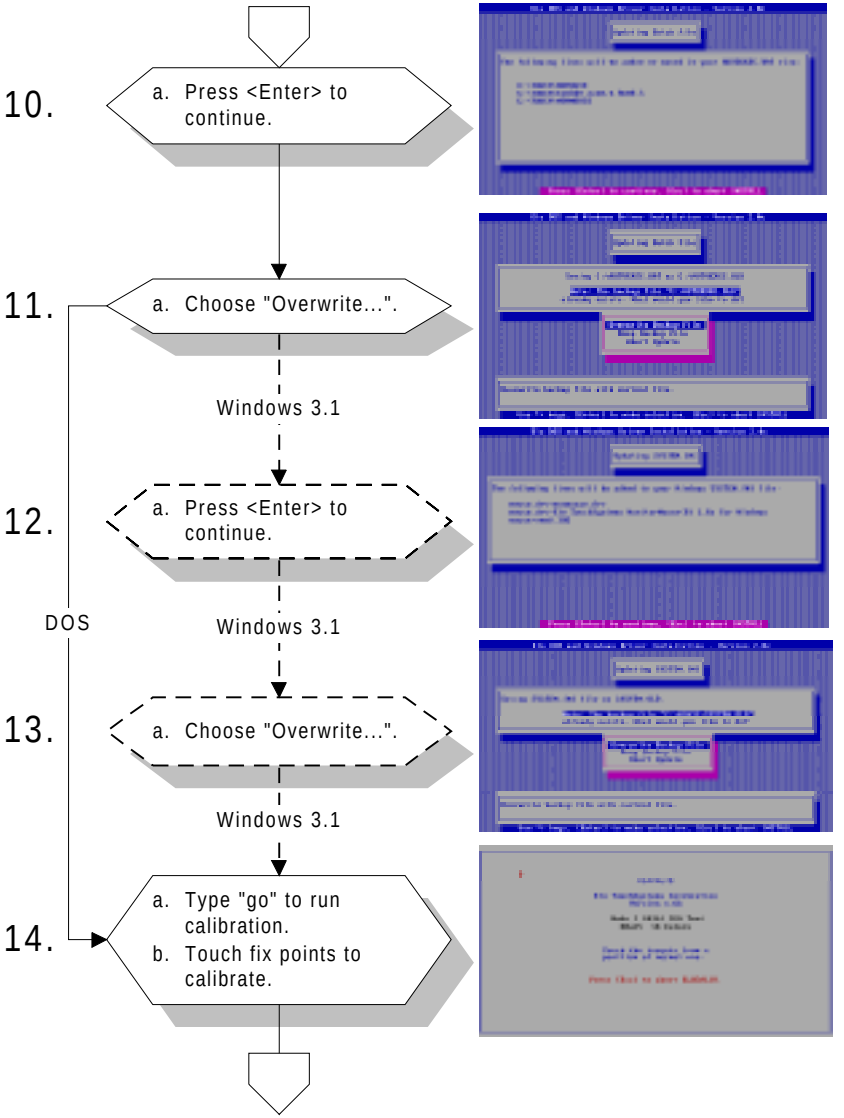
Note 1: The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

Note 2: The CD-ROM drive is designated as "D" throughout this appendix.

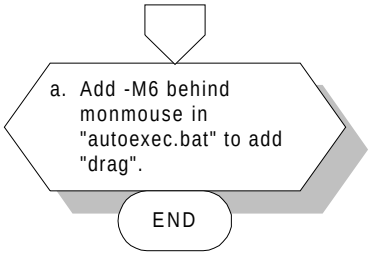
Installation for MS-DOS and WINDOWS 3.1

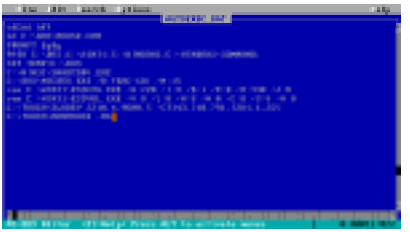



6.
a. Press <Enter> to install.
7.
a. Set serial port IRQ to 5.
Windows 3.1
8.
a. Type the Windows 3.1 path.
DOS
Windows 3.1
9.
a. Add "nomouse.com" to "autoexec.bat" if there is no mouse driver installed.
b. If yes, the window disappears.


10.
a. Press <Enter> to continue.
11.
a. Choose "Overwrite...".
Windows 3.1
12.
a. Press <Enter> to continue.
Windows 3.1
DOS
13.
a. Choose "Overwrite...".
Windows 3.1
14.
a. Type "go" to run calibration.
b. Touch fix points to calibrate.

