

**AWS-8259**

15" TFT LCD workstation with  
9 slots

**User's Manual**

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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。

1st Edition

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## **FCC Class A**

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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

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Before you set up the AWS-8259 workstation, make sure that the following materials have been included with the package, and that this manual is in good condition. If anything is missing or damaged, contact your dealer immediately:

- One AWS-8259 industrial workstation with 15" flat panel display
- One accessory box, including:
  - One power cord
  - One HMI manual and drivers CD-ROM
  - Cable to link front PS/2 connector to CPU card
  - Flat gray cable for 3.5" HDD and slim CD-ROM
  - Cable to link front VGA connector to CPU card (DB-15, male to male)
  - Cable to link USB/Ind./Power connector to chassis (male to male)
  - Eight rubber clamp pads which attached to hold-on clamp
  - RS-232 cable to link touchscreen to CPU card (only -T models)
- CDR-8259-24X (optional)
  - 24X slim type CD-ROM
  - Power cable
  - Screw bag with four screws
- USB-3250
  - 2 m cable to link front VGA connector to CPU card
  - 2 m cable to link front PS/2 connector to CPU card
  - 2 m cable to link USB/Ind./Power connector to chassis
  - Front floppy cover bracket

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

# 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. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located 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 may 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 overvoltage.
12. Never pour any liquid into an opening. This may 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 one 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 ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW - 20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB (A).

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

## Wichtige Sicherheitshinweise

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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 Netzanschlussteckdose 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 überhit-zung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlusbleitung so, daß 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 autorisiertem 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 funktioniert 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 weniger.

DISCLAIMER: This set of instructions is given according to IEC704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.



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# Introduction

- Description
- Specifications
- Features
- Dimensions
- Complete Functionality
- Modular Design Concept

## 1.1 Description

---

The AWS-8259 is an all-new designed, 9-slot, 15" TFT LCD workstation. With a flexible two-piece design, the AWS-8259 is not only considered to be an integrated computing workstation but can be separated and used as a LCD display and control chassis. This provides a flexible and cost-saving way for users to meet different kinds of application needs for industrial computing platforms. The AWS-8259 also provides many powerful features such as an easy-to-maintain, waterproof touch pad; front access USB port & floppy; vibration protection for two HDDs. Thus, the AWS-8259 is especially suitable for oil monitoring systems, ship control centers, machine automation and more.

### **Two-piece design meets all your applications**

Sometimes, users want to save the installing space or keep the LCD monitor away from the control computer to protect the control data. They need a LCD monitor and control chassis that can be separated. The AWS-8259 can do that. The AWS-8259 can be configured two ways, integrated or separated, to meet the all the requirements of industrial computing platforms. This provides additional flexibility for users to set up flexible systems according to their applications.

### **Easy-to-maintain**

The AWS-8259 makes maintenance fast and easily. First, if there are problems with the LCD display, the two-piece design allows you to replace it or service it simply and quickly. This helps saves downtime costs associated with system crashes. Secondly, the AWS-8259 provides a "hinge" for the rear door. When you open the rear door and want to maintain the CPU or I/O cards, them hinged rear door makes access much more convenient. Third, when maintaining floppy, HDD or CD-ROM, users do not need to take out multiple screws. It only takes few seconds to replace or service devices. The AWS-8259 provides a simple and quick way for users to maintain systems, saving much time and effort.

## **Easy front panel access**

To provide a convenient way for users to access data, the AWS-8259 offers complete I/O ports in the front panel for devices such as a touch pad; 2 USB ports; a PS/2 port for keyboard; floppy drive, function & programming keys. This makes it easier to access data from the panel instead of from the control chassis.

## **Special design to protect HDD & CD-ROM from vibration damage up to 1 G**

The AWS-8259 also provides a special design for HDD/CD-ROM vibration protection. This makes the AWS-8259 especially suited for the easy-to-vibrate environment such as ship controlling center; train or truck monitoring; machinery and more.

## **Industrial design meets every harsh environment**

In addition, the AWS-8259 also features many powerful functions to meet the industrial-grade requirements. The front panel is made of Aluminum and being chemical treated by anode. That prevents the panel from damaging by acid and salt. Besides, it's waterproof and IP65/NEMA4 compliant. The AWS-8259 also offers the stainless steel chassis. It also protects the chassis. For keeping the system working properly, the AWS-8259 provides a fan & filter to avoid overheating & dust. In addition, the AWS-8259 also provides three mounting ways to fit different application: 19" rack, panel or wall mounting.

## 1.2 Specifications

---

Type: Integrated or separate LCD panel/ control chassis

### LCD Panel

- **Display type:** 15" XGA TFT LCD
- **Front panel:** Aluminum, meets NEMA4/IP65
- **LCD display interface:** VGA
- **Max. Resolution:** 1024 x 768
- **Maximum Colors:** 262 K
- **Luminance (cd/m2):** 200
- **Viewing angle:** 120°(H), 100°(V)
- **LCD MTBF:** 50,000 hours
- **Backlight lifetime:** 25,000 hours
- **Display setting:** OSD on front panel
- **I/O port:** 2 USB ports, floppy drive, 6-pin PS/2 keyboard connector with dust-protection door
- **Touch pad interface:** PS/2 mouse
- **Indicators:** LEDs for Power On/Off and HDD activity
- **Membrane keypads:** One with 39 operating keys, one with 10 function keys and 10 programmable macro function keys
- **Operating temperature:** 0 ~50°C

### Control Chassis

- **Chassis:** Stainless steel
- **Slot:**
  - 1 CPU, 8 ISA (AWS-8259T or AWS-8259T-T series).
  - 1 CPU, 4 ISA, 4 PCI (AWS-8259TP or AWS-8259TP-T series)
- **Disk drive housing:** Supports one 3.5" FDD, two 3.5" HDD & one slim CD-ROM (HDD and CD-ROM optional)



- **Cooling system:** One 86 CFM fan
- **Operating temperature:** 0° ~ 50° C (32° ~ 122° F)
- **Relative humidity:** 5 ~ 85% @ 40° C, non-condensing
- **Storage temperature:** -20° ~ 60° C
- **Storage humidity:** 5 ~ 95% non-condensing
- **Dimensions (W x H x D):** 483 x 355 x 235 mm (19" x 14" x 9.3")
- **Gross Weight:** 22 kg (48.4 lbs)
- CE, FCC, BSMI compliant

### **Passive Backplane**

- **PCA-6109P4:** 4 PCI, 4 ISA, 1 CPU slot backplane
- **PCA-6109:** 9 ISA slot backplane

### **Power Supply**

AC input 300 W (standard offer)

- **Input:** 90 ~ 135 V AC or 180 ~ 265 V AC , switchable
- **Output:** +5 V @ 30 A; +12 V @ 15 A; +3.3 V @ 24 A  
-5 V @ 0.3 A; -12 V @ 0.8 A; +5 V SB @ 2 A
- **MTBF:** 100,000 hours
- **Safety:** UL/CSA/TUV
- **Input:** 90 ~ 135 V AC or 180 ~ 265 V AC , switchable
- **Output:** +5 V @ 30 A; +12 V @ 15 A; +3.3 V @ 24 A  
-5 V @ 0.3 A; -12 V @ 0.8 A; +5 V SB @ 2 A
- **MTBF:** 100,000 hours
- **Safety:** UL/CSA/TUV

## 1.3 Features

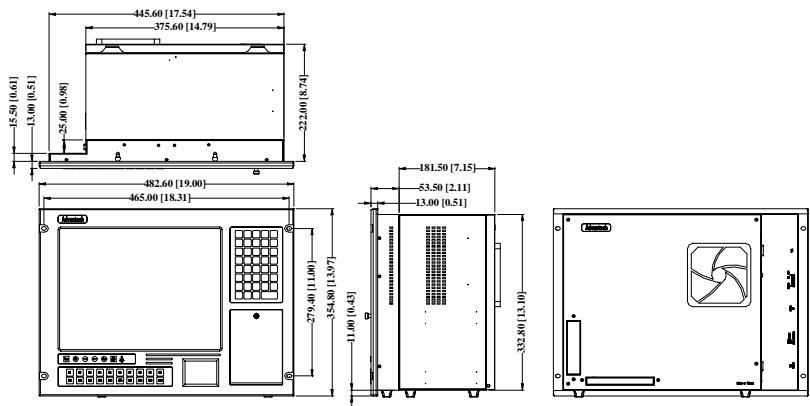
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- 15", 9-slot TFT LCD workstation, resolution : 1024 x 768
- Two-piece design: integrated or separated LCD panel & control chassis.
- Built-in touch pad, USB port, floppy on the front panel
- Special design makes maintenance simple and easy- rear door hinge.
- Vibration protection up to 1 G
- IP65/NEMA 4, Aluminum panel and stainless steel chassis.

Note: For AWS-8259 series, we recommend PCA-6180, PCA-6003 series CPU cards.

# 1.4 Dimensions

Before you rack-mount or panel-mount the AWS-8259, use the following diagram to verify that the mounting screws correspond with the holes in your panel/rack.

