

# EGAWONDER800+

## OPERATION MANUAL



**TECHNOLOGIES INC.**

*Technology you can Trust.*

# EGAWONDER800+ User's Guide

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# 1

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## EGAWONDER800+

### *INTRODUCTION*

ATI Technologies Inc.'s **EGAWONDER800+** is an improved high performance EGA graphics card designed to display "Any Software on Any Monitor<sup>1</sup> at Any Time."

The **EGAWONDER800+** displays all of the major IBM PC software and hardware standards - EGA, CGA, MDA, and Hercules Standards - EGA, CGA, MDA, and Hercules - on any of the major monitor types - Enhanced Graphics, RGB Color, TTL Monochrome, and MultiSync monitors offers 100% Hardware compatibility in EGA, CGA, MDA and Hercules Graphics Standards.

ATI Technologies Inc. high resolution modes include VGA modes 11 and 12, 640x480 in 16 colors and Super-VGA, 800x600 in 16 colors on multisync<sup>2</sup> monitors. Despite all this power, to install the **EGAWONDER800+**, simply Plug-&-Go! Automatic installation eliminates all jumpers and switches on the **EGAWONDER800+**, making installation quick and easy.

<sup>1</sup> IBM compatible digital monitors only.

<sup>2</sup> In Digital mode. (Multisync refers to multifrequency monitors.) The NEC Multi-Sync 2A is an analog only monitor and will not work with the EGAWONDER800+.

## **FEATURES**

1. **Displays EGA, CGA, MDA, Hercules and 132 Columns Software on Enhanced Graphics and MultiSync<sup>1</sup> Monitors.**
  - Provides wide software compatibility on the Enhanced and Multisync monitors.
  - In CGA software, text is converted from an 8x8 character to an 8x14 high resolution character and graphics are 75% double scanned from 640x200 to display 640x350 for a higher quality.
  
2. **Displays EGA, CGA, MDA, Hercules and 132 Columns Software on a TTL Monochrome Monitor.**
  - Provides wide software compatibility on the TTL monochrome displays, modes which are not normally available.
  - Colors of EGA and CGA software are converted into corresponding monochrome gray scale shades.
  - No pre-boot drivers are required. The **EGAWONDER800+** automatically provides these graphics capabilities on TTL monitors.
  
3. **Displays EGA, CGA, MDA, Hercules and 132 Columns Software on an RGB Color Monitor.**
  - Provides wide software compatibility on the RGB color monitor.
  - ATI's proprietary technique maintains a palette of 64 colors for CGA and EGA software.
  - 640x350 EGA and 720x348 Hercules software are interlaced to produce high resolution text and high resolution graphics.

<sup>1</sup> 132 columns not available on NEC MultiSync GS. The NEC MultiSync 2A is an analog only monitor and will not work with the EGAWONDER800+.

4. **100% Register - Level Compatibility**
  - Provides both BIOS and Register level compatibility in EGA, CGA, MDA, and Hercules modes. This guarantees the user that their system will be able to run all software programs written for all these modes.
  
5. **Displays High Resolution Graphics on MultiSync<sup>1</sup> Monitors**
  - Super-VGA 800x600 in 16 colors.
  - VGA mode 11 (640x480 in 2 colors) and VGA mode 12 (640x480 in 16 colors) on MultiSync or compatible monitors.
  - 640x480 graphics in 16 colors from a palette of 64 colors on MultiSync. Drivers included for popular software packages including Windows, GEM, AutoCAD, and Ventura.
  
6. **Plug-&-Go**
  - Automatic configuration makes installation a snap. The **EGAWONDER800+** has software utilities, **ESETUP** and **ECONFIG**, that allow the user to easily change the computer selected default configuration.
  
7. **256K Video Memory**
  - Comes fully configured with 256K video memory on board for full 64 color palette display.
  
8. **Advanced CMOS VLSI Gate Array Technology**
  - This technology using a proprietary ATI Technologies Inc. design, gives the **EGAWONDER800+** high speed operation, high reliability and high compatibility, while reducing power consumption.
  
9. **Two Year Warranty** - Full parts and labor.

<sup>1</sup> In digital mode





# 2

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## CONTENTS OF THE PACKAGE

Your **EGAWONDER800+** package includes the following:

- **EGAWONDER800+** Video Adapter
- User's manual.
- Two software diskettes:
  - Disk 1 - **EGAWONDER800+** Utility diskette.
  - Disk 2 - **EGAWONDER800+** Software Drivers diskette.

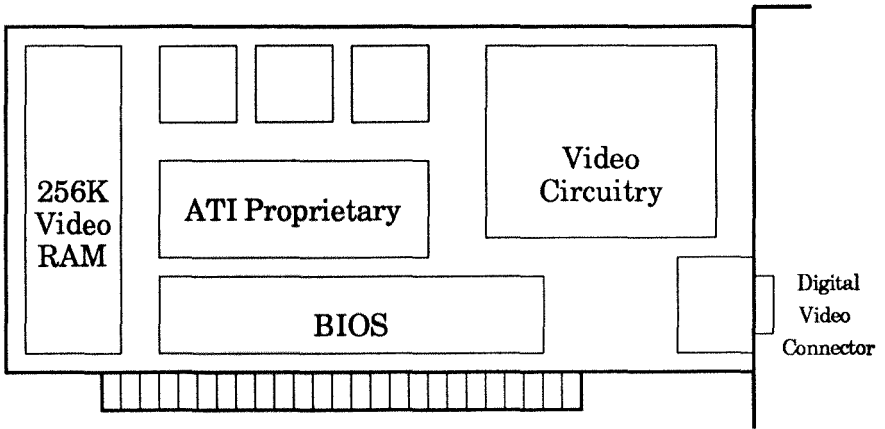
If your package does not include the above items, contact your dealer immediately.

If you are installing the **EGAWONDER800+** on a system which requires 3.5" diskettes, please call ATI Technologies Inc. with the serial number of your card and we will be pleased to send the appropriate disks, or contact your dealer to have the software downloaded to your diskette format.

Be sure to make working copies of the original diskettes to prevent accidental erasure of important files.

Completion of your warranty card, which is contained at the back of this manual, is important in order to validate your warranty and to use Technical Support services from ATI Technologies Inc.

**EGAWONDER800+  
Block Diagram**



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## MONITOR SELECTION

### ***AUTOMATIC MONITOR DETECTION***

It is mandatory that the monitor is connected to the **EGAWONDER800+** before power-up in order for the automatic detection to function correctly. Failure to do this will result in an incorrect monitor being detected. The **EGAWONDER800+** is set at the factory to use EGA monitor in EGA graphics mode as a default value.

The **EGAWONDER800+** will support the following IBM compatible video monitors in text & graphics resolution as follows:

TTL MONOCHROME (18.43KHz)

These monitors are designed to be used with Hercules or MDA cards. With the **EGAWONDER800+**, the following software standards can be displayed:

- Monochrome text mode
- Hercules text and graphics modes 720x348

- RGB text and graphics mode 320x200 - in 4 or 16 shades
- EGA text and graphics mode - 640x350 in 2 or 16 shades
- 132 columns x 44 rows text for software which either supports this mode or by drivers which are provided by ATI Technologies Inc. on the disks supplied with the card.

