



Diamond Digital

DIAMOND DIGITAL

DVI97/DVI97SB

Colour TFT LCD Monitor

19" (48 cm) LCD Panel Size

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Reference Information

For future reference, write the following information about your monitor in the space below. The serial number is found on the back of the product or on the bottom of its stand.

Monitor Information

Product Name: Diamond Digital DV197/DV197SB

Serial Number: _____

Date of Purchase: _____

Dealer Information

Dealer: _____

Telephone
Number: _____

Address: _____



Important Safety Instructions

Please read the following safety instructions before installing or cleaning your Diamond Digital monitor:

1. Unplug the monitor's power cable from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a soft cloth to clean the monitor housing.
2. Slots and openings on the back or top of the cabinet are provided for ventilation. They must not be blocked or covered. This product should never be placed near or over a radiator or other heat source, or used in a built-in installation unless proper ventilation is provided.
3. Never push objects of any kind, or spill liquid of any kind into this product.
4. Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages or other hazards.
5. If any abnormal operation or accident (such as dropping the unit) occurs, disconnect the monitor from the wall power outlet and contact qualified service personnel.

Features

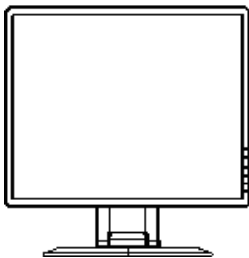
Your Diamond Digital DV197/DV197SB Monitor features:

- ◆ **XGA (1280 x 1024 pixel) Resolution LCD Panel**
- ◆ **High Brightness – 270 cd/m² (typical)**
- ◆ **High Contrast Ratio – 550:1 (typical)**
- ◆ **Response Time – 8 ms (Tr + Tf)**
- ◆ **True Colour Display**
With 16.2M colours, the Diamond Digital DV197/DV197SB monitor offers better image quality.
- ◆ **High Quality Ratiometric Expansion**
With any resolution within the monitor's specified range, your Diamond Digital DV197/DV197SB monitor can expand the image to full screen.
- ◆ **Plug and Play Compatibility with Microsoft® Windows® 95, 98, 2000, Me and XP**
- ◆ **Space Saving - only 246 mm deep**
- ◆ **Light Weight - only 6.0 kg**
- ◆ **Lower Power Consumption**
55W maximum during operation.
- ◆ **Power Saving**
Power management complies with VESA DPMS standard. When the system is idle (in monitor off mode), the monitor automatically cuts its power consumption to less than 2W.
- ◆ **On Screen Display**
Allows you to adjust all settings simply using on-screen menus.

3 Unpacking the Monitor

Please check that the following items are included with your monitor. If they are missing or damaged, please contact your place of purchase immediately.

LCD monitor



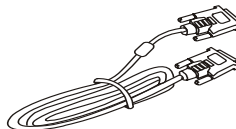
User's Manual



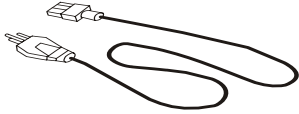
VGA Cable



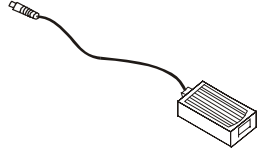
DVI Cable



Power Cord



AC Adapter



Locate the model name and the serial number label on the back of your monitor, and write the details of the monitor and your place of purchase in the space on page (ii) of this manual for future reference.

4 Hardware Installation

Viewing Angle Adjustment

The LCD Monitor is designed to allow users to have a comfortable viewing angle. The viewing angle can be adjusted from -5° to $+25^{\circ}$ (See fig. 1-1)

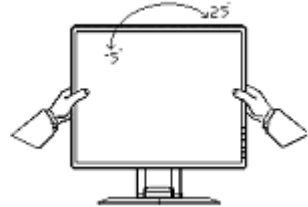


Figure 1-1

Warning

Do not force the LCD Monitor over its maximum viewing angle settings as stated above.

VESA Mounting Instructions

The rear of this LCD display has four integrated 4 mm, 0.7 pitch threaded nuts, as illustrated in Figure 1-2. (These specifications meet the VESA Flat Panel Monitor Physical Mounting Interface Standard).

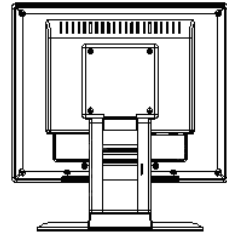
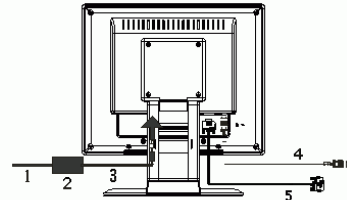


Figure 1-2

Connecting the Display

1. Power off your computer.
2. Connect one end of the signal cable to the LCD Monitor's VGA or DVI port (See Fig 1-3)
3. Connect the other end of the signal cable to the VGA or DVI port on your PC.
4. Ensure all connections are fastened securely.