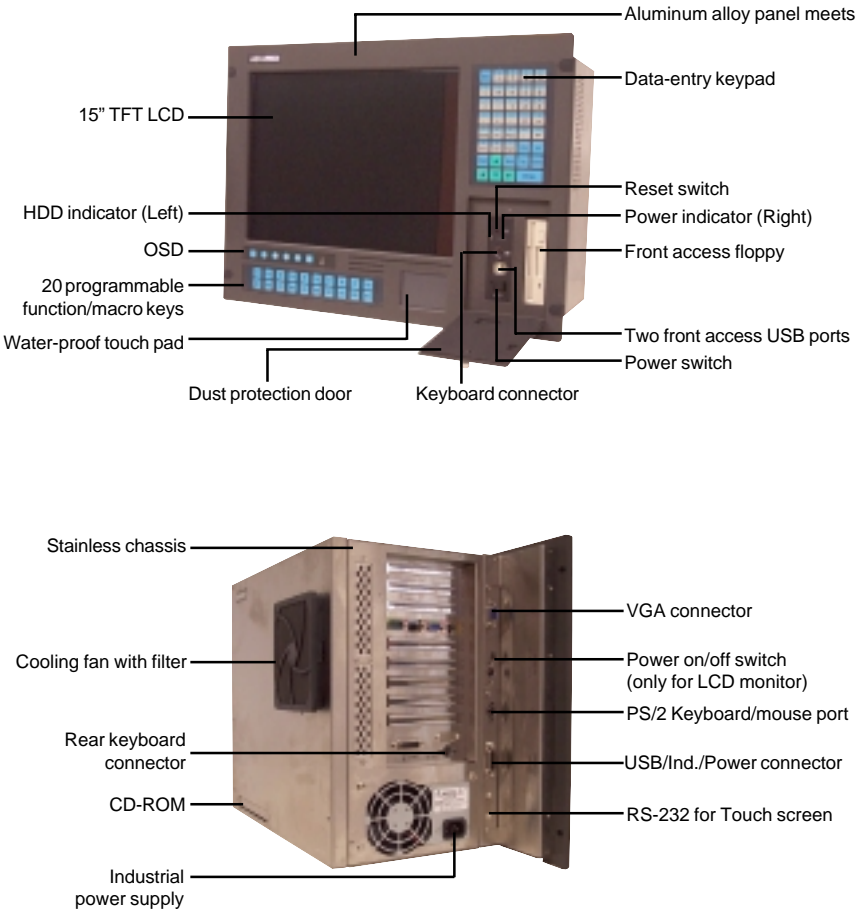


*Cut-out dimensions : 449 mm X 336 mm*

Figure 1-1: Dimensions

# 1.5 Complete Functionality

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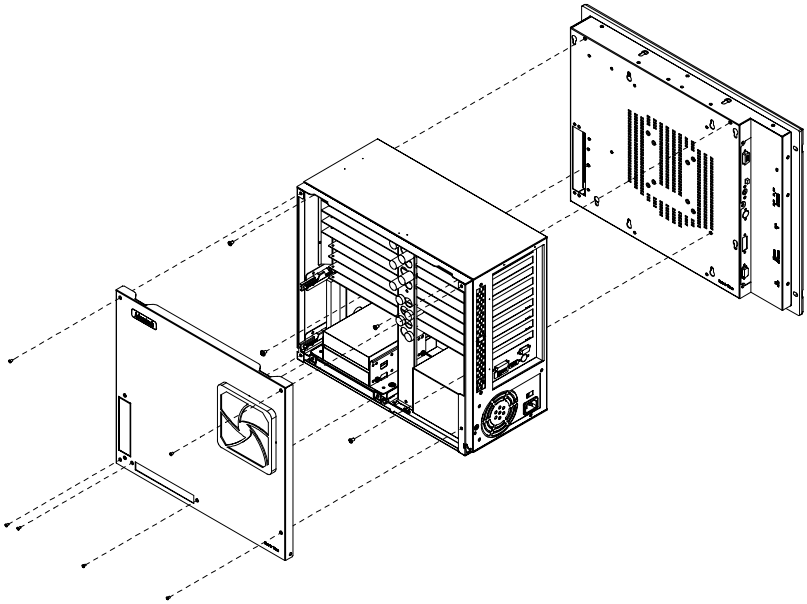


**Figure 1-2: Complete functionality**

## 1.6 Modular Design Concept

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The AWS-8259 is designed with a modular concept. The whole system consists of two major parts: an LCD panel and a control chassis. This modular concept effectively reduces maintenance. To disassemble the system, please refer to Chapter 4.



**Figure 1-3: Modular design concept**



# CHAPTER 2

## System Setup

- General
- Opening the Rear Panel
- Adding cards
- Installing Hold-down Clamps
- Installing optional drives
- Connecting cables
- Connecting External Keyboard and Mouse
- Rack/Panel/Wall mounting

## 2.1 Integration system setup

---

The WS-8259 offers two ways to meet the requirements of industrial computing platforms, integrated or separated applications. For integrated application, the AWS-8259 can be used as a complete computing platform. It supports a 9 ISA/PCI slot, 15" TFT LCD workstation. For separated applications, the WS-8259 can be separated into a LCD monitor and control chassis.

### 2.1.1 General

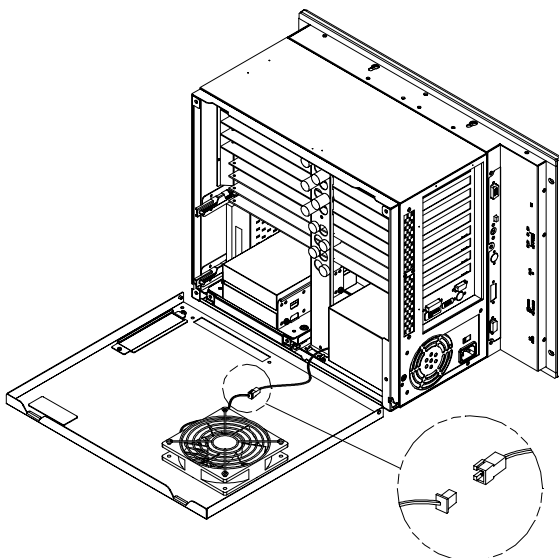
The AWS-8259 adopts a standard industrial PCI/ISA backplane. After installing the CPU card and other accessories, this system is operational. And the standard front panel layout allows the system to be easily mounted in a 19-inch rack.

***Warning!*** Do not begin your installation until you are sure there is no power flowing within the AWS-8259. It must be switched off and unplugged. Every time you access the interior of the AWS-8259, you should switch it off and unplug it.



## 2.1.2 Opening the Rear Panel

Unscrew the two knobs in the rear panel and open the back cover (see Fig. 2-1). The back cover is "hinged" to the chassis. If necessary, unplug the power cord of the fan to remove the rear door.

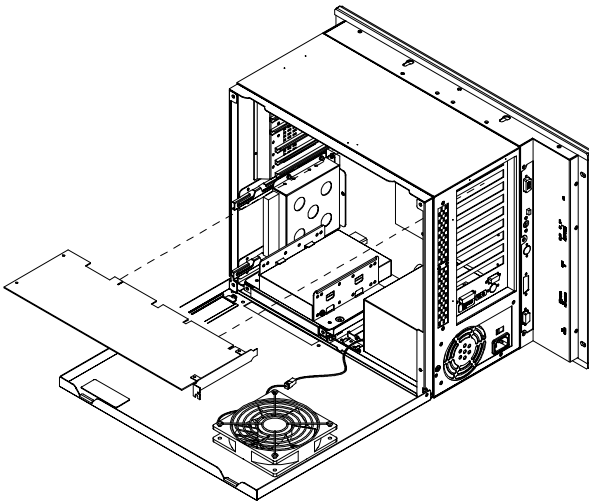


**Figure 2-1: Opening the rear door**

### 2.1.3 Adding Cards

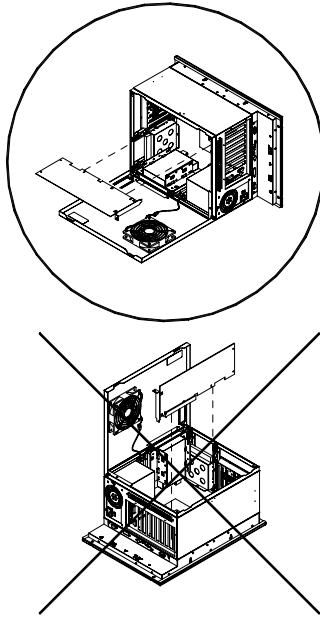
The PCI passive backplane accepts both PCI-bus and ISA-bus CPU and I/O cards. We recommend all-in-one cards. They are durable, and save valuable slot space by bundling a CPU card with hard disk and floppy disk controllers, as well as serial and parallel ports.

Open the rear door (see Fig. 2-2) and then slowly slide the card in and carefully press it into the backplane socket. Secure it with a screw to the side-mounting bar. Connect the wires. Install additional cards as needed. When you have finished, close the door.



**Figure 2-2: Installing add-on cards**

**Note:** When installing or maintaining the unit, do not invert the unit or place it face down. Handling the unit in that way can cause mechanical damage to the unit.