### RGB COLOR (15.75KHz)

These monitors are designed to work with CGA cards. With the **EGAWONDER800+**, the same standards as with the TTL monochrome are displayed with the following differences:

- CGA and EGA are displayed in colors instead of shades;
- 132 columns x 25 rows text for software which either supports this mode or by drivers which are provided by ATI Technologies Inc. on the disks supplied with the card.

***NOTE:** In order to display the EGA or Hercules resolution on RGB monitors an interlacing technique is used. This will result in some "flickering" of the image on the screen on this particular monitor. Flicker can be reduced by the use of an anti-glare filter or by decreasing the contrast and brightness controls. Not recommended for prolonged use in these resolutions.*

### EGA (15.75 & 21.85 KHz)(Enhanced Graphics Monitors)

Enhanced Graphics monitors are designed to work with either CGA or EGA cards. Using the **EGAWONDER800+**, EGA monitors can display:

- Hercules text and graphics modes 720x348

- CGA graphics mode - 320x200 - 16/64 colors.
- EGA text and graphics modes - 640x350 - 16/64 colors.
- 132 columns x 44 rows text on software which either supports this mode or by drivers which are provided by ATI Technologies Inc. on the disks supplied with the card.

## MULTISYNC OR MULTIFREQUENCY MONITORS

Multisync monitors support the following resolutions using the **EGAWONDER800+**:

- Hercules text & graphics modes 720x348
- RGB graphics mode - 320x200 - 16/64 colors.
- EGA text & graphics modes - 640x350 - 16/64 colors.
- 132<sup>1</sup> columns to a maximum of 44 rows text on software which either supports this mode or by drivers which are included by ATI Technologies Inc., on the disks supplied with the **EGAWONDER800+**.
- IBM VGA modes 11 and 12, 640x480 in 2 or 16 colors from a palette of 64.

The **EGAWONDER800+** also supports a higher resolution ATI Technologies Inc. mode:

- 800x600 in 16 colors from a palette of 64.

The **EGAWONDER800+** features the Super-VGA resolution of 800x600 in 16 colors. Software drivers are included by ATI Technologies Inc. or by the software manufacturer to support this resolution.

<sup>1</sup> Not supported on NEC MultiSync GS.



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## QUICK START (FOR EXPERIENCED USERS ONLY)

This Chapter can be used as a guide to Quick Set-Up for the experienced user. It should not be used unless you have a full understanding of how to install a card. Refer to Chapter 5 for complete instructions.

Unplug computer and remove the cover.

1. Remove any video cards and install the **EGAWONDER800+** into any available slot except slot 8 in an IBM XT. Seat the **EGAWONDER800+** and secure with a mounting screw.
2. **Set Switches.**  
**For IBM PC and PC/XT** users, set switches 5 and 6 on switch block 1 to the "ON/CLOSED" position.

**For IBM AT and compatible** users, if applicable, set the video selection switch or jumper to the "COLOR" position.

3. Re-install cover of computer and connect power cord.
4. Connect monitor to video connector on the back of the **EGAWONDER800+**.
5. Turn on the computer. **IBM PC/AT or compatible** owners should run the "setup" program on the PC/AT Diagnostics Disk to define the video card to be EGA.

***NOTE:** Do not change monitors after you have powered up. Serious damage could result.*

6. Using the **EGAWONDER800+** Utility diskette, run **EDRIVER** to install the ATI Technologies Inc. software utilities and high resolution drivers onto your hard disk.

You are now ready to enjoy a new world of high performance, high resolution video.



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## INSTALLING THE EGAWONDER800+

The **EGAWONDER800+** is designed for use in any 8 or 16 bit expansion slot in an IBM PC/XT/AT or compatible or the IBM System/2 Model 30.

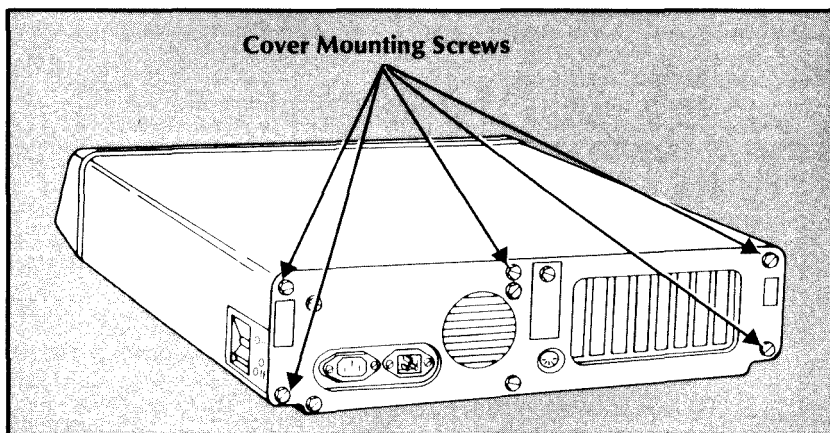
In order to install the **EGAWONDER800+**, it may be necessary to make some minor changes to the switch settings on the computer system. If you do not feel comfortable in making these changes you should consult a qualified Computer Technician. Installing the **EGAWONDER800+** is very simple and can be completed in 15 minutes or less.

Read the following instructions before you start.

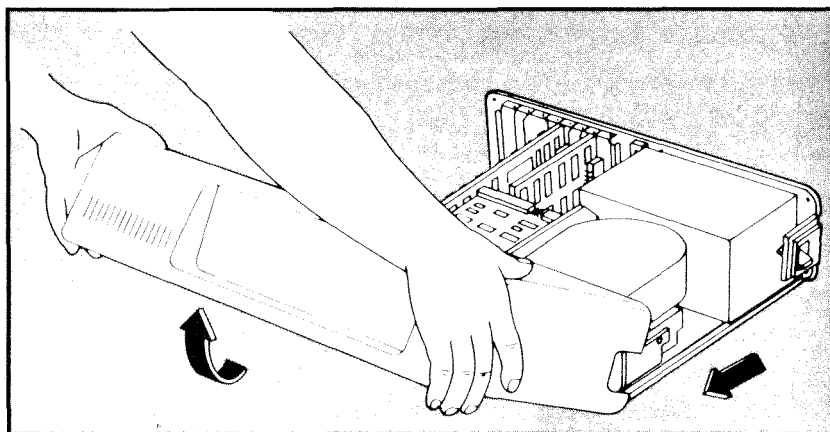
***NOTE:** Static electricity can seriously damage the components in your computer. You must ensure that you have discharged any static electricity by grounding yourself to the chassis of the PC before you begin.*

1. Ensure that the System is switched off and the power cord removed before installation. **Damage to the System and the EGAWONDER800+ may result if the power is left on.**

Remove the 5 cover mounting screws from the rear of the PC. On the IBM/AT you must unlock the keylock before you can remove the cover.