1.	AC Power Cord	4.	Signal Cable
2.	External Adapter	5.	DVI Cable
3.	DC-Jack Power Cable		

Figure 1-3

Connecting the AC Power

1. Connect the AC Adapter to the LCD Monitor (See Fig. 1-3)
2. Connect the power cord to an AC power source.

5 Windows driver Installation

The DV197/DV197SB is fully Windows Plug and Play compatible so no specific Windows drivers are required to be loaded.

Windows 98, ME, and 2000

The first time you start Windows after connecting your new monitor, the system will detect the monitor and automatically start the **Add New Hardware** wizard. Just follow the prompts to load the native Plug and Play drivers.

Windows XP

The first time you start Windows after connecting your new monitor Windows XP will automatically load the native Plug and Play drivers.

Setting the Display Resolution

Choosing The Best Resolution

All Liquid Crystal Displays (LCDs) have a fixed resolution that is the same as the maximum resolution that may be displayed on the LCD. In the case of the DV197/DV197SB the LCD resolution is 1280 x 1024 pixels. This is also known as the “native” resolution of the monitor. Lower resolutions can be displayed at full screen through an interpolation circuit. Because the lower resolution must be expanded, the quality of the displayed image is not as good as that available when the native resolution is displayed. For optimal performance from any LCD monitor, you must use the monitor’s native resolution.

If you are using Windows 95, 98, 2000, Me, XP or NT 4.0, you can change the resolution as follows:

1. Double-click the **Display** icon in the control panel.
2. From the **Display Properties** dialogue box, select the **Settings** tab.
There is a slider on the right-hand side in the middle of the dialogue box that alters the displayed resolution. Set the resolution to 1280 x 1024.
3. *For Windows NT users only:* select a refresh rate of 60Hz and click **Test**.
A test pattern will be displayed. Make sure that there are no error messages shown by the monitor. If an error message is displayed, check the resolution and refresh rate settings or choose a different refresh rate.
4. Click **OK** to close **Display Properties**.

If you are using an Apple Macintosh, change the resolution by doing the following:

MacOS 8.x/9.x

1. Click the Apple icon at the top, left corner of the screen, select **Control Panel** and then select **Monitors**.
2. Select a resolution of 1280 x 1024 pixels with between 60Hz and 75Hz refresh rate.
3. If refresh rates of 60Hz or 75Hz are not available, click **Recommended** in the **Show** drop-down box and change it to **All**. Select the resolution and refresh rate as above.

A colour depth of either **Thousands** or **Millions** is recommended.

MacOS X

1. Click the Apple icon at the top, left corner of the screen, select **System Preferences** and then select **Displays**.
2. Select a resolution of 1280 x 1024 pixels with between 60Hz and 75Hz refresh rate.
3. A colour depth of either **Thousands** or **Millions** is recommended.

Supported Graphics Modes and Refresh Rate Selection

There is no need to choose the highest possible refresh rate when using an LCD monitor. It is not technically possible for an LCD monitor to flicker. Even at a refresh rate of 60 Hz you will get an absolutely flicker-free image.

For best results, it is important that you set the graphics adaptor to use one of the monitor's preset display modes shown in **Table 1** on the next page. Other graphics signals may be displayed poorly or not at all. Note that the DV197/DV197SB's preset modes correspond to VESA or Apple Macintosh standard graphics signals for these resolutions. All recent models of graphics adaptor should be able to support these modes. For the native resolution of 1280 x 1024 pixels, for example, refresh rates of 60, 70 and 75 Hertz are

supported.

With Windows 95, 98, ME, 2000 or XP you can change the refresh rate of the graphics signal as follows:

1. Double click the **Display** icon in the control panel.
2. From the **Display Properties** dialogue box, select the **Settings** tab and click the **Advanced Properties** button.
3. For Windows 95, 98, and ME select the **Adapter** tab, for 2000 and XP select the **Monitor** tab. The refresh rate selection field is located in the centre, at the bottom of the dialogue box.
4. Choose a refresh rate that corresponds with one of the factory modes from the table below.
5. Click **Apply**, and then **OK** twice.

