Diamond Digital

DV998f-D/f-DB

Colour Monitor

19" (48.3 cm) CRT Size

18" (45.7 cm) Viewable Area

User's Manual

Table of Contents

Reference Information

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

Monitor Information	
Product Name:	DV998FD/FDB
Serial Number:	
Date of Purchase:	
Dealer Information	
Dealer:	
Telephone Number:	
Address:	

1 Important Safety Instructions

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

1. This monitor must be operated from the type of power source indicated on the rating label. If you are not sure of the type of power available in your area, consult your dealer or local electricity supply company.

2. This monitor must be operated with a 3 wire electrical cable that has a plug with a third (grounding) pin. The plug must only be connected to a grounded power outlet. This is a safety feature. Australian and New Zealand customers should use the power cable supplied with the monitor.

3. Make sure that the power outlet that you plug the monitor into is easily accessible.

4. 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 and screen.

5. 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 in a built-in installation unless proper ventilation is provided.

6. Never push objects of any kind, or spill liquid of any kind into the monitor.

7. Do not attempt to service the monitor yourself as opening or removing covers may expose you to dangerous voltages or other risks. Removing the cover of the monitor may void warranty.

8. If any abnormal operation or an accident (such as dropping the unit) occurs, disconnect the monitor from the wall power outlet and contact a Mitsubishi Authorised Service Centre (see chapter 8 for details).

2 Features

Your DV998FD/FDB Monitor has the following features:

♦ **Plug and Play Compatibility**
With DDC-2B™, the DV998FD/FDB is compatible with the Plug and Play features of Microsoft® Windows® 95, 98, 2000, XP and Millennium Edition.

♦ **Compatible with PC, Apple® Macintosh® and most other computer systems.**

♦ **Flicker-free Image**
The monitor supports VESA standard graphics signals with flicker-free refresh rates at resolutions up to 1920 x 1440 pixels at 60 Hz.

♦ **Larger Viewable Size**
With its 45.7 cm (18") diagonal viewable screen size, the DV998FD/FDB offers a larger viewable screen area than many other 19" CRT monitors.

♦ **Easy to Use On Screen Display**
The On-Screen Display (OSD) allows you to adjust all settings simply with on-screen menus.

♦ **Low Power Consumption**
Maximum power consumption is 83 watts. Most other 19" CRT monitors use 100 watts or more. The power management complies with VESA DPMS standard. When the system is idle (off mode), the monitor automatically cuts its power consumption to less than 2 watts.

♦ **On Screen Display**
Allows you to adjust all settings simply using on-screen menus.

♦ **Green Commitment**
No CFCs are used in the manufacturing process of your monitor.

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.

♦ **Monitor with attached signal cable**

♦ **Tilt/swivel base**

♦ **Power cord**

♦ **User's manual**

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 Installation

Your monitor is equipped with an automatic power supply with a voltage range from 100 to 240 Volts AC at a frequency of 50 to 60 Hz.

To install your DV998FD/FDB monitor:

1. Make sure that the computer system's power is turned off.

2. Carefully turn the monitor upside down on a soft surface, use the arrow guides to fit the swivel base on to the bottom of the display.

3. Place the monitor on its base and connect the power cord to the monitor and attach it to a power socket.

4. Connect the computer end of the D-SUB cable to the 15-pin output connector on the video board of your computer.

5. Turn the monitor and the computer on.

If you wish to connect the monitor to an older-type Apple Macintosh computer, you will need to use a Macintosh cable adaptor (sold separately). The adaptor connects the video signal cable of your monitor to the video port of the computer. Your computer dealer should be able to supply you with a suitable adaptor.

Drivers for Windows 95, 98, 2000, XP and Millennium Edition

Windows will detect the DV998FD/FDB monitor the first time you turn the computer on after installing it. The Add New Hardware wizard will prompt for drivers. Install the standard Windows *Plug & Play Monitor* driver. This driver will work correctly and allow you to use the monitor with its optimal resolutions and refresh rates.

5 Adjusting the Monitor

You can adjust the monitor using its On-Screen Display (OSD) menu system. There are 6 buttons that control the monitor:

Front Panel Control

- ○ **:** Press this knob to switch monitor's power ON/OFF.
- **MENU :** Activate OSD menu or confirm adjustment.
- ◑ / ► **:** Adjust contrast or other control.
- ☼ / ◄ **:** Adjust brightness or other control.
- **EXIT :** Exit a function or close OSD menu.
- **Power Indicator :**

  Green — Power On mode.

  Orange — Off mode.