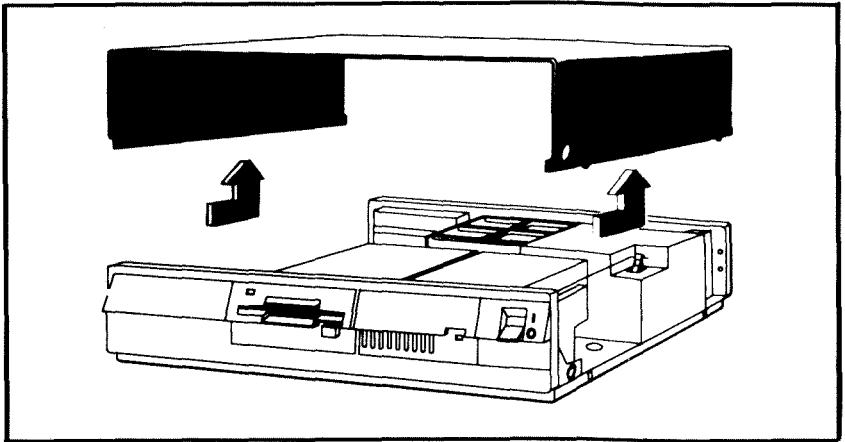
Some compatible PC's have a hinged top for convenience. If your system appears to be different, consult your System Users Manual for instructions on board installations.



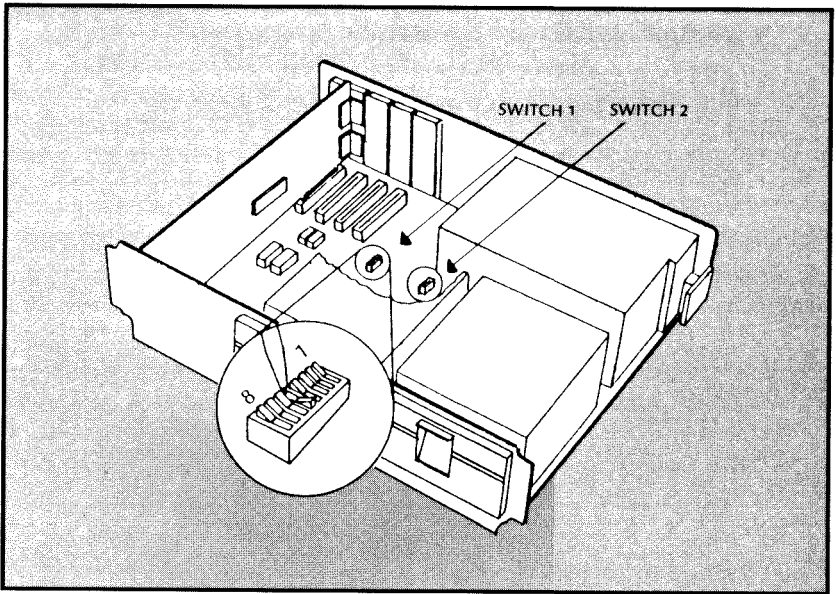
2. Carefully slide the cover forward, until it will go no further, then tilt the cover away from the system unit and withdraw it from the system.

### For IBM Personal System/2 Model 30

Remove the 4 cover mounting screws, 2 of them are located on each side of the system. Slide the cover backwards and remove by lifting straight up. Put the screws in a safe place, you will need them later for re-installation.



3. There are no switches or jumpers to set on the **EGAWONDER800+**, the card will automatically configure itself to your system upon installation. It is however necessary to configure your system for the card. The correct configuration of your system is the same as for that of an EGA card.



### 3 a) For IBM PC/XT

Switch Settings IBM PC/XT Switch Block 1							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8

OFF/OPEN  
ON/CLOSED

When installing the **EGAWONDER800+** in an IBM PC, PC/XT, set switches 5 & 6 to the on/closed position as outlined in the above table. **Do not change any other switches as these will affect the memory and configuration of your system.**

***NOTE:** Do not use a pencil to set the switches, as the graphite residue can damage your computer.*

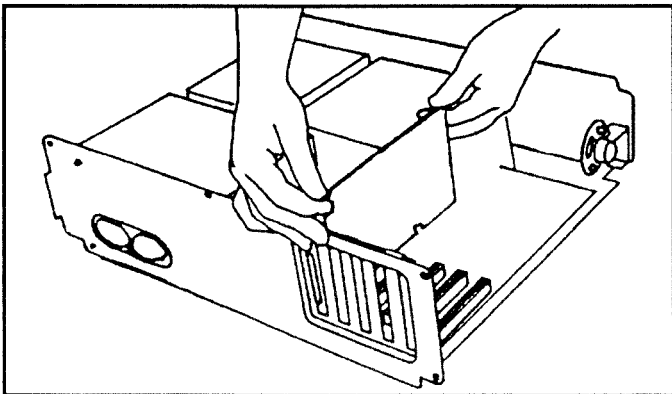
The PC/XT has only one switch block on its motherboard; which should be easy to find. Compatibles may have different switch locations or set-ups in order to isolate their video interface. Consult your Systems User Manual for these locations.

**3 b) For IBM PC/AT**

When installing the **EGAWONDER800+** in the IBM PC/AT it is necessary to set the video display switch (Color/Mono switch) on the AT motherboard to Color and run the **IBM Advanced Diagnostics Program** which will automatically configure the System for an EGA (Enhanced Graphics Adapter) Card, which is the selection for the **EGAWONDER800+**.

**3 c) For Dual Monitor Configurations, refer to Appendix B.**

- 4. Remove the slot cover at the rear of the system and grasping the card by the top edge, firmly locate it into the expansion slot as shown below. Insert the screw from the expansion slot cover in the hole at the top of the **EGAWONDER800+**'s retaining bracket and tighten it.**



5. Replace the System Unit's cover and fasten the screws.

***NOTE: ATI Technologies Inc. will not be responsible for damage caused to either the system or the card because of incorrect installation.***

6. If you have correctly installed the **EGAWONDER800+** your system is now ready to run, however you are advised to read Chapter 6 "**Software Installation**" before proceeding.
7. Using a properly shielded cable attach the monitor to the **EGAWONDER800+**.

***NOTE: The monitor must be connected to the EGAWONDER800+ before you switch on your system in order to be properly identified by the ATI Technologies Inc. Monitor detect program. The monitor is detected at the power up stage, and the EGAWONDER800+ is configured for this monitor. Do not change monitors without turning off the power as serious damage can result to the monitor.***

8. The System is now ready to run.

In order to test the full operational functionality of the **EGAWONDER800+**, a Utility program named **ETEST** is provided by ATI Technologies Inc. on the diskette supplied with the card.

Follow the menu driven instructions; and a series of screens will be displayed. If these screens are displayed correctly, the **EGAWONDER800+** has been properly installed and is in good working order.

For more information on **ETEST**, see Appendix A.

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## SOFTWARE INSTALLATION

The **EGAWONDER800+** is shipped with software utilities to change the hardware default settings and a variety of high resolution drivers enhancing the operation of graphics programs such as Windows, GEM, AutoCAD and Ventura on Multisync type monitors. Although the **EGAWONDER800+** will work without any further input, it is recommended that you go through the software installation process to get peak performance from your video board.

