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GE Fanuc Automation

Operator Interface Products

Display Station Model 2010

User's Manual

GFK-1807A

June 2000

Warnings, Cautions, and Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware or software, nor to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. GE Fanuc Automation assumes no obligation of notice to holders of this document with respect to changes subsequently made.

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CIMSTAR	Modelmaster	Series 90	VersaPro
Field Control	Motion Mate	Series Five	VuMaster
GEnet	ProLoop	Series One	Workmaster

Content of This Manual

This manual describes the features and operation of the following Display Station products:

IC850PCT100	10.4" Display Station with Windows NT
IC850PCT200	12.1" Display Station with Windows NT

Revisions to This Manual

This version of this manual (GFK-1807A) contains the following changes as compared to the previous version (GFK-1807):

- Instructions for Using the Image Recovery Disk – page 2-4
- Cutout dimensions corrected – page 3-2
- Port callouts corrected in figure on page 4-3

Related Publications

GFK-1189	<i>CIMPLICITY® HMI for Windows NT™ Important Product Information</i>
GFK-1180	<i>CIMPLICITY® HMI for Windows NT™/CIMPLICITY Server for Windows NT™ Base System User Manual</i>
GFK-1181	<i>CIMPLICITY® HMI for Windows NT™/CIMPLICITY Server for Windows NT™ Device Communications Manual</i>
GFK-1396	<i>CIMPLICITY® HMI for Windows NT /CimEdit Operation Manual</i>
GFK-1422	<i>Open Factory CNC Systems User Manual</i>

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Chapter 1

Display Station Features

Display Station 2010 is a high performance workstation designed primarily as an operator control station for GE Fanuc's OPEN Factory CNCs with both OPEN Factory software products and other software packages running under the Microsoft Windows NT® operating systems.

Each model in the Display Station 2010 family is a self-contained PC compatible computer, with a built-in flat screen display housed in an industrial IP65 rated front panel. A rugged metal case protects the system against dust, water, and other damage. The case also provides electromagnetic shielding to EN 55022: 1987 Class A (for emissivity) and EN 50082-1: 1992 (for immunity) standards. Additional input devices and serial ports are located on the side of the unit.

The Display Station is available with an autoranging main power input unit for 115 or 230 VAC operation.

The unit is supplied completely assembled and requires only mounting and connecting. Before powering up your system for the first time, familiarize yourself with the procedures contained in Chapter 2, which guide you through the setup of the operating system and network communications.



Feature Summary

When you purchase a Display Station 2010, you receive:

- Display Station industrial computer, with a demo version of CIMPLICITY® HMI for CNC software
- Power cord
- Mounting Clips
- Ethernet driver floppy disk and manual
- Microsoft Windows NT documentation, software, Certificate of Authenticity and license agreement

Standard Features

Model Number	Specifications
IC850PCT100	10.4" standard model with Windows NT
IC850PCT200	12.1" standard model with Windows NT
CPU	Pentium, 233 MHz minimum (standard)
Hard disk	6.4 GB minimum
RAM	64 MB minimum (standard), 128 MB (upgrade)
Display	10.4" Color TFT – VGA (640 x 480) 12.1" Color TFT – SVGA (800x600)
Soft keys	12 Function keys
Parallel ports	One LPT1
Serial ports	Two RS-232
USB ports	Two
Ethernet port	RJ-45
Mouse port	PS/2
Keyboard port	PS/2
Drives	Floppy (External, Optional) CD (External, Optional)
Expansion Slots	Two Combo ISA/PCI slots (Half Sized) One ISA slot (Half Sized)
Automation Software	CIMPLICITY HMI for CNC (Demo Version)
Expansion Slots	Two Combo ISA/PCI slots (Half Sized) One ISA slot (Half Sized)

Optional Features

The following features are available for the Display Station 2010. Contact your GE Fanuc representative for details.

- Panel mount Floppy drive
- Panel mount Floppy /CD ROM drive combination unit
- FA Industrial Keyboard
- Industrial Pointing Device

Access Panel

A side access panel houses all serial and input ports (printer, keyboard, USB, RS-232-C serial, and PS/2 mouse).

System I/O

Standard I/O

The Display Station 2010 provides the following I/O interface channels:

- Two serial interface ports (RS-232-C) are provided by the processor motherboard. They use a standard 9-pin D type connector.
- A single enhanced parallel port is provided by the motherboard. The port is accessible at the side access panel.
- Two USB ports are provided by the motherboard. These ports are accessible at the side access panel.
- A Floppy Disk Driver is accessible at the side access panel.
- A CD ROM Driver port is accessible at the side access panel.

ISA Card Expansion

Display Station 2010 has 3 expansion slots to accommodate half-size ISA cards. Two of these slots can also support PCI cards.

PCI Card Expansion

Display Station 2010 has 2 expansion slots to accommodate a PCI cards. These slots are shared with two of the ISA slots.

Network Interface

The Display Station 2010 includes an on-board Ethernet adapter that provides a RJ-45 connector for unshielded twisted pair cable.