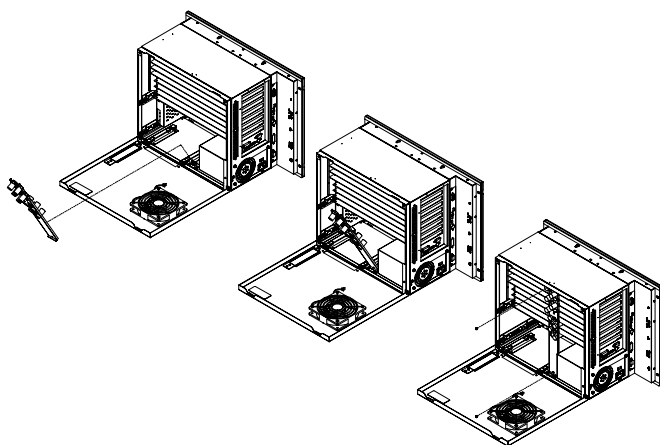
**Figure 2-3: Card Installation Note**

### **2.1.4 Installing Hold-down Clamps**

After installing the cards on the backplane, you may want to affix hold-down clamps to secure the cards better.

Take the several round rubber pads and clamps from the accessory box. Choose a suitable position on the clamp shelf whereby the card can be firmly secured. Put the round rubber pads in the holes with the clamps. (see Fig. 2-4). Then insert the clamp and screw it in the chassis.

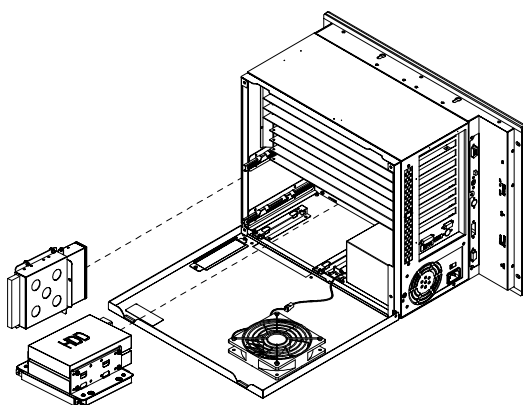
**Warning!** Make sure the round rubber pads on the hold-down clamp are firmly glued to the clamp. If any metal part of the clamp contacts any card, it may cause a short circuit.



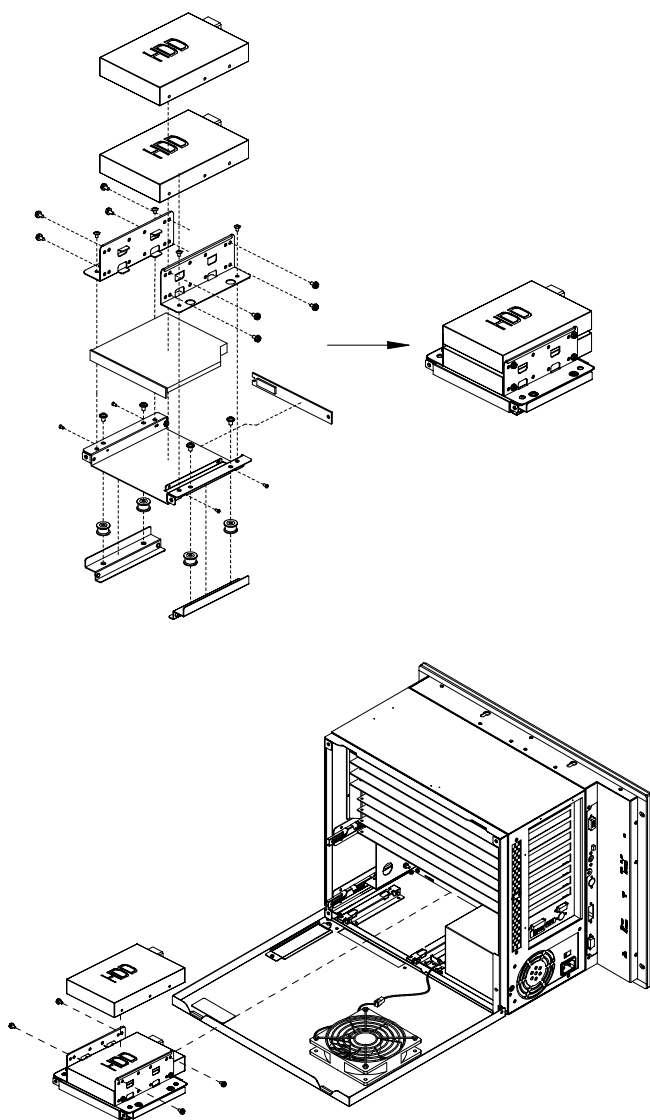
## 2.1.5 Installing Optional Disk Drives

The AWS-8259 provides space for the drives (one 3.5" floppy disk drive, two 3.5" hard disk drives and one slim CD-ROM drive) underneath the case. A front-facing floppy drive has already been installed. You can access it from the FDD dust-resistant door panel.

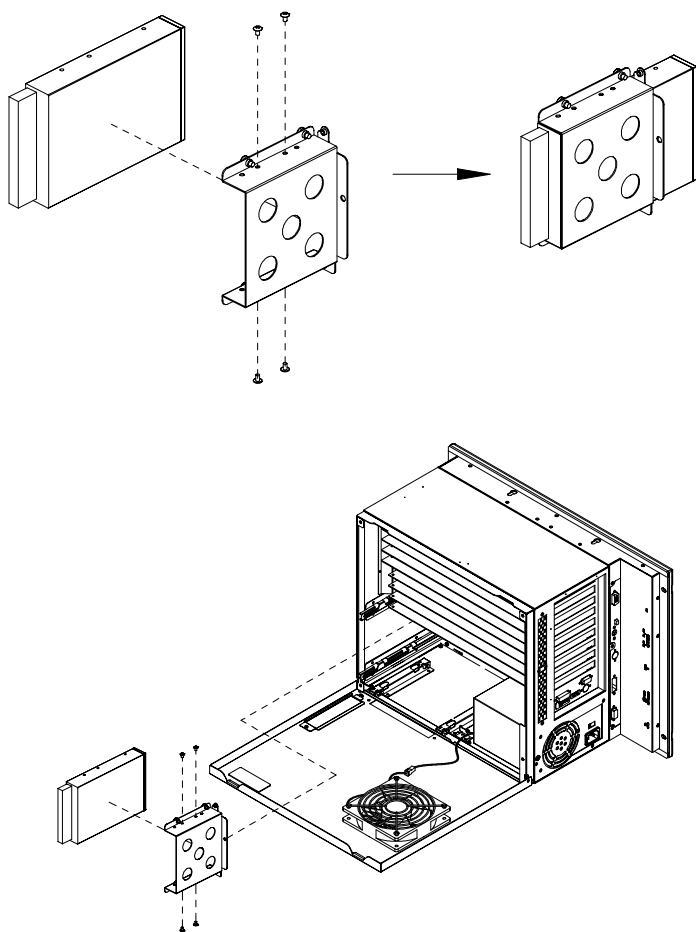
A slim CD-ROM and HDD unit can be installed in the bottom of the chassis.



**Figure 2-5: Installing optional disk drives - overall view**



**Figure 2-6: Installing two hard disks & CD-ROM**



**Figure 2-7: Installing floppy**

## 2.1.6 Connecting Cables

After inserting the CPU card into the chassis, connect the FDD, CD-ROM and HDD cables to the CPU card. In addition to the storage devices, four other cables need to be connected: the PS/2 touch pad cable, VGA cable, USB/Ind./Power cable and RS-232 cable for the touch screen. The PS/2 mouse cable is used to connect the touch pad signal output from the front panel to the CPU card, as shown below. There is a keyboard control board in the system that integrates the keyboard signals. If your workstation is equipped with a touch screen, connect the touch screen controller and CPU card through the RS-232 cable as shown below.



Connect USB/Indicator/Power cable to chassis



Connect PS/2 Touchpad/Keyboard cable to CPU card

Connect VGA cable to CPU card



**Figure 2-8: Connecting cables**



## 2.1.7 Connecting External Keyboard and Mouse

You can connect an external keyboard to the workstation. The connection to the keyboard is the PS/2 connector on the front panel, under the dust-protection door. Please note that you CANNOT connect a mouse to the PS/2 connector on the front panel.

There are two additional keyboard connectors on the back of the chassis as shown in figure 2-10. You cannot connect two keyboards to these two connectors on the back at the same time. You could however, connect a keyboard to the front panel PS/2 connector and another to one to the keyboard connectors at the back of the chassis at the same time.