## 1. UTILITIES

The **EGAWONDER800+** Diskette #1 contains the following utilities:

- ATIVIDEO.SYS** - RAM version of video BIOS
- BIOSDATE.COM** - utility that checks date of BIOS
- CLR.COM** - clear screen utility for 132 column mode
- L43.COM** - 43 line mode utility
- README** - addendum and driver installation instruction - use a word processor or the DOS command, "Type README" to examine, or "Copy README > PRN" to send to printer.
- ECONFIG.COM** - mode switching software
- ETEST.COM** - diagnostic software for **EGAWONDER800+**.
- EDRIVER.EXE** - run this program to install ATI's software utility on your hard disk
- ESETUP.COM** - setup and configuration utility
- ATI-INFO.COM** - Utility program to display configuration information for diagnostic purposes. If you have occasion to call our Technical Support Department, please run this program and record the information on the Problem Report.
- GAMES** <DIR> - subdirectory with instructions to run some special game programs.
- VENTURA** <DIR> - subdirectory with Ventura drivers
- LOTUS** <DIR> - subdirectory with Lotus 1-2-3 & Symphony drivers
- PRTSRN.COM** - print screen utility for non-standards modes.

**EGAWONDER800+** Diskette #2 contains the following drivers:

- ACAD** <DIR> - subdirectory with AutoCAD drivers
- GEM** <DIR> - subdirectory with GEM version 2 & 3 drivers
- WINDOWS** <DIR> - subdirectory with Windows drivers
- VCAD** <DIR> - subdirectory with VERSACAD installation instructions



## 2. ESETUP

**ESETUP** is used to configure the onboard EEPROM. The setup information is retained even after the power is turned off. It is also used to change or store the default information used by the **EGAWONDER800+**. It is only necessary to use **ESETUP** in the following situations:

- 1) To change the default setup video mode, or;
- 2) To specify default monitor selection on power-up.

To start **ESETUP**, type at the DOS prompt:

**C> ESETUP <enter>**

The following menu will be displayed:

ATI TECHNOLOGIES INC ATI TECHNOLOGIES INC A TI TECHNOLOGIES INC ATI TECHNOLOGIES INC AT I TECHNOLOGIES INC ATI TECHNOLOGIES INC ATI © COPYRIGHT 1989  <b>EGAWONDER800+ ADVANCE SETUP</b> <b>ESETUP</b> <span style="float: right;">VERSION x.xx</span>	
POWER UP MODE SELECTION	
<b>[A] MONITOR SELECTION</b>	
[B]	EGA
[C]	CGA
[D]	MDA MONO GRAPHICS 720X348
[E]	MDA MONO GRAPHICS 640X400
[F]	ADJUST TTL MONOCHROME GRAYSCALE
[G]	EXIT AND SAVE CONFIGURATION
Monitor detected EGA Use < ↑↓ > or < letter > and < ret > to select option, < esc > to abort.	

Is a MultiSync Attached?
Yes
No

The following is a description of the **ESETUP** menu:

### [A] MONITOR SELECTION

The **EGAWONDER800+** monitor detection circuitry cannot differentiate between a MultiSync<sup>1</sup>, or EGA monitor. You must specify whether you have MultiSync monitor attached.

### [B] EGA

Selection of this item will start the **EGAWONDER800+** in EGA mode.

You will be given the option of choosing either the COLOR or MONO option; if you have a color monitor, and you choose the MONO option, another menu will appear, asking for the choice of foreground color (either white, amber or green).

### Dual Monitor

If you select the DUAL option, you must determine which video card you wish to be the primary card at the time the computer powers up.

#### Primary Card - EGAWONDER800+

If you elect to have the **EGAWONDER800+** be the primary video card you can choose from the first three options:

With an MDA, or Hercules card as the secondary adapter, you have the option of the **EGAWONDER800+** powering up as:

- a) Choose EGA (C80)/MDA for CGA text.
- b) Choose EGA (CE80)/MDA for EGA text.

With a CGA card as the secondary adapter, choose EGA (M80)/CGA (**EGAWONDER800+** powers up as a Hercules or MDA card); you will also have to specify your selection of a foreground color if you are using a color monitor on the **EGAWONDER800+**.

<sup>1</sup> NEC MultiSync GS should be specified as an EGA monitor.

### ***Secondary Card - EGAWONDER800+***

If you elect to have the **EGAWONDER800+** be the secondary video card, you can choose from the last three options:

With an MDA or Hercules card as the primary adapter, you have the option of the **EGAWONDER800+** as:

- a) Choose MDA/EGA (C80) for CGA text.
- b) Choose MDA/EGA (CE80) for EGA text.

With a CGA card as the primary adapter, choose CGA/EGA (M80); you will also have to specify your selection of a foreground color if you are using a color monitor on the **EGAWONDER800+**.

#### **[C] CGA**

Selection of this item will start the **EGAWONDER800+** in CGA mode. Because this mode has the lowest resolution available on the **EGAWONDER800+**, ATI Technologies Inc. recommends using this mode as a default only if the majority of your software is CGA self-booting software.

#### **[D] MDA MONO GRAPHICS 720x348**

Selection of this item will start the **EGAWONDER800+** in Hercules mode. ATI Technologies Inc. recommends using this mode as a default only if the majority of your software is monochrome. If you are using a color monitor, when you select this option, you will be required to choose a color (either white, amber or green). Almost all Hercules Graphics programs use this resolution.

#### **[E] MDA MONO GRAPHICS 640x400**

This selection will also start the **EGAWONDER800+** in a special Hercules mode. However, only a small number of programs such as PrintMaster or some Oriental word processing programs use this resolution. Do not use this mode unless option [D] fails to run your Hercules compatible program.

### **[F] ADJUST TTL MONOCHROME GRAYSCALE**

This selection allows the user to manually adjust the grayscale levels that result from CGA and EGA color conversion.

### **[G] EXIT AND SAVE CONFIGURATION**

This option records the last configuration sequence into the EEPROM. If you do not use this option to leave **ESETUP**, the configuration information is not saved.

***NOTE: ESETUP** will recognize **only one change at a time**. It is necessary to "Exit and Save Configuration" after each change. Once all changes have been made, power the system off and on again to allow the new setup to take effect.*

## **3. ECONFIG**

**ECONFIG** is a menu driven, user friendly utility that is used to:

- 1) Change the current video mode to a different mode;
- 2) Automatically turn your screen display off during long periods of inactivity;

**ECONFIG** is automatically copied onto your hard disk drive or your boot disk during the installation process.

To start **ECONFIG**, type at the DOS prompt:

C> **ECONFIG** <enter>

The following menu will be displayed:

ATI TECHNOLOGIES INC ATI TECHNOLOGIES INC ATI TI TECHNOLOGIES INC ATI TECHNOLOGIES INC AT I TECHNOLOGIES INC ATI TECHNOLOGIES INC ATI © COPYRIGHT 1989 <b>EGAWONDER800+ CONFIGURATION PROGRAM</b> ECONFIG VERSION x.xx	
SELECTION	KEYWORDS
<b>[A] EGA</b>	<b>EGA</b>
[B] CGA	CGA
[C] MDA MONO TEXT	MDA
[D] MDA MONO GRAPHICS 720x348	H720
[E] MDA MONO GRAPHICS 640X400	H640
[F] 132x25	25
[G] 132x44	44
[H] SCREEN SAVE	SAVE
[I] EXIT	
Current configuration EGA in ce80	Monitor detected EGA
Use <↑↓> or < letter > and < ret > to select option, < esc > to abort.	