Selecting Functions and Making Adjustments

Brightness Hotkey

1. Press ☼ / ◄ to open the brightness adjustment display.
2. Press ◄ or ► to adjust the brightness level.
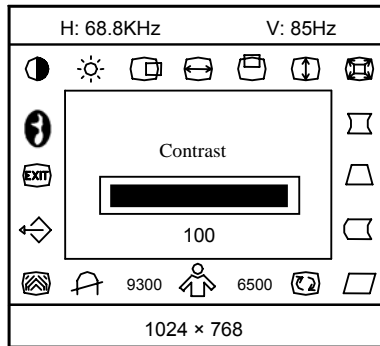3. Press the **OK** button to save your changes.

Contrast Hotkey

4. Press ◑ / ► to open the contrast adjustment display.
5. Press ◄ or ► to adjust the contrast level.
1. Press the **OK** button to save your changes.

The Main Menu

The DV998FD/FDB's OSD has a Main Menu that is organised into 19 functions: Contrast, Brightness, H-Centre, H-Size, V-Centre, V-Size, Zoom, Pincushion, Trapezoid, Pin-Balance, Parallelogram, Rotation, Colour temperature, User Colour, Degauss Moire, Recall, Exit and Language. The remainder of this chapter describes the use of each function and the way that you can make adjustments to the image displayed on the monitor's screen.

Making Adjustments

The following is a list of the options available in the OSD. Press **MENU** to enter the OSD menu, use ◄ or ► to highlight the option and **MENU** to select. Use ◄ or ► to adjust the settings and **MENU** to save the changes. To exit the OSD menu press **EXIT**.

   1.   CONTRAST   ◐ :

       Adjust the picture contrast.

   2.   BRIGHTNESS   ☼ :

       Adjust the picture brightness.

3. H-CENTER   ▢ :

    Adjust the horizontal position of the picture.

4. H-SIZE   ⬌ :

    Adjust the picture's horizontal size.

5. V-CENTER   ⬒ :

    Adjust the vertical position of the picture.

6. V-SIZE   ⬍ :

    Adjust the picture's vertical size.

7. ZOOM   ▣ :

    Adjust the picture's horizontal and vertical size simultaneously.

8. PINCUSHION   ⊓ :

    Adjust the pincushion and barrel.

    TC: Adjust the Top corner   ⊔ :

    BC: Adjust the Bottom corner   ⊓ :

9. TRAPEZOID   ⬡ :

    Adjust the picture's trapezoid distortion.

10. PIN-BALANCE   ⊐ :

    Adjust to compensate the pincushion unbalance.

11. PARALLELOGRAM   ▱ :

    Adjust the picture to be a rectangle.

12. ROTATION   ▨ :

    Adjust the picture tilt to horizontal position.

13. 6500°K/9300°K (COLOUR TEMPERATURE):

The colour temperature for 6500°K is x=0.313, y=0.329 and 9300°K is x=0.283, y=0.297. It presents two different colour sets on the screen. You can select 9300°K or 6500°K by pressing the MENU Key.

14. USER COLOUR (Red / Blue)   :

If the 9300°K normal white or 6500°K warmer white do not satisfy your desire, properly adjust R . B GAIN controls to obtain your optimum whiteness level.

15. DEGAUSS   :

If colour impurity occurs when moving or swiveling the monitor, press the MENU Key and degauss to fix the picture condition.

                                                                  :

16. MOIRE REDUCE

Moire is the result of interference between the phosphor layout and the video signal. In some cases, you may find the moire very noticeable. Press the MENU Key to enter in the moire reduce setting. Please adjust the level to the optimum condition. Note: Too high of a setting will cause the picture to shake.

17. RECALL   :

Press RECALL to restore the monitor to factory settings.

18. EXIT   :

Close OSD window.

                                                                  :

19. SELECT LANGUAGE

Select the language as you like.

Timing and Refresh Rate Setting

By making adjustments of your video card settings, you can set the timing and the refresh rate of the graphics signal to match your requirements. Please consult your operating system's and graphics adaptor's documentation for details about how this may be done.

The monitor will automatically save the changes that you make and use the new settings whenever you turn it on. The DV998FD/FDB monitor can accept horizontal scanning frequencies ranging from 30 kHz to 97 kHz and vertical frequencies from 50 Hz to 160 Hz. However, due to the requirements of signals with different resolutions, and to avoid possible damage to your monitor, do not exceed the following maximum vertical refresh rates.

Resolution	Maximum Vertical Refresh Rate (Hz)
800 x 600	150
1024 x 768	118
1280 x 1024	88
1600 x 1200	76

Factory Preset Timings

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY	VERTICAL FREQUENCY
IBM	720 × 400	31.5kHz	70Hz
VGA	640 × 480	31.5kHz	60Hz
VESA/85	640 × 480	43.3kHz	85Hz
VESA/85	800 × 600	53.7kHz	85Hz
VESA/85	1024 × 768	68.7kHz	85Hz
VESA/85	1280 × 960	85.9kHz	85Hz
VESA/85	1280 × 1024	91.1kHz	85Hz
VESA/75	1600 × 1200	93.8kHz	75Hz

6 Troubleshooting

If you encounter any trouble using the DV998FD/FDB monitor, make sure that your monitor is properly installed. (For hardware installation, see Chapter 4 of this manual.) If the problems persist, please check this chapter for possible solutions before calling Mitsubishi Electric or one of our Authorised Service Centres.