**Figure 2-9: Connect front keyboard**

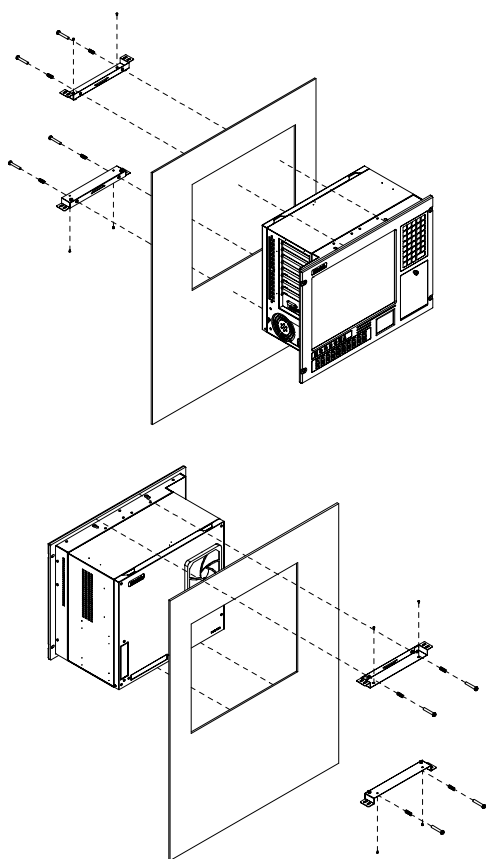


**Figure 2-10: Connect rear KB**

## 2.1.8 Panel Mounting

The AWS-8259 can be installed on a shelf or table, or mounted within a panel. Dimensions for the case, the mounting flanges, and the mounting bolts are shown in Fig. 2-11.

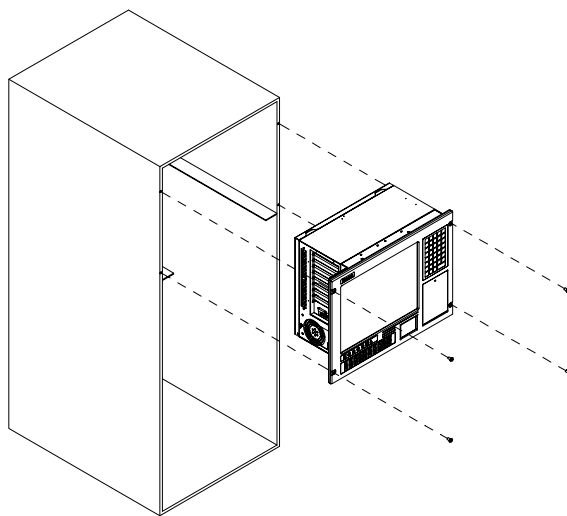
Once you have added your cards, drives, and other equipment, you can switch on the AWS-8259 to check if it operates properly. Then the case can be set within your panel aperture so that your screw holes line up with the mounting bolts on the flanges of the AWS-8259. Finally, secure the bolts to the panel.



**Figure 2-11: Panel mounting**

### 2.1.9 Rack Mounting

The AWS-8259 can also be mounted in a 19" rack. Make sure that all additional equipment has been installed correctly. Also, make sure that all cabling (such as the monitor signal cable, the keyboard cable and the monitor power cable) have been reattached. Fit the rack into the case by using screws on both sides of the case.



**Figure 2-12: Rack mounting**



# CHAPTER 3

## Macro Key Programming

- Introduction
- Macro Components
- Syntax
- How to Use SFED8259 COM
- Examples

## 3.1 Introduction

---

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

## 3.2 Macro Components

---

The following article explains how to use and program the function keys. The complete macro function consists of the following elements:

### **Macro keys**

Ten programmable macro keys that are located under the monitor screen of your workstation.

### **Macro EEPROM**

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

### **Macro programming utility**

Locate the program SFED8259.COM in the Function Key Utility diskette for function key programming. The SFED software provides an edit function to produce an ASCII file that contains keystroke 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. Macros give you the possibility to enter key sequences in an application that was executed by the macro itself.

## 3.3 Syntax

---

Macro definitions consist of ASCII characters or character codes for special characters such as ALT, ENTER, SHIFT, F1, SF2, and so on. These codes are predefined, and SFED8259.COM will display them on the screen for you. They are easily recognizable, appearing between the square brackets '[' and ']'.

For example:

ALT represents [26]

ENTER represents [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 represents [26][44][90]

CRTL-C represents [28]C[90]

SHIFT-B represents [27]B[90]

Please refer to the following examples:

ALT-X represents [26]X[90] or [26]x[90].

ALT-F1 represents [26][44][90]

SHIFT-X represents [27]X[90]

SHIFT-F1 represents [27][44][90]

CTRL-X represents [28]X[90]

CTRL-F represents [28][44][90]

CTRL-ALT-DEL represents [28][26][41][90] (reboot)

CTRL-ALT-A represents [28][26]A[90]

CTRL-SHIFT-1 represents [28][27]1[90]

Another useful function is the DELAY instruction. You can instruct the macro program to wait before executing the next keystroke. SFED8259.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



### 3.4 How To Use SFED8259 COM

First, boot your system under pure DOS mode (not DOS shell in windows) and copy all the files to your hard disk and/or make a backup disk. Then start 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 SFED8259 NEWKEY.TXT

[ENTER].

Note: SFED8259.COM could only work properly under pure DOS mode.

The following screen will appear:

Advantech Workstation Special Function Key Edit Program

Rev. 11/16/1995

Table of Control Codes :

Example : SF5 =CD\WINDOWS[33]WIN[33]

TAB [24]	HOME [3C]	[ [30]	] [31]	BS [35]	ESC[36]
ALT [26]	END [3D]	↑ [38]	↓ [39]	← [3A]	→ [3B]
SHIFT [27]	PGUP [3E]	F1 [44]	F2 [45]	F3 [46]	F4 [47]
CTRL [28]	PGDN [3F]	F5 [48]	F6 [49]	F7 [4A]	F8 [4B]
ENTER[33]	INS [40]	F9 [4C]	F10 [4D]	F11 [4E]	F12 [4F]
PRTSC[7E]	DEL [41]	RELEASE [90]			
PAUSE[7F]	SF1 to SF10 = [70] to [79]				

Key delay Mode :

0.1 Sec [80]	0.5 Sec [81]	1 Sec [82]	2 Sec [83]	3 Sec [84]
5 Sec [85]	10 Sec [86]	30 Sec [87]	1 Min [88]	1 Hour [89]

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

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

SF3 =

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

SF5 =

SF6 =

SF7 =

SF8 =

SF9 =

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

Save(Y/N)?

Transmit(Y/N)?

KBT ID:AD111695

ESC:Quit/Save/Transmit

Figure 3-1: 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.

### 3.5 Examples

We will explain all macro functions that you can find in the EX8259.TXT macro script file. After typing SFED8259 EX8259.TXT

[ENTER], the following editor screen will appear:

TAB [24]	HOME [3C]	[ [30]	] [31]
ALT [26]	END [3D]	↑ [38]	↓ [39]
SHIFT [27]	PGUP [3E]	F1 [44]	F2 [45]
CTRL [28]	PGDN [3F]	F5 [48]	F6 [49]
ENTER[33]	INS [40]	F9 [4C]	F10 [4D]
PRTSC[7E]	DEL [41]	RELEASE [90]	
PAUSE[7F]	SF1 to SF10 = [70] to [79]		
<b>Key delay Mode :</b>			
0.1 Sec [80]	0.5 Sec [81]	1 Sec [82]	2 Sec [83]
5 Sec [85]	10 Sec [86]	30 Sec [87]	1 Min [88]
<hr/>			
SF1 =			
SF2 =			
SF3 =			
SF4 =			
SF5 =			
SF6 =			
SF7 =			
SF8 =			
SF9 =			
SF10 =			
<hr/>			

Figure 3-2: Macro examples

**SF1 = CD\TOOL[33] SFED8259 EXAMPLE.TXT[33]**

This macro changes to the TOOL directory, then starts up SFED8259.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 appear on the screen.

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

Restarts the computer (CTRL-ALT-DEL).



# CHAPTER 4

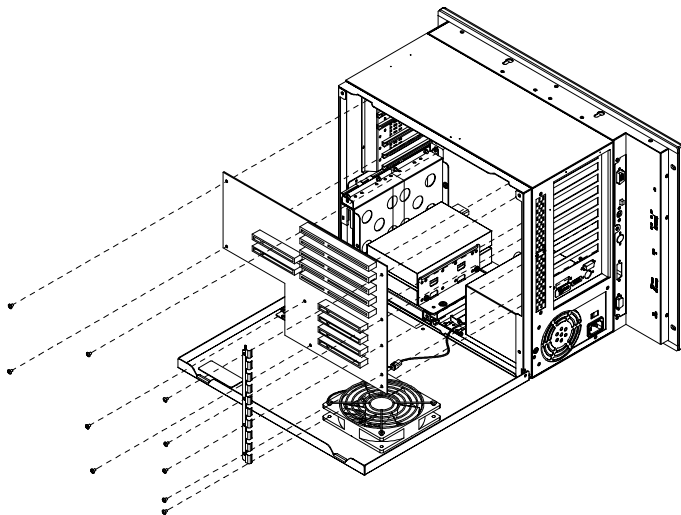
## Maintenance

- Detaching the Backplane and Bracket
- Power Supply
- Keyboard Translator

## 4.1 Detaching the Backplane and Bracket

---

First remove the card and detach all cables connected to the backplane. Next, unscrew all screws and take the backplane out of its case. (See Fig. 4-1.) If you want to repair or upgrade your peripherals (for example, the membrane keypad controller or the backlight of the LCD), you must first pull out the bracket.