MODE SELECTION
COLOR
MONO

Each of the options in **ECONFIG** can be selected by typing in the letter to the left of the selection and then depressing the <enter> key. As you get familiar with the operation of **ECONFIG**, you can bypass the menu completely by typing:

C> **ECONFIG** [KEYWORD] <enter>

The keywords are indicated on the right hand side of the screen: EGA, CGA, MDA, H720, H640, 25, 44, or SAVE.

A description of each of the options under **ECONFIG** follows:

#### [A] EGA

This option selects the EGA mode and is functional on all monitors. Software configured for EGA mode will run under this mode.

**[B] CGA**

This option selects the CGA mode. ATI Technologies Inc. enhances this mode by improving the text to 8x14 and graphics are 75% double scanned on all monitors except for RGB.

**[C] MDA MONO TEXT**

Selection of this option will put the **EGAWONDER800+** into Hercules Text mode. If you are using a color monitor, you will have a choice of text colors from white, amber or green. All Hercules text programs use this resolution.

**[D] MDA MONO GRAPHICS 720x348**

Selection of this option will put the **EGAWONDER800+** into Hercules Graphics mode. If you are using a color monitor, you will have a choice of text colors from white, amber or green. All Hercules graphics programs use this resolution.

**[E] MDA MONO GRAPHICS 640x400**

This option will put **EGAWONDER800+** into special Hercules Graphics mode. Only a small number of programs use this resolution. Use this mode only, if you have a problem with option [D].

**[F] 132x25**

The option 132 column x 25 row text mode works on all monitors except for NEC MultiSync GS.

**[G] 132x44**

The 132 column x 44 row text mode will work on all monitors except for RGB and NEC MultiSync GS.

***NOTE:** 132 Column modes can only be used by software which is written to support 132 columns on the screen. Check your software users manual or call your dealer to confirm that the application will run in this mode.*

## [H] SCREEN SAVE

The Screen Save option will activate a utility which will turn off the screen display after a predetermined time interval in order to prevent accidental phosphor etching on your monitor. At your option, Screen Save is automatically installed during the utility installation process.

***NOTE:** Screen Save is not compatible with graphics programs that run under the GEM or Windows environments. Type “**ECONFIG SAVE OFF**” before you start these programs, and type “**ECONFIG SAVE ON**” after you leave these programs. You can also incorporate these commands into a batch file to have the command automatically executed.*

## [I] EXIT

Selection of this option will execute the last mode chosen that is supported by the monitor you are using. If you do not use EXIT to leave the menu, all options you choose will be ignored.

***NOTE:** ECONFIG utility selections are for current session and do not affect EEPROM status. Selections are lost when system powers down.*

## 4. EDRIVER

**EDRIVER** is used to install special video drivers.

To start the installation process for the **EGAWONDER800+** Utilities, insert the **EGAWONDER800+** Utility diskette into drive A and type:

A> **EDRIVER** <enter>

On the following page is a description of the **EDRIVER** menu:

\*\*\*EGAWONDER800+ Software Installation Menu (ver x.xx)\*\*\*

**A. Video Utilities**

- B. AutoCAD ver 2.52/ ver 2.62/ rel 9/rel 10
- C. AutoSketch ver 1.04
- D. GEM ver 2.1/ ver 2.2/ ver 3.0
- E. Lotus 1-2-3 ver 2.0
- F. Symphony ver 1.1
- G. Ventura ver 1.0/ ver 1.1/ver 2.0
- H. Windows ver 1.03/ ver 1.04/ ver 2.03/286 ver 2.1

Use <↑↓> or < space> or < letter> to select option, < esc >  
to abort.

For further detailed information on the submenus contained within the **EDRIVER** menu, consult the README file.



---

# **APPENDIX A**

---

## **DIAGNOSTICS AND TROUBLESHOOTING**

The ETEST diagnostics program should be used when the **EGAWONDER800+** produces a display, but does not work properly. For example:

- does not display graphics,
- has missing characters,
- has no color,
- does not display in all modes.

Follow the menu driven instructions and a series of screens will be displayed. If these screens are displayed properly, the functions of the **EGAWONDER800+** are in good working order.

The **ETEST** program will prompt you to select the appropriate test functions. The main menu will appear as follows:

EGA Video Test                    Version x.xx  
ATI Technologies Inc. Copyright 1989

1.        Test Monochrome Mode
2.        Test Color Mode
- Ø.        Exit

Enter Option: \_\_\_\_\_

If problems are still encountered after the **EGAWONDER800+** passes **ETEST**, they are most likely installation, compatibility or operation related.

Compatibility related problems can be isolated by trying the **EGAWONDER800+** on another monitor and/or another computer as appropriate.

---

## ***INSTALLATION RELATED PROBLEMS***

### **NO DISPLAY PROBLEMS**

- **Problem:**

No display, No fan noise.

**Diagnosis:**

No power to computer.

**Action:**

Check that computer is plugged in and turned on. If the power indicator light does not come on when power is switched on, the power supply may be defective.

- **Problem:**

No display, fan noise, computer beeps (1 long and 2 short tones)

**Diagnosis:**

Video card not recognized.

**Action:**

Check switch settings: switches 5 & 6 on switch block 1 on your motherboard should be "ON".  
Check that the **EGAWONDER800+** is properly seated in the slot.  
Check ROM BIOS date (IBM PC only). Get new BIOS if earlier than 10/16/82.

- **Problem:**

No display, computer beeps once, floppy drive light flashes on and goes off.

**Diagnosis:**

Computer works, signal not reaching monitor, possible defective monitor.

**Action:**

Check monitor; is it switched on and monitor cable connected properly.  
Turn up monitor brightness and contrast controls.  
Turn monitor off and on, then reboot system.  
Try monitor on another system.

- **Problem:**  
No display, dual monitor configuration.  
**Diagnosis:**  
Incorrect installation  
**Action:**  
Check installation, run **ESETUP**.  
If problem not solved, remove other video card and install **EGAWONDER800+** as single monitor setup to confirm operation before attempting dual monitor configuration.

## ERROR MESSAGES

- **Problem:**  
Error message - 'Invalid configuration press F1 to continue.' (IBM PC/AT only).  
**Diagnosis:**  
Incorrect configuration file, or dead AT battery.  
**Action:**  
Run AT diagnostics software, installing for EGA or No Display; reboot; problem should disappear; power down, if problem appears on power up again, battery is dead.
- **Problem:**  
Error message - Failed **ETEST**  
**Diagnosis:**  
Certain modes may not operate on certain monitors.  
**Action:**  
Check section on monitor selection. If the mode is supposed to run, and colors or patterns are missing, card may be defective.