No image is displayed

- Check that the light (LED) next to the monitor's power button is lit and is green in colour.

- If the LED is flash there is no signal from the computer and the monitor is in power saving mode. Check that the computer is switched on. 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.

- If the LED is not lit at all, check that the monitor is plugged into the power socket and that the power switch is turned on at the wall. Check that the monitor's power switch is also turned on.

- Video sync signal. The video sync signal from the graphics card must be as specified for the monitor.

The picture is scrolling or unstable.

- 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.

- Make sure that the graphics card settings are correct and within the monitor's specifications. Change the settings of your graphics card to values within the monitor's range.

- Remove any magnetic objects that are near the monitor. These include speakers and power supplies (AC adaptors).

Colours are impure.

- 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 8 for details).

- Check the monitor's colour settings. Press the **OK** button and select the Colour Settings menu. Select the 9300k menu item to return to the factory preset colours and press **OK**.

- Degauss the monitor using the degauss function of the monitor's On Screen Display.

- Remove any objects that can create a magnetic field that may be near the monitor. These include speakers and power supplies (AC adaptors).

The image is blurred or there is visible ghosting

- Have you used a VGA extension cable? If so, remove the extension cable and check the displayed image. Is the image quality improved? Depending on the characteristics and type of the extension cable, some blurring or distortion may occur due to conduction losses in the extension cable. You can minimise the distortion by using an extension cable with lower conduction losses.

- Have you used a VGA splitter or a video amplifier? Depending on the characteristics and type of the splitter or amplifier some blurring or distortion may occur due to the limitations of the device's bandwidth. Problems caused by a limited bandwidth will increase as the signal's resolution and refresh rate increased. If you need to use a splitter or amplifier with you monitor, make sure that it is a good quality device that has sufficient bandwidth for the graphics resolution that you need to use.

7 Specifications

Model   DV998FD/FDB

Display Characteristics

Display Type   19" (48.3 cm) pure flat cathode ray tube

Maximum Viewable Size   18" (45.7 cm)

Dot pitch   0.25 mm
(0.21 mm horizontal dot pitch)

Surface coating   Anti-glare, Anti-Static coating

Graphics Signals

Maximum Resolution   1600 x 1200 pixels (up to 75 Hz)

Recommended Resolution   1280 x 1024 pixels (at 85 Hz)

Horizontal Frequency   30 – 96 kHz

Vertical Frequency   50 – 160 Hz

Video Bandwidth   200 MHz

Microprocessor Controlled Graphics   8 factory preset timings

21 user modes

Signal Connection   15-pin mini D-sub cable

Video Input   VGA-type (15 pin mini D-sub connector)

Video Signal   RGB analog (Positive polarity)
0.7 Vpp/75 Ohm

Synchronisation   TTL Level (separate sync.)

Plug & Play   DDC-1/2B

User Interface

Controls   Power switch, On-Screen Display with 4 control buttons

On-Screen Display Functions:

Contrast, Brightness, H-Centre, H-Size, V-Centre, V-Size, Zoom, Pincushion, Trapezoid, Pin-Balance, Parallelogram, Rotation, 6500°K, 9300°K, User Colour, Degauss, Moire Reduce, Exit, Language.

Physical Characteristics

Power Management   VESA DPMS, Energy Star

Maximum Power Consumption   130 Watts

Consumption in Power Saving Modes   < 3 Watts

Operating Voltage   Automatic switched mode power supply, 100 - 240 V, 50 - 60 Hz

Dimensions (W x H x D)   446 x 436 x 445 mm (including base)

Weight   20 kg

Temperature (Operating/Storage)   0 °C ~ 40 °C / -25 °C ~ 65 °C

Air Humidity (Operating/Storage)   10% ~ 85% / 5% ~ 95%

Regulatory Certification

Safety   AS/NZS 60950:2000

EMI/EMC   AS/NZS CISPR 22:2002 (C-Tick)

8 Service Contacts

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

Australian Service Contacts

Visit the Mitsubishi Electric Australia web site at

www.MitsubishiElectric.com.au

For details of your nearest Mitsubishi Electric Authorised Service Centre or contact the Service Department for your state:

New South Wales and Australian Capital Territory

348 Victoria Road
Rydalmere, NSW, 2116

Telephone: (02) 9684-7669

Fax: (02) 9684-7684

Queensland

12 / 469 Nudgee Road
Hendra, Qld, 4011

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