**Figure 4-1: Detaching the backplane and bracket**

## 4.2 Power Supply

When undertaking maintenance of the power supply, first shut off all power input. Remove the rear panel. Unscrew the four screws under the power supply. The power supply and its bracket can now be detached from the case. Detach all power connectors linked to the accessory drives and other components. For the AWS-8259, pull out the connectors on the front switch. Then remove the power supply kit from the system (see Fig. 4-2). For the AWS-8259, disassemble the unit as far as the front panel. Then disconnect the switch connector and take out the power supply.

**Warning:** *Shut off all power to the AWS-8259 before you commence repairing the power supply. Switch off the power and unplug the unit.*

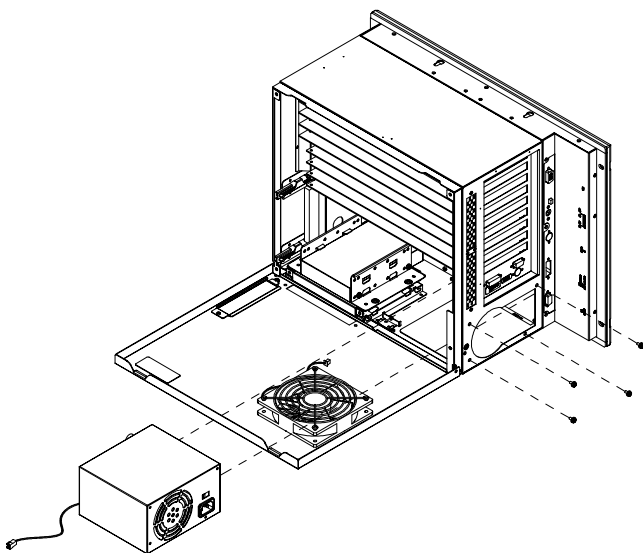


Figure 4-2: Installing the power supply

## 4.3 Keyboard Translator

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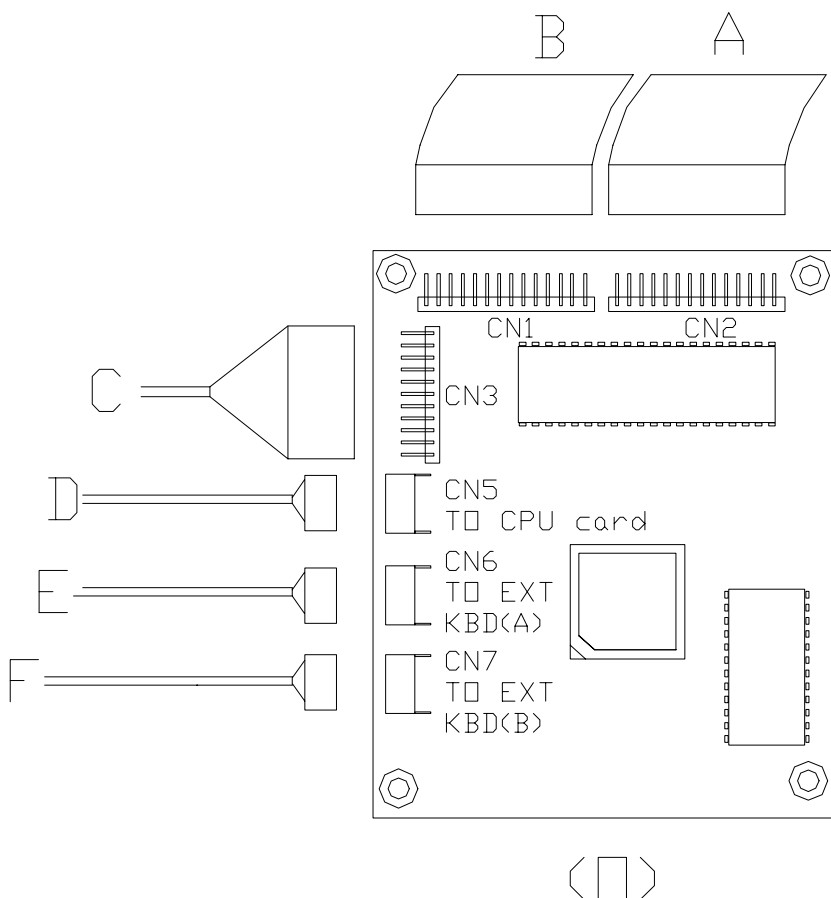
The keyboard translator is an interface that switches the signal from the membrane keypad to the standard AT keyboard. There are six connectors on the board. On top of the board, there are two connectors linking two flat cables to the membrane keypad (as shown in Fig. 4-3). On the side of the board, there are four connectors.

For connection details, refer to Fig. 4-4.

When servicing the keyboard translator:

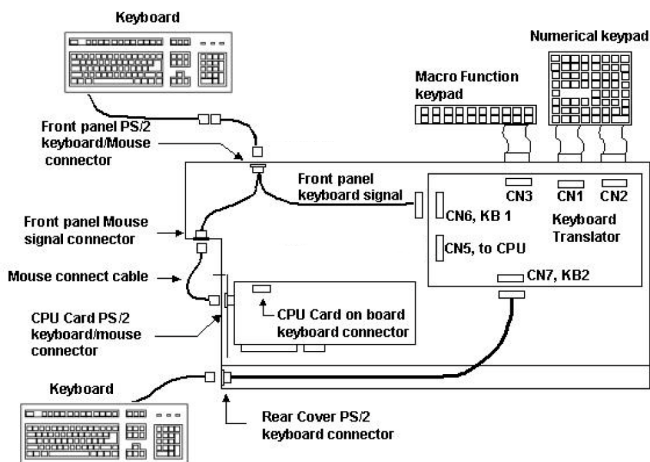
1. Switch off the power, and detach the main power cord.
2. Disassemble the AWS-8259. The translator will be located on the left side of the front panel.
3. Remove the keypad connector protective bracket.
4. Carefully detach all cables connected to the keyboard translator. (See Fig. 4-3.)
5. Unscrew the four screws on the corners, pull out the keyboard translator, and replace it.





- (A), (B) Input from operational keypad
- (C) Input from functional keypad
- (D) Output to CPU card
- (E) Input from external keyboard

**Figure 4-3: Keyboard translator input/output (basic schematic)**



**Figure 4-4: Keyboard translator input/output (basic schematic)**

# APPENDIX **A**

## **Separate system setup**

- How to separate the AWS-8259
- Connecting the LCD monitor and control chassis
- Install the 3.5" floppy in the front panel
- Panel/wall/Rack/Desktop/Swim Arm Mounting

## A.1 Separate system setup

### A.1.1 How to separate the AWS-8259

The AWS-8259 can be separated into two products, the LCD panel and control chassis. If you want to separate it, detach the LCD panel from the chassis by unscrewing four screws and the 4 clip holes.

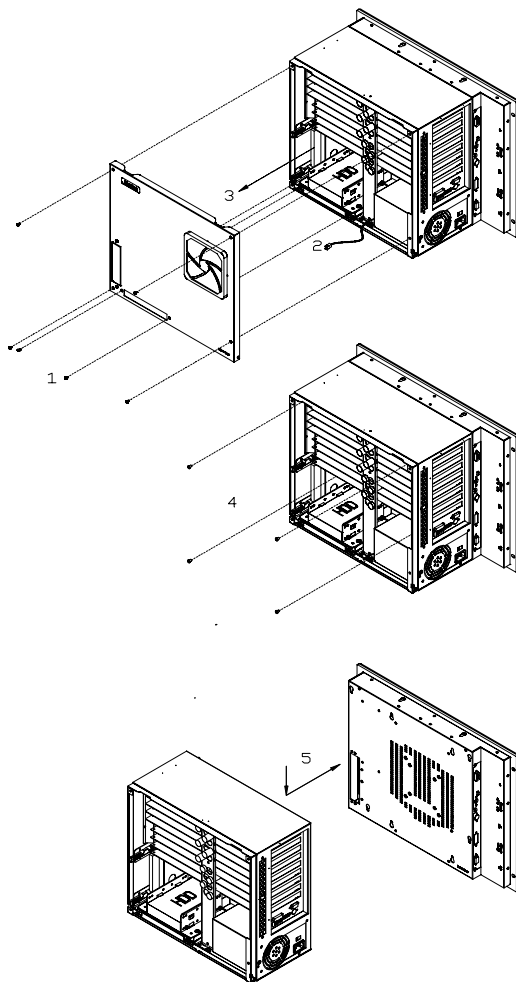
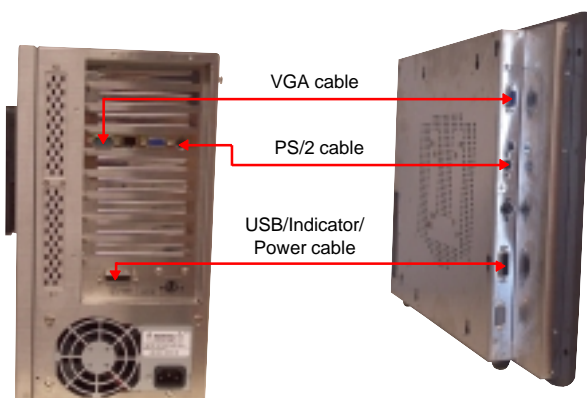


Figure A-1: Detach the LCD panel and controlling chassis

## A.1.2 Connecting the LCD monitor and control chassis

Before you connect LCD monitor, there are four connections between the LCD monitor and the AWS-8259 chassis: These connectors are the VGA, Keyboard, USB/Power/Indicator and optional RS-232 for touch screen. Because the AWS-8259 integrates the power, indicator signal, and USB into one cable, users do not need to connect another power cord. In addition, please follow the steps.