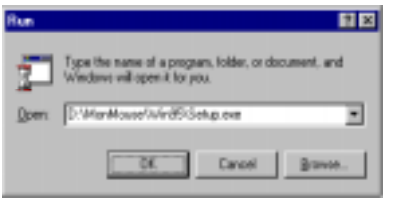
15.



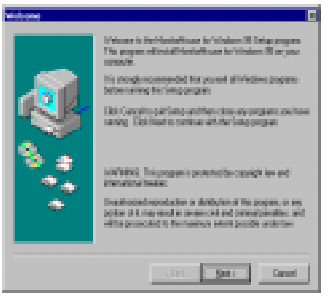


Installation for WINDOWS 95

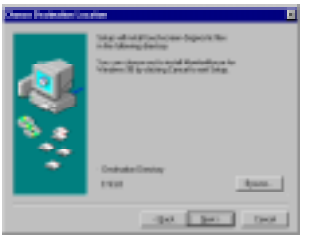
1. a. Insert the ELO driver CD disc.
   b. Select "Start", "Run".
   c. Type the path eg. "d:\monmouse\win95\setup.exe".



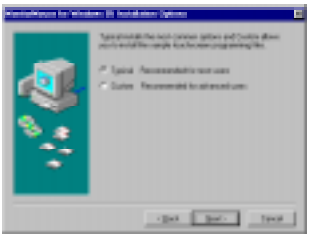
2. a. Press the "Next" button.



3. a. Set the path of the directory.



4. a. Choose "Typical".



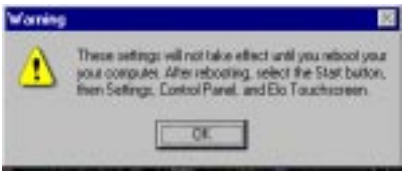
5. a. Click "OK" to upgrade the driver.

6. a. Click "OK" to make a backup copy.

7. a. Click "OK" to start the wizard.

8. a. Select "PC Bus".
b. Click "OK" to accept the default.

9. a. Click "OK".



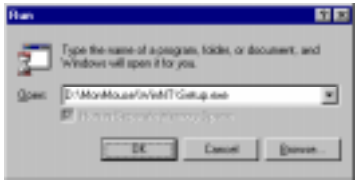
10. a. Exit and reboot.
b. Select "Start", "Settings", "Control Panel".
c. Double click "Elo touchscreen".

11. a. Click "Calibrate".

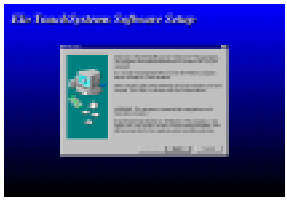
END

Installation for WINDOWS NT

1. a. Insert the ELO driver CD disc.
   b. Select "Start", "Run".
   c. Type the path. eg. "d:\monmouse\winnt\setup.exe".

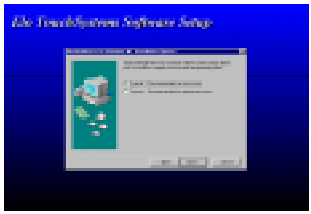


2. a. Press the "Next" button.



3. a. Set the directory path.

4. a. Choose "Typical".

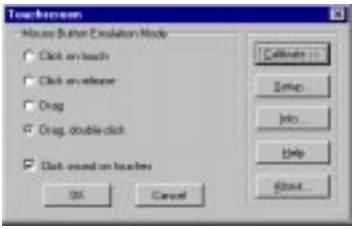


5. a. Select "PC-Bus".
   b. Press "OK" to accept the default.

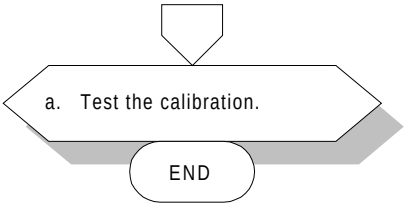
6. a. Click "OK" but do not reboot.

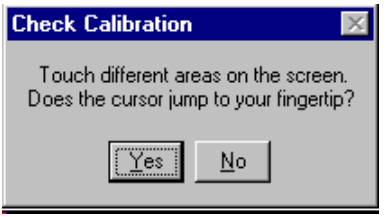
7. a. Exit and reboot.
   b. Select "Start", "Settings", "Control Panel".
   c. Double click "Elo touchscreen".

8. a. Click "Calibrate".



9.


a. Test the calibration.
END


Check Calibration
Touch different areas on the screen.
Does the cursor jump to your fingertip?
Yes
No