Please Note:

- Graphics modes that are not listed in the table may not be supported. For an optimal picture it is recommended that you choose a graphics mode with a resolution of 1280 x 1024 pixels that is listed in **Table 1** on the next page. Resolutions of 640 x 480, 800 x 600 and 1024 x 768 pixels are supported. The default setting may require some adjustment before use.
- The displayed image may show some distortion or noise that can be caused by the signal from the VGA card if it does not correspond with the usual standard. This is not however, a problem with the monitor. If it is still visible after using the Automatic adjustment, you can usually improve the displayed image by manually adjusting the phase, horizontal position and pixel frequency settings using the "Geometry" menu. See Chapter 7, ***Adjusting the Monitor***, for more details.
- When you shut Windows down you may see interference lines on your screen. This caused by the manner in which Windows controls the graphics card at this point and is normal with all LCD monitors.
- To extend the service life of the product, we recommend that you use your computer's power management functions to turn the monitor off after extended idle periods.

Table 1

Standard Timing Table

If the selected timing is NOT included in table below, this LCD monitor will use the most suitable available timing.

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY	VERTICAL FREQUENCY
Dos-mode	720 × 400	31.47kHz	70Hz
VGA	640 × 480	31.47kHz	60Hz
	640 × 480	37.50kHz	75Hz
SVGA	800 × 600	37.879kHz	60Hz
	800 × 600	46.875kHz	75Hz
XGA	1024 × 768	48.363kHz	60Hz
	1024 × 768	56.476kHz	70Hz
	1024 × 768	60.02kHz	75Hz
SXGA	1280 × 1024	64.00kHz	60Hz
	1280 × 1024	80.00kHz	75Hz

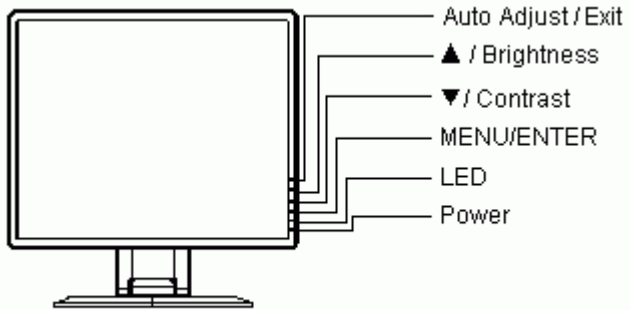
Note: The factory preset mode for DOS is 720x400 @ 70Hz

OSD Lock Function: To lock the OSD, press and hold the MENU button while the monitor is off and then press power button to turn the monitor on. To un-lock the OSD - press and hold the MENU button while the monitor is off and then press power button to turn the monitor on.

7 Adjusting the Monitor

User Controls

A brief description and the location of all LCD Monitor function controls and indicators:



EXTERNAL CONTROLS

Figure 2-1

1	Auto / Exit	Hold for 2 seconds to perform Auto Adjust. If OSD is open, press to exit an OSD item
2	▲ Brightness	Adjust Brightness or adjust OSD item
3	▼ Contrast	Adjust Contrast or adjust OSD item
4	MENU / Enter	Press to display the OSD (On Screen Display) or to select/confirm the settings of an OSD item.
5	LED	LED is Green -- Power is ON LED is Red -- Standby mode LED is Off -- Power is off
6	Power	Press the power button to switch the monitor ON/OFF

Adjusting the Monitor's Display

OSD Function Menu

To access the OSD Main menu, press the **MENU** button on the monitor, and the OSD will pop up on the screen as shown in Fig. 2-2:

Use the **▲** or **▼** keys to scroll through the available options, then press the **MENU** button to open the selected item.

Adjust the setting of a selected item using the **▲** or **▼** keys, then press **MENU** to confirm. Press **Auto** to exit the OSD item, or to close the OSD.

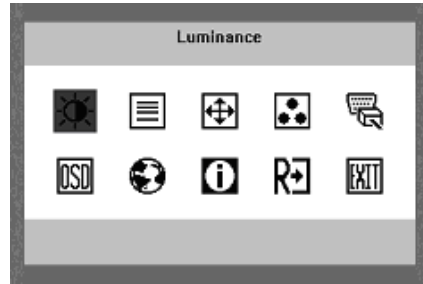





















Figure 2-2

Function Description

Main Menu Item	Main Menu	Sub Menu Item	Sub Menu	<u>Description</u>
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	Icon		Icon	
Luminance		Contrast		Contrast Adjustment.
		Brightness		Brightness Adjustment
Image Setup		Focus		Adjust Picture Phase to reduce Horizontal-Line noise
		Clock		Adjust picture Clock to reduce Vertical-Line noise.
Image Position		H. Position		Adjust the horizontal position of the picture.
		V. Position		Adjust the vertical position of the picture.
Color Temp.		Warm	N/A	Select Colour Temperature 6500K.
		Cool	N/A	Select Colour Temperature 7800K
		User / Red	R	Red Gain from Digital-register.
		User / Green	G	Green Gain Digital-register.
		User / Blue	B	Blue Gain from Digital-register.