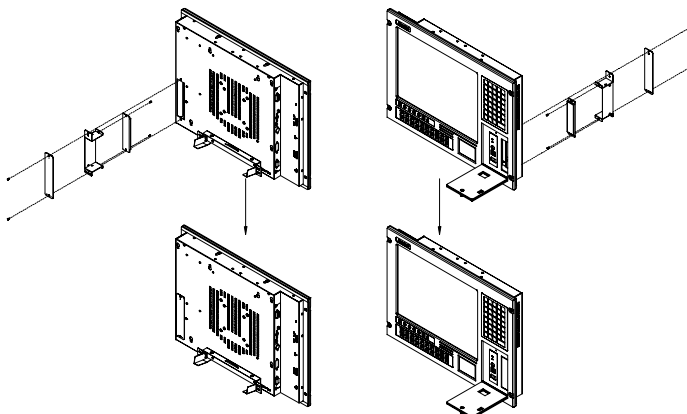
Note: The max. distance between LCD monitor and chassis is 2 meter.



**Figure A-2: Connecting the control chassis**

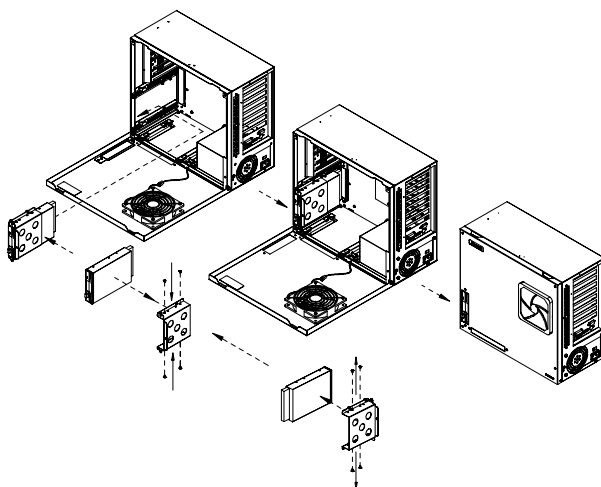
**Step 1:** Purchase the USB-3250, which includes three cables.

**Step 2:** Screw in the steel plate, which is in the accessory package of the USB-3250.



**Figure A-3: Screw the steel plate**

**Step 3:** Re-install the floppy



**Figure A-4: Re-install the floppy**

**Step 4:** Connect the 2 meter VGA, keyboard, USB / power / Indicator cable to the chassis

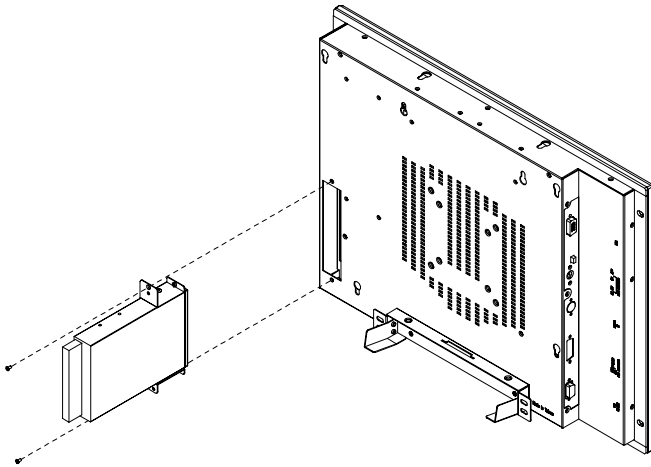
**Step 5:** Complete the installation

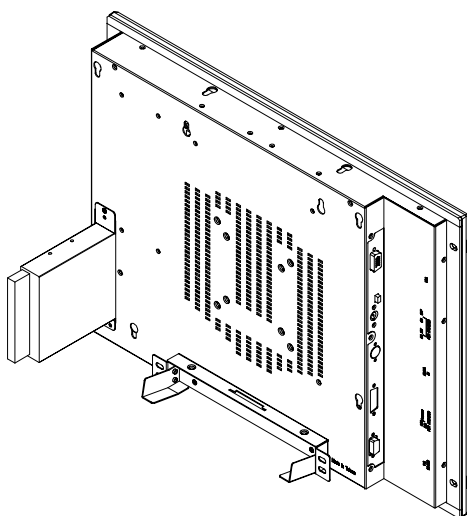
### **A.1.3 Install the 3.5" floppy in the front panel**

If you want to access data via floppy in the front panel, the AWS-8259 also provides a floppy housing kit. Please follow the steps.

**Step 1:** Purchase the FDD-3250, which includes the housing kit and 3.5 1.44MB floppy.

**Step 2:** Screw the housing kit into the panel





**Figure A-5: Screw the housing kit**

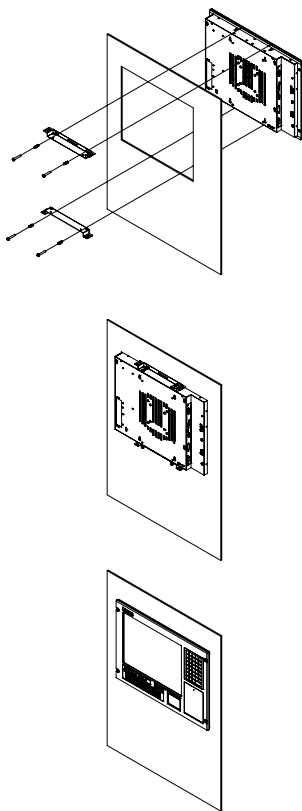


## A.2 Mounting

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### A.2.1 Panel Mounting

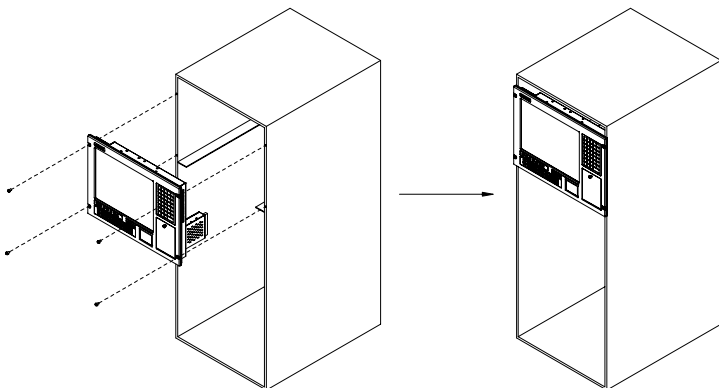
A cutout needs be made to accommodate panel mounting. The panel-mount brackets are included in the accessory box. Slide the unit backwards into the panel opening. Attach the mounting brackets by inserting the screws into the keyhole slots on the flat panel monitor cover. Use the screws to secure the brackets to the cover. Tighten to secure the front panel monitor against the back panel.



**Figure A-6: Panel Mounting**

## A.2.2 Rack Mounting

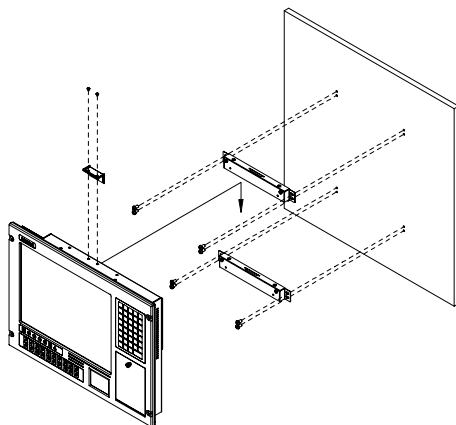
The LCD panel can be directly mounted in a standard 19" rack. Just mount the panel on the rack and secure with four screws.



**Figure A-7: Rack Mounting**

## A.2.3 Wall Mounting

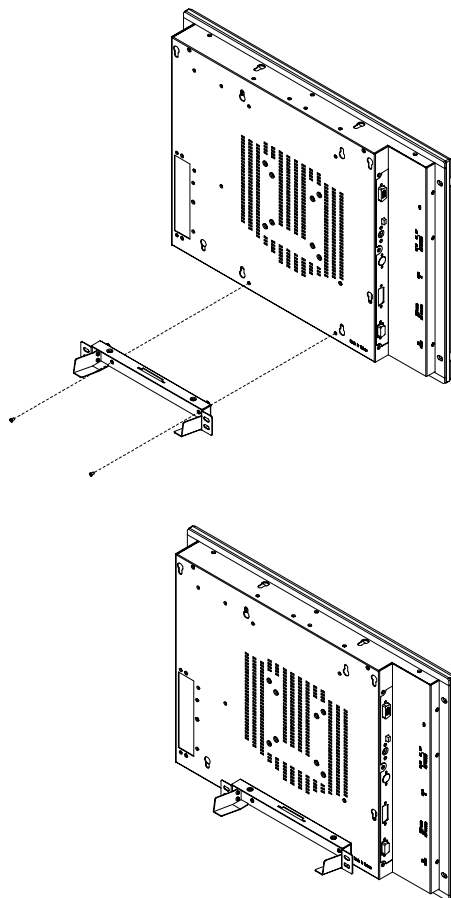
First, mount the wall-mounting bracket to the wall, then mount the LCD panel onto the bracket using the three provided screws. Finally, secure the panel to the mounting plate with the locking plate.