## OPERATIONAL PROBLEMS

- **Problem:**  
Screen goes blank in Windows, GEM or games
  - Diagnosis:**  
Program incompatible with SCREEN SAVE.
  - Action:**  
Disable SCREEN SAVE, by typing, 'ECONFIG SAVE OFF' at DOS prompt before using program.
  
- **Problem:**  
Software does not work or garbage appears on screen and system hangs.
  - Diagnosis:**  
Software mode incorrect or not supported by monitor.
  - Action:**  
Use ECONFIG to change mode to match what software is installed for. Check that mode is supported by your monitor.
  - Diagnosis:**  
Possible device driver or memory resident program conflict.
  - Action:**  
Disable programs by unloading them from memory or by renaming the AUTOEXEC.BAT file to \*.BAK and CONFIG.SYS to \*.BAK and reboot. If the problem disappears, there is a conflict with one of your programs.
  - Diagnosis:**  
Monitor may not switch modes without resetting.
  - Action:**  
Reset monitor by turning it off and on.
  
- **Problem:**  
Memory resident programs (ie. SideKick) work when initially loaded, but not later when needed.

**Diagnosis:**

Current video mode different from installation of TSR program.

**Action:**

Use **ECONFIG** to switch mode to whatever the TSR program (ie. SideKick) is installed for.

- **Problem:**

Programs vary in screen size.

**Diagnosis:**

Programs may be using different video modes.

**Action:**

Adjust the horizontal and vertical height controls on your monitor.

- **Problem:**

Screen flickers on RGB monitor.

**Diagnosis:**

Interlacing of image.

**Action:**

Use a screen filter or install software for lower resolution.

If none of the above have helped to solve the problem, **Contact the Dealer** who sold you the computer or **EGAWONDER800+**. If they are unable to solve the problem, fill out the Problem Report Form, located on the following pages, and call our Technical Support Department.

- **The ATI Technical Support Department hours:**  
9:00 am - 5:30 pm E.S.T.  
(416)756-0711.

## Problem Report Form

Before calling ATI Technical Support please fill out this form and have it available when talking to one of our representatives. This form must be filled out before placing the call to ATI Technologies Inc. If you write, please complete both pages of this report and mail to the address given on the back of this manual or fax to (416)-756-0720. **ATI TECHNOLOGIES INC. WILL BE UNABLE TO PROCESS YOUR CALL WITHOUT THIS INFORMATION.**

### EGAWONDER800+ Problem Report

Serial Number: \_\_\_\_\_

EGA BIOS Version\*: \_\_\_\_\_ DOS Version: \_\_\_\_\_

ECONFIG version: \_\_\_\_\_ ESETUP version: \_\_\_\_\_

Type & Model of Computer: \_\_\_\_\_

Type & Model of Monitor: \_\_\_\_\_

Other Add-on Boards Installed and Version: \_\_\_\_\_  
\_\_\_\_\_

Memory Board: \_\_\_\_\_

Mouse (Make): \_\_\_\_\_ Driver Version: \_\_\_\_\_

Network (Make/Model): \_\_\_\_\_

Software & Version: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Memory-Resident Programs/Device Drivers Loaded  
(Versions): \_\_\_\_\_  
\_\_\_\_\_

\* BIOS Version is displayed on the screen upon power up or by running BIOS-DATE on Disk #1.

# EGAWONDER800+ Problem Report (con't)

Contents of Autoexec.bat

Contents of Config.sys

---

---

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## Problem Description

Problem:

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Steps to Re-Create the Problem:

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- **The ATI Technical Support Department hours:  
9:00 am - 5:30 pm E.S.T.  
(416)756-0711.**



---

# **APPENDIX B**

---

## **DUAL MONITOR INSTALLATION**

The **EGAWONDER800+** will co-exist with 3 types of video adapters: either MDA, Hercules Graphics or CGA card. Other video adapters will not work with the **EGAWONDER800+**.

You must select which card will be the primary or start-up video adapter. ATI Technologies Inc. recommends that you use the **EGAWONDER800+** as the primary adapter because of its superior performance and flexibility.

1. Make the following switch selections:
  - a) **For IBM PC and PC/XT** set switches 5 and on switch block 1, both to the ON position.
  - b) **For IBM PC/AT** if equipped with display switch, consult owner's manual for more information, set display switch to the COLOR position.
  - c) **IBM PC/AT** owner's must run the IBM Diagnostics "SETUP" provided with the computer. (Consult your owner's manual for more details). Select the NO DISPLAY or EGA option.
2. Now run **ESETUP** as described in Chapter 6.
3. To change between the primary and secondary adapters, use the **MODE** command found on your DOS diskette. At the DOS prompt, type:

**A> MODE [KEYWORD] <enter>**

where the keyword is CO80 or MONO.

***NOTE:** In dual monitor configurations, you can use **ECONFIG** to change the current mode. However, the **EGAWONDER800+** cannot emulate*

*MDA or Hercules if an MDA or Hercules card is installed in the system. Similarly, the **EGAWONDER800+** cannot emulate a CGA or EGA if a CGA card is installed in the system. ATI Technologies Inc. does not recommend the use of a color card with the **EGAWONDER800+** since many of the color modes on the **EGAWONDER800+** would be disabled.*



---

# **APPENDIX C**

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## ***PROGRAMMING INFORMATION FOR ADVANCED USERS***

The ATI **EGAWONDER800+** is a high-speed, high-resolution video card for the IBM PC, XT and AT series personal computer market. It offers the utmost in compatibility that is 100% register and BIOS compatible with EGA, CGA, MDA and Hercules. It supports every mode of these video standards on compatible monitors. In many cases, the **EGAWONDER800+** will support video modes not normally supported on some monitors. For instance, EGA hi-res and Hercules modes on an RGB monitor or EGA and CGA on a monochrome TTL monitor. In addition, the **EGAWONDER800+** will support a number of ATI Technologies Inc.'s exclusive video modes. This document details information that software developers will require to program the card in these ATI Technologies Inc. modes. Developers who require programming information about standard IBM or Hercules video modes should refer to the Reference, located on page 53.

The **EGAWONDER800+** incorporates a number of video display modes on one board, care should be taken when programming to avoid video memory conflict and/or programming to the wrong display mode. Damage to the monitor may result if wrong mode parameters are programmed. Read through this section and the example program before attempting to program for the **EGAWONDER800+**.