Main Menu Item	Main Menu Icon	Sub Menu Item	Sub Menu Icon	Description
Input Select		Analog	N/A	Select VGA signal input
		Digital	N/A	Select DVI signal input
OSD Setup		H. Position		Adjust the horizontal position of the OSD.
		V. Position		Adjust the vertical position of the OSD.
		OSD Timeout		Adjust the OSD timeout.
Language		Language	N/A	Set OSD language
Information		Information	N/A	Show the resolution, H/V frequency and input port of current input timing.
Reset		Yes	N/A	Reset to factory defaults
		No	N/A	Do not execute reset, return to main menu.
Exit		N/A	N/A	Exit OSD

Picture Optimisation

The easiest way to obtain an optimal picture is by using the **Auto** button on the front of the monitor. Hold the Auto button for 2 seconds to perform an auto adjust. This only works reliably if the graphics adaptor is set to use one of the monitor's factory modes (see **Table 1** in the previous chapter) and if you are displaying a suitable stationary image (such as the Windows desktop).

The monitor will remember the settings obtained by the auto calibration settings and use them whenever you turn the monitor on. Note that you may need to readjust the monitor if it is connected to a different computer or if the computer's graphics adaptor is replaced.

If you are still not satisfied with the result, you can enhance the image by using the monitor's manual adjustment functions.

Manual Picture Adjustment

Adjustments to the displayed image are made using the On-Screen Display (OSD), and the buttons on the front of the monitor.

To manually adjust the image:

1. Display your operating system desktop
2. Open the OSD menu by pressing the **MENU** key on the monitor.
3. Press **▼** or **▲** to highlight **Image Setup**, then press **MENU**.
4. Select **Clock**
5. Press **▼** or **▲** to increase or decrease the sampling clock to get the optimum picture. Look closely at the picture displayed, especially surrounding text and icons, for any movement or change. Adjust the **Clock** setting and see how this affects this "noise" or movement. Make sure that in correcting noise in one part of the screen the setting does not create it in another. You should, with careful adjustment, be able to obtain a picture with no visible noise in any section of the screen.

6. If some noise or distortion is still visible select **Phase** using the ▼ or ▲ buttons.
7. With the **Clock** set to the optimal value adjust the **Phase** to further optimise the displayed image. You should now be able, with a combination of the Focus and Clock settings, to obtain a perfectly stable image.
8. Finalise the manual adjustment using the **H. Position** and **V. Position** functions, located in the **Image Position** category.

If you are still not satisfied with the result, try repeating the above procedure using a graphics signal that has a different refresh rate.

Please Note:

You must use one of the factory modes when manually adjusting the picture. If you are having difficulties generating a supported mode, ask your computer dealer or the distributor or manufacturer of your graphics card for assistance.

The procedures described in this chapter should be performed for every resolution and type of graphics signal that you wish to use. For example, if a particular application requires a resolution of 800 x 600 pixels, but all other applications use the monitor's native resolution, you will need to display the test pattern and make adjustments twice.

The monitor will remember your settings and use them whenever you turn the monitor on. Note that you may need to re-adjust the monitor if it is connected to a different computer or if the computer's graphics adaptor is replaced.

8 Frequently Asked Questions

The image is blurred, how can I get the best quality picture?

- ◆ Read chapter 6, *Setting the Display Resolution*, and select a graphics signal with the correct resolution and refresh rate. Then read chapter 7, *Adjusting the Monitor*, and make adjustments to the displayed image based on these instructions.
- ◆ Have you used a VGA extension cable?

If so, remove the extension cable and check the displayed image. Has the image quality improved? Optimise the image using the procedures in chapter 7 with the extension cable removed. Reconnect the extension cable once the image has been optimised. Depending on the characteristics and type of the extension cable, some blurring or distortion may occur due to conduction losses of the extension cable. You can minimise these losses by using an extension cable with better conduction quality or with a built-in booster.

- ◆ Does the blurring only occur at resolutions lower than the native (maximum) resolution?

Please read chapter 6, *Setting the Display Resolution*. Select a graphics signal that uses the monitor's the native resolution (1280 x 1024 pixels).

Why does the image look yellow, blue or pink instead of showing the correct colours?