**Figure A-8: Wall Mounting**

## A.2.4 Desktop Stand

Mount the desktop-mounting bracket to the back of LCD panel with two screws as the following drawing shows.



**Figure A-9: Desktop Stand**

## A.2.5 Swing Arm Mounting

There are two sets of Swing-ARM mounting holes, 75 mm and 100 mm diameter, on the back chassis. You can Mount the LCD panel on the Swing-ARM through the mounting holes and secure with four screws.

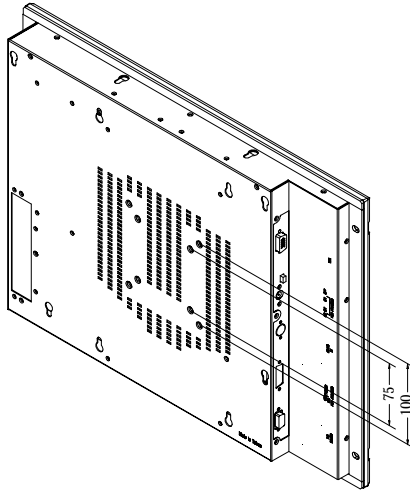


Figure A-10: Swing Arm Mounting

# APPENDIX **B**

## **Power Supply Specifications**

- 300 watt Power Supply
- -48 VDC Power Supply
- 24 VDC Power Supply

## B.1 Voltage Characteristics

---

### 1. Input Characteristics:

- 1.1 Input Voltage Range: 90Vac to 135Vac /180Vac to 265Vac
- 1.2 Normal Voltage Range: 115Vac/230Vac.
- 1.3 Input Frequency Range: 47 Hz to 63 Hz.
- 1.4 Max. input AC current 9 A max. @ 115Vac,  
4.5 A max. @ 230Vac, max. load.
- 1.5 Inrush Current: No damage shall occur to the power supply and the fuse shall not open or exceed its spec.
- 1.6 Efficiency: 65% min. at 115Vac input max. load.
- 1.7 5Vsb Standby Efficiency: The power supply shall draw less than 5W of true input power at 230Vac when in the standby mode and the 5Vsb load is 0.4A.

## 2. Output Characteristics:

### 2.1 Static Output Characteristics:

Output Voltage	Load Range		Surge 15 sec.	Regulation		Ripple Vp-p max.
	Min.	Max.				
+5V	1A	30A	-	+5% -5%		50mV
+12V	0.5A	15A	18A	+5% -5%		120mV
-12V	0A	0.8A	-	+10% -10%		120mV
-5V	0A	0.3A	-	+5% -5%		100mV
+5VSBV	0A	2A	-	+5% -5%		50mV
+3.3V	0.3A	24A	-	+5% -5%		50mV

**Table B-1: Static output characteristics**

*Note:*

- 1.) The total output power shall not exceed 300W. The max. Isurge duration is 10 seconds and the +12V tolerance is  $\pm 10\%$  during surge conditions.
  - 2.) The -12V and +5V max. total combined current shall not exceed 0.8A.
  - 3.) Max. current slew rate shall not exceed  $1.0A/\mu S$ .
  - 4.) The max. conditions power rating of supply is 300W at  $25^{\circ}C$ . Derate  $1W/^{\circ}C$  from  $50^{\circ}C$  to  $25^{\circ}C$  to yield a max. continuous power rating of 275W at  $50^{\circ}C$ .
  - 5.) For output 275W  
 +3.3V and +5V total O/P power can not exceed 160W.  
 +3.3V, +5V and +12V total O/P power can not exceed 260W.
  - 6.) For output 300W.  
 +3.3V and +5V total O/P power can not exceed 180W.  
 +3.3V, +5V and +2V total O/P power can not exceed 290W.
- Table A-1: Static output characteristics

## 2.2 DC Output Current:

12V Load		12V	3.3V	5V	3.3V/5V Max.
24W	Min.	0.5A	0.3A	1A	100W
	Max.	2A	7A	15A	
50W	Min.	2A	0.3A	1A	180W
	Max.	4.16A	28A	17.52A	
80W	Min.	2A	0.3A	1A	180W
	Max.	6.66A	28A	17.52A	
100W	Min.	2A	0.3A	1.5A	180W
	Max.	8.33A	28A	17.52A	
150W	Min.	0.5A	0.3A	2A	140W
	Max.	12.5A	28A	9.52A	
180W	Min.	0.5A	10A	8A	110W
	Max.	15A	18A	10A	

**Table B-2: DC output current load range**

*Note:*

- 1.) *Noise Test: Noise bandwidth is from 10Hz to 20 MHz.*
- 2.) *Add 0.47  $\mu$ F ceramic capacitor /10  $\mu$ F tantalum capacitor at output connector terminals for ripple & noise measurements.*
- 3.) *Main O/P shall be enabled by pulled "remote" pin to TTL low level, and disabled by pulled "remote" pin to TTL high level.*

## 2.3 Dynamic Output Characteristics:

- 2.3.1 Rise Time: +5V O/P voltage rise from 10% of normal to within regulation should be less than 25 mS.
- 2.3.2 Turn-on Delay Time: 1S max. at any condition. AC input with respect to +5V.
- 2.3.3 Hold Up Time: 17mS min. for +5V output at 115Vac, AC zero cross 60Hz, max. load.
- 2.3.4 Overshoot: Any overshoot at turn on or turn off shall be less than 10% of the normal value.



## 2.4 Transient Response (Step Load)

<b>Min.</b>	4.75V	10.8V	3.135V	4.75V
<b>Nom.</b>	+5V	+12V	+3.3V	+5Vsb
<b>Max.</b>	5.25V	13.2V	3.465V	5.25V

Output	Decoupling Caps	Load Change	Step Load
+5V	15000UF	1.0A to 7A and back	0.2A/us
+12V	4000UF	0.5A to 3.5A and back	0.2A/us
+3.3V	5000UF	0.3A to 5.9A and back	0.2A/us
+5Vsb	5000UF	0A to 0.4A and back	0.2A/us

**Table B-3: Step load limit**

The following transient loads are to be applied to the output. The frequency range of the transient loads described shall be from 1 Hz to 2 KHz. The waveform shall be a square wave with the slope of the rise and fall at 0.2A/microsecond.

The output voltages shall not exceed regulation limits as defined in Table 3 under the following condition:

Step load changes of up to 20% of full load including steps increasing from minimum or decreasing from full load, while the other loads remain constant within the rating as in Table 1. In addition, the +12V output shall remain within  $\pm 10\%$  tolerance limits and the remaining outputs shall not exceed regulation limits as defined in Table 3 under the following condition:

Step load change of up to 2A on the +12V output including increasing from minimum or decreasing from full load, while the other loads remain constant within the ratings as in Table 1. The audible noise level of the power supply shall not increase during transient loading.

### 3. Protections:

#### 3.1 Over Voltage Protection:

O.V.P	O.V.P. Limit
+3.3V	4.5V
+5V	7V
+12V	15.6V

**Table B-4: Over voltage protection**

#### 3.2 Short Circuit Protection:

The power supply shall shut down and latch off for shorting +5V, +12V, -12V, -5V or +3.3V rails to COM and shorting +5Vsb, P/S can latch down or automatically recovery when the fault condition is removed.

#### 3.3 No Load Operation: No damage or hazardous condition will occur.

#### 3.4 Cooling and Acoustics:

The power supply shall contain a thermal sensing circuit capable of varying fan speed. The power supply shall have at T =25 and +5V@1A, +3.3V@3A, +12V@1A load:

- 1.) A min. voltage of  $6.0V \pm 0.5V$ .
- 2.) A max. noise level of 30dBA between 0 and 4KHz measured 39.4 inches from the intake side of the fan in free air.

The power supply shall have at T =50°C and max. rated load:

- 1.) A min.voltage of  $12V \pm 0.5V$ .
- 2.) A max. noise level of 45dBA between 0 and 4KHz measured 39.4 inches from the intake side of the fan in free air.

The fan shall be a Ball Bearing DC brushless tubeaxial fan rated to operate between a range of 6 to 12V.

## **4. Dielectric Withstand Voltage:**

### **4.1 Hi Pot Test:**

Primary to secondary 2150Vdc 1sec.

Primary to F.G 2150Vdc 1sec.

Trip Current Sensitivity : 600  $\mu$  A max. 10mA (AC)

Breakdown Arc Detection: 10  $\mu$  S max.