AH = 0 ;set video mode

AL =	MODE/ TYPE	RESOLUTION	DIM/ COLOR	START ADDRESS
0h	color/alpha	640x200	40x25/ BW	b800:0h
1h	color/alpha	640x200	40x25/ 16	b800:0h
2h	color/alpha	640x200	80x25/ BW	b800:0h
3h	color/alpha	640x200	80x25/ 16	b800:0h
0*	color/alpha	640x350	40x25/ BW	b800:0h
1*	color/alpha	640x350	40x25/ 16	b800:0h
2*	color/alpha	640x350	80x25/ BW	b800:0h
3*	color/alpha	640x350	80x25/ 16	b800:0h
4h	color/graphics	320x200	40x25/ 4	b800:0h
5h	color/graphics	320x200	40x25/ BW	b800:0h
6h	color/graphics	320x200	80x25/ BW	b800:0h
7h	mono/alpha	720x350	80x25/ BW	b000:0h
0dh	color/graphics	320x200	40x25/ 16	a000:0h
0eh	color/graphics	640x200	80x25/ 16	a000:0h
0fh	mono/graphics	640x350	80x25/ BW	a000:0h
10h	color/graphics	640x350	80x25/ 16	a000:0h

#### ATI Enhanced Modes

11h	color/graphics	640x480	80x30/ BW	a000:0h
12h	color/graphics	640x480	80x30/ 16	a000:0h
23h	color/alpha	1056x350	132x25/ 16	b800:0h
27h	mono/alpha	1056x350	132x25/ BW	b000:0h
33h	color/alpha	1056x352	132x44/ 16	b800:0h
37h	mono/alpha	1056x352	132x44/ BW	b000:0h
53h	color/graphics	800x560	16	a000:0h
54h	color/graphics	800x600	16	a000:0h
6ah	color/graphics	800x600	16	a000:0h

The video modes described in this document are listed below by the BIOS video mode number. We highly recommend that programmers select the video mode through BIOS whenever possible. All ATI enhanced graphics modes on the **EGAWONDER800+** are only available on multisync monitors. 132 column modes available on TTL, RGB, EGA and multisync<sup>1</sup> monitors.

<sup>1</sup> 132 column modes not available on NEC MultiSync GS.

## **PROGRAMMING STANDARD EGA MODES WITHOUT BIOS**

ATI Technologies Inc. strongly recommends setting the video mode through BIOS whenever possible. When this is not possible, such as when writing drivers for non-DOS operating systems, direct manipulation of the CRT controller parameters is necessary. ATI Technologies Inc. has provided a mechanism for accessing the parameter tables contained in the **EGAWONDER800+** BIOS. The following assembler code segment will return the start address of the parameter table for the desired mode at ES:[BP].

```
mov     al,args
mov     ah,12h
mov     bx,5506h
int     10h
```

where args = mode desired in hex

If this routine returns BP = 0ffffh, that mode is not supported in the current configuration.

The parameter table size and structure is identical to the IBM EGA. The function of each register is also identical to IBM. Since the **EGAWONDER800+** uses hardware emulation, the standard parameters are used regardless of the type of monitor installed. However, ATI Technologies Inc. cautions that use of non-standard parameters may not produce the results that you expect especially if the card is in emulation.

## **STATUS DETECTION**

The **EGAWONDER800+** allows software to autodetect the presence of the **EGAWONDER800+**, and the type of monitor for which it is configured.



**Identifying the EGAWONDER800+**

c000:31	=	'761295520'	- ATI product signature found in all ATI products equipped with a BIOS
c000:40	=	'32'	- Identifies product as <b>EGAWONDER800+</b> or compatible
c000:4c	=	xxh	- major BIOS revision number
c000:4d	=	yyh	- minor BIOS revision number

**Monitor Configuration**

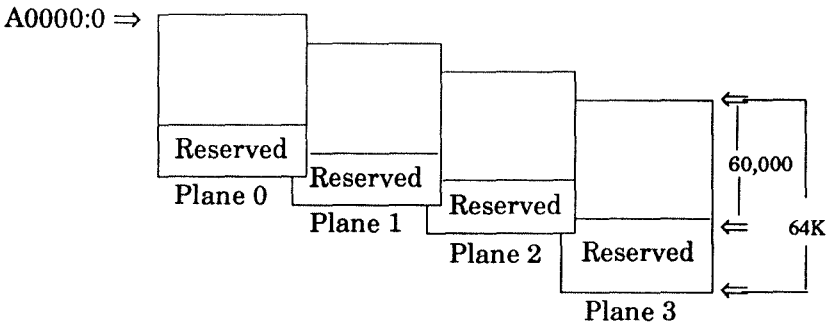
The following assembler code segment can be used to determine for which monitor the **EGAWONDER800+** is currently configured.

cli	
mov	dx,ATI_REG
mov	al,DATA_I
out	dx,al
inc	dx
in	al,dx
sti	
and	al,0fh
returns	al = 0      EGA monitor
	2      TTL monochrome monitor
	4      RGB color monitor
	8      MultiSync (Digital)

## 800x600 - 16 COLORS (Mode 54h)

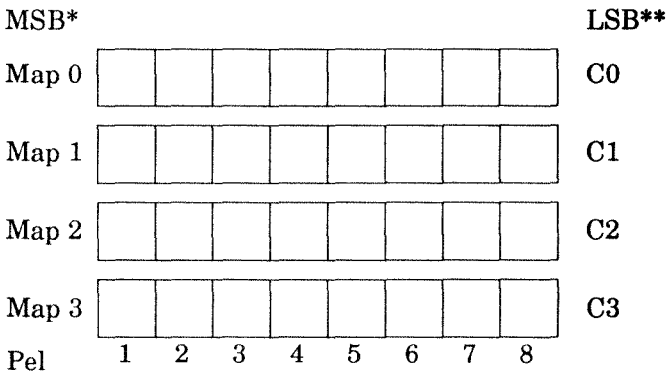
### Video Memory Organization

The memory organization is identical to 16 color EGA modes and consists of 256K organized into 4 maps of 64K. One bit from each of the 4 maps is used to compose each pel. The IBM EGA Map Mask register is used to select any or all the maps to be updated.



### Video Data Format

The video data format is identical to 16 color EGA modes. Each pel is represented by a 4 bit word. One bit from each of the 4 maps are used to compose a pixel. Thus, each byte of address space contains 8 pels.



\* Most Significant Bit

\*\* Least Significant Bit

---

# Specifications

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## **SPECIFICATIONS**

### **Video Display Buffer**

256K bytes

### **Sync Signals**

Separate horizontal and vertical sync in TTL levels

#### Horizontal

35kHz - MultiSync monitors (800x600)

31.5kHz - MultiSync monitors (640x480)

21.8kHz - EGA monitors

15.75kHz - RGB monitors

18.432kHz - TTL Monochrome monitors

#### Vertical

56 Hz - MultiSync monitors (800x600)

60 Hz - MultiSync monitors (640x480)

60 Hz - EGA monitors

60 Hz - RGB monitors

50 Hz - TTL Monochrome monitors

### **Connector**

9-pin D shell (Female) IBM standard

### **Monitor Compatibility**

IBM Model 5151 Monochrome Display

IBM Model 5153 Color Display

IBM 5154 Enhanced Color Display

MultiSync monitor

### **Size**

5.25" x 4.2"

### **Power**

+5V +/- 5%, @ 0.6 AMP typical

**Environment**

Ambient Temperature 50° to 122° F (10° to 50° degrees C) operation  
32° to 162° F (0° to 70° degrees C ) storage

Relative Humidity 5% to 90% non-condensing operation  
0% to 95% storage

**Bus**

IBM PC or AT standard

**Bus Loading**

No more than 2 LS TTL load

**System Requirements**

IBM PC/XT/AT, PS/2 Model 30 or compatible system.