- ◆ The most common cause of this problem is a loose VGA signal cable or connector. Check that the cable is securely connected to the computer.
- ◆ Check the VGA signal cable for damage. If any pins are bent or broken off, contact your dealer or an authorised Mitsubishi Electric service agent (see Chapter 10 for details).

No image is displayed, what can I do?

- ◆ Check that the light (LED) next to the monitor's power button is lit and is green in colour. If the LED is green, press the **MENU** button on the monitor to access the On Screen Display. If the message ***Image not supported*** appears on the screen, please read chapter 6, *Setting the Display Resolution* and reset the graphics card to one of the monitor's supported graphics signals.
- ◆ If the LED is red the monitor is in power saving mode. Press a button on the computer keyboard or move the mouse to wake the computer. If that does not help, check that the VGA cable is securely plugged into the computer. Also check the pins of the VGA cable's connector. If any pins are bent or broken off, then contact your dealer (see Chapter 10 for details).
- ◆ If the LED is not lit at all, check that the monitor is plugged into the power supply mains socket and that the power switch is turned on. Check that the monitor's power switch is also turned on.

The image is distorted, flashes or flickers:

- ◆ Check that the monitor's signal cable is securely connected to the computer.
- ◆ Read the chapters 6 and 7 of this manual, then select the correct resolution, refresh rate and make adjustments based on these instructions.

The image is displaced in one direction:

- ◆ Use the **H. Position** (horizontal position) adjustment in the monitor's OSD to reposition the image.
- ◆ Read the chapters 6 and 7 and then select the correct resolution, refresh rate and make adjustments based on these instructions.



Specifications

Model: **Diamond Digital DV197/DV197SB**

Display Characteristics

Display Type	19" active matrix Thin Film Transistor Liquid Crystal Display
Viewable Diagonal Area	48 cm / 19"
Native (Maximum) Resolution	1280 x 1024 pixels
Colours	16.2 million
Contrast Ratio	550:1 (typical)
Brightness	270 cd/m ² (typical)
Response Time	8 ms (typical)
Viewing Angle (Horizontal, Vertical)	140°, 135°(typical)
Dot Pitch	0.294 mm

User Interface

Controls	Power switch with LED selection adjustment
On-Screen Display Functions	Contrast, Brightness, Focus, Pixel Clock, Hor. & Vert. Position, Colour Temperature, Auto & Input Select, OSD Hor. & Vert. Position, OSD Timeout, Language, Information, Reset, Exit
Microprocessor Controlled Graphics Modes	15 Preset modes

Input Signal

Line Frequency	30 – 83kHz multi-frequency
Image Frequency (Refresh Rate)	55 - 75Hz
Video Signal	RGB analogue (Positive polarity) 0.7 Vpp/75 Ohm
Synchronization	H/V TTL Separate Sync
Signal Connection	15-pin mini D-sub and 24 pin DVI-D connectors

Physical Characteristics

Power Management	EPA Energy Star
Maximum Power Consumption	55 Watts
Power Saving Mode	≤ 2 Watts
Operating Voltage	Automatic switched mode power supply, 100 - 240 V, 50 - 60 Hz
Dimensions (W x H x D)	406mm x 415mm x 246mm
Weight	6.0 kg
Temperature (Operating)	0°C – 40°C
Air Humidity (Operating)	15% - 90%

Regulatory Certification

Safety	AS/NZS 60950
EMI/EMC	AS/NZS CISPR22:2002 (C-Tick)
Other	ISO 13406-2

IO Service Contacts

If problems remain after checking this manual, please contact your place of purchase or contact:

Australian Service Contacts

Visit the Customer Support section of Mitsubishi Electric Australia's web site at

www.mitsubishielectric.com.au

for details of your nearest Mitsubishi Electric Authorized Service Center or contact the Service Department for your state:

New South Wales and Australian Capital Territory

348 Victoria Road

Rydalmere, NSW, 2116

Telephone: (02) 1300 651-808

Fax: (02) 9684-7684

Queensland

12 / 468 Nudgee Road

Hendra, QLD, 4011

(Airlink Business Park)

Telephone: (07) 3623-2000

Fax: (07) 3630-1888

South Australia and Northern Territory

77 Port Road

Hindmarsh, SA, 5007

Telephone: (08) 8340-0444

Fax: (08) 8340-0555

Victoria and Tasmania

4 / 303 Burwood Hwy

East Burwood, VIC, 3151

Telephone: (03) 9262-9899

Fax: (03) 9262-9850

Western Australia

5 / 329 Collier Road

Bassendean, WA, 6054

Telephone: (08) 9377-3411

Fax: (08) 9377-3499