### **4.2 Insulation Resistance: Primary to safety ground: 500Vdc, 5 M ..... min.**

### **4.3 Leakage Current: Measured at 120 Vac and 460uA max.**

## **5. Conducted EMI:**

The power supply shall comply with CISPR 22, Class B for both conducted and radiated emissions with a 4 dB margin at system level test only. .

## **6. Product Safety:**

This power supply is designed to meet the following specs.

- 1.) UL 1950 3rd.
- 2.) CSA C22.2 No. 234-1990, 1st Edition.
- 3.) EN60 950 and IEC 950 2nd Edition (1993)  
including Amendments 1, 2, 3 and 4.
- 4.) TUV EN60 950: 1993+A1+A2+A3+A4.
- 5.) NORDIC Certificate EMKO-TSE (74-sec)  
207/94.
- 6.) CB Certificate

### **6.1 Input Line Current Harmonic Content**

The power supply shall meet the requirements of EN61000-3-2 Class D and the Guidelines for the Suppression of Harmonics in Appliances and General Use EDC output current load range equipment Class D for harmonic line current content at full rated power.

See Table 1 for the harmonic limits.

**Table B-5: Harmonic Limits, Class D**

Harmonic Order N	Maximum permissible harmonic current per watt mA/W	Maximum permissible Harmonic current Amps
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.4
11	0.35	0.33
13	0.30	0.21
15<n<39	3.85/n	0.15X(15/n)

PFC: Apply Table 12 limits as shown for 230V operation and multiply limits by 230/100 for 100V operation for world-wide requirements in both EU and Japan, respectively.

non-PFC Not applicable, no harmonic reduction is required.

## **7. Environment:**

**7.1 Operating Temperature: +10°C to 50°C .**

**7.2 Operating Relative Humidity: 5% to 85%.**

**7.3 Storage Temperature: -40°C to + 70°C .**

**7.4 Storage Relative Humidity: 5% to 95%.**

**7.5 Altitude:**

Operate properly at any altitude between 0 to 10,000 feet.

storage: 50,000 feet.

**7.6 Mechanical Shock:**

The power supply shall not be damaged during a shock of 40G half sine wave, 11mS, non-operation.

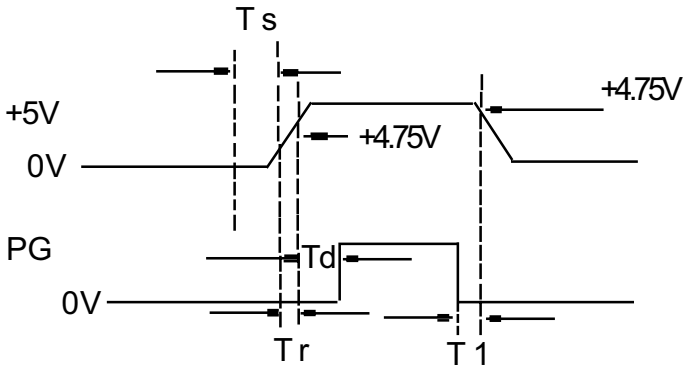
### 7.7 Vibration:

0.38m/m, 5-55-5Hz, 7 minutes per cycle, 30 minutes for each axis (x, y, z).

### 8. Burn-In:

Unit shall be burn in under  $45 \pm 5^{\circ}\text{C}$ , with 115Vac and outputs at 70% of max. load.

### 9. Power-Good Signal:



$T_r$ : 25 mS max ,  $T_1 \geq 1\text{mS}$ ,  $T_s \leq 1\text{S}$

$T_d$ : 100~500mS

$T_r$ ,  $T_d$  and  $T_1$  are measured at 90 Vac, 60Hz.  
full load condition.

### 10. M.T.B.F.:

100K hours min. at 275W load and  $25^{\circ}\text{C}$  ambient conditions.

## B.2 -48 V<sub>DC</sub> 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/2 casing.

### Specifications

**Input voltage:** -38 ~ -58 Vdc (continuous operation)  
-48 Vdc (normal operation)

**Input current:** 10 A max. @ -48 Vdc input

**Inrush current:** 5 A max. @ -48 Vdc input

**Efficiency:** 70% min. @ full load and normal line voltage

### Output characteristics:

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

**Table B-6: -48Vdc power supply output characteristics**

*Note 1: Total regulation tolerance includes temperature change, warm-up 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  $\mu$ F ceramic disc capacitor and a 10  $\mu$ F electrolytic capacitor, each capacitor having a band width 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:  $6.25 \pm 0.75$  V  
12 V:  $14 \pm 1$  V  
-5 V:  $-6.25 \pm 0.75$  V  
-12 V:  $-14 \pm 1$  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:  $\pm 50\%$  of maximum rating load  
**Recovery time:** 500 ms max.

**Reliability Mean time between failures (MTBF):** 100,000 hours minimum

#### **Environmental specifications**

**Operating temperature:**  $0 \sim 50^{\circ}\text{C}$

**Storage temperature:**  $-40 \sim 60^{\circ}\text{C}$

**Operating and storage humidity:**  $10 \sim 95\%$  RH

**Operating altitude:** sea level  $\sim 15,000$  ft

**Storage altitude:** sea level  $\sim 50,000$  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-7: -48 Vdc 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	+5V	Red	18			
P8-3	+12V	Yellow	18			
P8-4	-12V	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	-5V	White	18			
P9-4	+5V	Red	18			
P9-5	+5V	Red	18			
P9-6	+5V	Red	18			
PE-1	+12V	Yellow	18	300 +30/-10	AMP 480424-0 or equivalent	AMP61314 or equivalent
PE-2	COM	Black	18			
PE-3	COM	Black	18			
PE-4	+5V	Red	18			
PF-1	+5V	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	+12V	Yellow	20			
PA-1	+12V	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	+5V	Red	18			
PB-1	+12V	Yellow	18	300 +30/-10	AMP 480424-0 or equivalent	AMP 61314 or equivalent
PB-2	COM	Black	18			
PB-3	COM	Black	18			
PB-4	+5V	Red	18			

## B.3 24 V<sub>DC</sub> Power Supply

This is a DC to DC switching mode power supply with a 24 V<sub>DC</sub> 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-8: 24Vdc Power Supply Output load range

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

**Line regulation:**

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

**Load regulation:**

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

**Table B-9: 24Vdc Power Supply load regulation**

Output No.	Load regulation
1	$\pm 4\%$
2	$\pm 5\%$
3	$\pm 3\%$
4	$\pm 3\%$

**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.

## **Environmental specifications**

**Operating temperature:** 0-45°C

**Storage temperature:** -40-75°C

## **International standards compliance**

**Safety:** UL 1950

CSA 234

TüV EN 60950

# APPENDIX C

## **OSD Selection**

- Keypad Interface
- OSD Function

# C.1 Supported Input Timing Modes

The nineteen kinds of timings below are already programmed in this module. The input synchronous signals are automatically recognized.

**Table A.1: Supported Input Formats**

	Vertical Frequencies				
Resolution	56 Hz	60 Hz	70 Hz	72 Hz	75 Hz
640 x 480		Yes		Yes	Yes
800 x 600	Yes	Yes		Yes	Yes
1024 x 768		Yes	Yes		Yes

*Note 1: Even if the preset timing is entered, a little adjust-ment of the functions such as Horizontal period, CLK-delay and display position, are required. The adjusted values are memorized in every preset num-ber.*

*Note 2: This module recognizes the synchronous signals with near preset timing of the frequency of the HS and Vsync, even in the case that the signals other than the preset timing that were entered.*

*Note 3: Because adjustments may not fit, such as differing magnifying ratios or, in the case that you use it except for the display timing that was preset.*

## C.2 Keypad Interface

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The keypad interface provides driver for a dual color LED for status indication.

<b>AUTO</b>	Press this button to execute auto adjustment process.
<b>SEL</b>	Presses to show the OSD screen or select an item for changing its setting.
<b>◀▶</b>	To move between items or increase item setting.
<b>EXIT</b>	To close the selected item or the whole OSD screen.
<b>ON/OFF</b>	Turn the display backlight ON and OFF.

PS, The green light means that the COMMON board detects the input signal and ends output signal to LCD panel .

## C.3 OSD Function

Each selected value is stored into LCD memory after SEL signal input or time out. The stored values are not affected if the power is turned off. But the selected value is not available in case a selected mode is changed before time out or power is turned off before time out.

The default definition of input keys is shown as following :

Main Menu	Sub Menu	Adjustment	Functionality
Language			English
Brightness		100 steps	Adjust brightness of the display
Contrast	Contrast	100 steps	Adjust contrast of RGB channel simultaneously
	Sub Contrast RGB	100 steps	Adjust color of selected RGB channel
Position	H.Size	32 steps	Adjust phase of ADC sample clock
	Clock Phase	+/-64 clock from VESA standard	Adjust number of clocks per line
	H.Postion	+/-50 pixel from VESA standard	Move input image capture window left or right
	V.Postion	+/-30 lines from VESA standard	Move the input image capture window up or down
Auto configuration		Yes.No	Automatically adjust image position, clock, and phase
All Reset	All Reset		Reset menu parameters to factory default setting
Information	Information		System input mode information
OSD	OSD Timeout	10s	Adjust the OSD Menu time out if there is no key pressed
	OSD Position		Fixed