**CONNECTOR SPECIFICATIONS****DB9 Connector**

Pin No.	Signal
1	Ground
2	Secondary Red/Ground
3	Primary Red
4	Primary Green
5	Primary Blue
6	Secondary Green/Intensity
7	Secondary Blue/Mono Video
8	Horizontal Retrace
9	Vertical Retrace

# FCC Compliance Statement

This equipment generates and uses radio frequency energy and, if not properly installed and used correctly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the computer with respect to the receiver.
- Move the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio/TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

Certified to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules. See instructions if interference to radio reception is suspected
--

The use of shielded cables for connection of the monitor to the **EGAWONDER800+** is required to assure compliance with FCC regulations.

# Reference

---

**Title:** EGA/VGA A Programmer's Reference Guide  
**Author:** Bradley Dyck Kliwer  
**Publisher:** McGraw Hill  
**Date:** 1988

**Title:** Programmer Guide to IBM PC and PS/2 Video Systems  
**Author:** Richard Wilton  
**Publisher:** Microsoft Press  
**Date:** 1987

**Title:** Programmer's Guide to the EGA and VGA Cards  
**Author:** Richard F. Ferraro  
**Publisher:** Addison-Wesley  
**Date:** July, 1988

# **Warranty**

---

ATI Technologies Inc. warrants to the original purchaser that this product is in good working condition for a period of two years from date of purchase. Should this product, in ATI Technologies Inc.'s opinion, malfunction within the warranty period, ATI Technologies Inc. will repair or replace this product without charge. Any replaced parts become the property of ATI Technologies Inc. This warranty does not apply to those products which have been damaged due to accident, abuse, improper installation, natural or personal disaster or unauthorized alterations, repairs or modifications.

## ***LIMITATIONS***

ALL WARRANTIES FOR THIS PRODUCT, EXPRESSED OR IMPLIED, ARE LIMITED TO TWO YEARS FROM THE DATE OF PURCHASE AND NO WARRANTIES, EXPRESSED OR IMPLIED, WILL APPLY AFTER THAT PERIOD.

THE DISTRIBUTOR, ITS DEALERS AND CUSTOMERS AGREE THAT ATI TECHNOLOGIES INC. SHALL NOT BE LIABLE FOR ANY LOSS OF USE, REVENUE OR PROFIT.

ATI TECHNOLOGIES INC. MAKES NO OTHER REPRESENTATIONS OR WARRANTY AS TO FITNESS FOR PURPOSE OR MERCHANTABILITY OF OTHERWISE IN RESPECT TO ANY OF THE PRODUCTS SOLD TO THE DISTRIBUTOR PURSUANT TO THIS AGREEMENT.

THE LIABILITY OF ATI TECHNOLOGIES INC. IN RESPECT OF ANY DEFECTIVE PRODUCTS WILL BE LIMITED TO THE REPAIR OR REPLACEMENT OF SUCH PRODUCTS.

IN NO EVENT SHALL ATI TECHNOLOGIES INC. BE RESPONSIBLE OR LIABLE FOR ANY DAMAGES ARISING FROM THE USE OF SUCH DEFECTIVE



PRODUCTS WHETHER SUCH DAMAGES BE DIRECT, INDIRECT, CONSEQUENTIAL OR OTHERWISE AND WHETHER SUCH DAMAGES ARE INCURRED BY THE DISTRIBUTOR OR THIRD PARTY.

THIS LIMITED WARRANTY APPLIES TO HARDWARE PRODUCTS ONLY.

**WARRANTY SERVICE**

Units requiring repair under warranty may be sent directly to ATI Technologies Inc. To obtain service under this warranty, first contact:

**ATI TECHNOLOGIES INC.**  
CUSTOMER SERVICE DEPARTMENT  
(416) 756-0711

or by writing:

**ATI TECHNOLOGIES INC.**  
SERVICE CENTER  
3761 Victoria Park Avenue,  
Scarborough, Ontario,  
Canada M1W 3S2

and request a Return Material Authorization Number (RMA). This number must be clearly displayed on the unit's external packaging. Units shipped without an RMA number will not be accepted. Include with the unit, proof of purchase (including date of purchase), a note outlining the problem, and the RMA number.

**IMPORTANT:** *When shipping your unit, pack securely and ship prepaid and insured. ATI Technologies Inc. will not be held liable for damage or loss to the product in shipment.*

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## NOTES

## EGAWONDER800+ WARRANTY REGISTRATION CARD

Warranty registration must be mailed within 30 days of purchase of the product. Proof of purchase including date and place of purchase must accompany product returned for service. Factory Warranty is provided for two years from date of purchase.

NAME: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_  
TITLE: \_\_\_\_\_ PURCHASE DATE: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ PURCHASE PRICE: \_\_\_\_\_  
\_\_\_\_\_  
PURCHASED FROM: \_\_\_\_\_  
\_\_\_\_\_

WELCOME TO THE ATI USER'S CLUB! Your answers to the following questionnaire will assist us to provide you with an appropriate after-sales support (such as newsletters, new product releases, and software updates, etc...)

- 1) I've decided to buy this product because of:
- |  |   |
|--|---|
| <input type="checkbox"/> Price           | <input type="checkbox"/> Advertisement    |
| <input type="checkbox"/> Policy          | <input type="checkbox"/> Product Features |
| <input type="checkbox"/> Dealer's Advice | <input type="checkbox"/> Other            |
- 2) My Age Is:  Under 25 years  
 26 - 35 years  
 36 - 45 years  
 46 - 55 years  
 over 55 years
- 3) I heard about this product from:
- |  |                                     |
|--|-------------------------------------|
| <input type="checkbox"/> Dealer          | <input type="checkbox"/> Referral   |
| <input type="checkbox"/> Magazine Ad in  | <input type="checkbox"/> Trade Show |
| <input type="checkbox"/> Newspaper Ad in | <input type="checkbox"/> Others     |
- 4) My principal use of the micro is for:
- |   |   |
|---|---|
| <input type="checkbox"/> Personal       | <input type="checkbox"/> Professional           |
| <input type="checkbox"/> Large Business | <input type="checkbox"/> Scientific/Educational |
| <input type="checkbox"/> Small Business | <input type="checkbox"/> Other _____            |
- 5) My title is:
- |   |  |
|---|--|
| <input type="checkbox"/> Owner/President    | <input type="checkbox"/> Consultant      |
| <input type="checkbox"/> VP                 | <input type="checkbox"/> Systems Analyst |
| <input type="checkbox"/> Manager/Supervisor | <input type="checkbox"/> Engineer        |
| <input type="checkbox"/> Programmer         | <input type="checkbox"/> Educator        |
- 6) My education is:
- |  |                                  |
|--|----------------------------------|
| <input type="checkbox"/> High School       | <input type="checkbox"/> Masters |
| <input type="checkbox"/> Technical College | <input type="checkbox"/> PHD     |
| <input type="checkbox"/> Bachelors         |                                  |

AFFIX  
STAMP  
HERE

## **ATI Technologies Inc.**

2-3761 Victoria Park Avenue  
Scarborough, Ontario, Canada  
M1W 3S2