Application Software

Display Station 2010 comes with a demo simulation copy of CIMPLICITY HMI for CNC software that has been pre-loaded onto the hard disk. The software must be installed in order to run this demo.

Other GE Fanuc OPEN Factory Software available for this unit includes

- Standard Operation Software Suite
- Basic Operation Management Package
- Ladder Edit and Display Package
- Machine Status Monitoring Package
- DNC Operation Management Package
- Milling Animation Software
- Shop Floor Programming

Chapter 2

Powerup and Software Installation

This chapter contains information about powering your Display Station 2010 on and off, setting up your operating system and network communications, and registering your automation software.

Initial Startup

Most configuration activities that you perform on a Display Station 2010 system are more easily completed using a keyboard, or may require a keyboard.

When you first power up your system, you will need to attach a standard PS/2-type keyboard to the external keyboard port on the Display Station 2010. When the system starts, you will be required to enter the Product ID from the Windows NT Certificate of Authenticity, as well as other data.

Windows NT Authorization

1. Plug in the keyboard, PS2 mouse (if available).
2. Power on the unit.
3. Read the license agreement
4. TAB to your choice and press ENTER.
5. Press ENTER to start the Windows NT Setup.
6. Type your name.
7. Press the TAB key and type your company name.
8. Press ENTER.
9. Enter your Windows NT Authentication number found on your Windows NT certification. You will need to use the TAB key to get to each number field. If correct, press ENTER.
10. Enter a Computer name. This name should be unique among computers on the same network. Press ENTER.

NOTE: Computer names must be less than or equal to 15 characters to run CIMPLICITY HMI software. Each computer on a network must have a unique name.


11. You will be prompted for a user name and password.
 - To use the auto-logon feature, type **admin** as both the user name and the password. Press the TAB key and type **admin** in the Confirm Password box. Press ENTER.
 - To skip the password, press ENTER.
 - To assign a password, type in a password, press the TAB key and type the password in the Confirm Password box. Press ENTER.

NOTE: Your system has been set up to enable auto-logon. Auto-logon allows the system to boot into Windows NT without your having to use a keyboard to press CTRL-ALT-DEL.

12. Press ENTER to continue with Windows NT Setup.

Configuring the Display Station 2010 to Run on a Microsoft Network

NOTE: Before setting up your new Display Station 2010 for the network, you should consult with your network administrator. Duplicate TCP/IP addresses and duplicate computer names on the same network cause network problems.

1. Plug in the keyboard, PS2 mouse (if available), and power cord.
2. Click the Start  button, choose Settings, and then Control Panel.
3. In the Control Panel window, double-click the Network icon. The Network dialog box will appear.
4. In the Network dialog box, click the Identification tab, and enter your Computer name, Workgroup or Domain name, and Computer Description.

NOTE: Computer names must be less than or equal to 15 characters to run Display Station 2010 automation software. Each computer on a network must have a unique name.

5. To add the TCP/IP protocol,
 - A. Go to the Protocols tab and click the Add button. The Select Network Protocol dialog box will appear.
 - B. From the Protocol list, select TCP/IP and click OK.
 - C. Click the Properties button. The Microsoft TCP/IP Properties dialog box appears.
 - D. Choose "Obtain an IP Address from DHCP Server" or enter a unique IP Address and Subnet Mask
 - E. Click OK twice.

You will be prompted to restart your computer so that the changes can take effect.

Running your demo copy of CIMPLICITY HMI for CNC Software

The Display Station 2010 is shipped with a demo copy of CIMPLICITY HMI for CNC. To install this software, consult the media kit, part number 44A728469-001R00. Within this media kit, refer to GFK-1723 for instruction on installing CIMPLICITY HMI for CNC.

Directory Structure

The contents of the Display Station 2010 NT hard drive, as shipped, are listed below.

Windows NT Systems

C:\FXCD\i386	CIMPLICITY HMI for CNC CD
C:\i386	Windows NT CD
C:\Backpack	Backpack CD drivers
C:\TBASE	Touch screen drivers
C:\i386\DRVLIB.NIC\Realtek8139	Network drivers
C:\SP4\i386	Service pack 4 for Windows NT drivers

NOTE: If you reload any Windows NT component, such as a network driver, you must reload service pack 4. To do this, type:

```
C:\SP4\i386\sp4i386
```

Reloading NT on the Hard Disk From CD

To reload Windows NT you should follow the instructions in the Windows NT manual from Microsoft. After completing the installation, the BOOT.INI file must be modified to ensure that the touch screen works correctly.

Touch Screen Driver for Windows

Operation of the touch screen with Windows NT requires the proper software driver. This software is installed and configured at the factory. We recommend that you do *not* change these settings. For the Display Station 2010 the driver is Model WTA uses the Dynapro™ SC3 driver.

The integral touch screen of the Display Station 2010 unit is internally connected to serial port COM1 on the system board. The driver settings can be changed through the Touchscreen icon in Programs. **The touch screen must be set to:**

- COM Port = 1
- Interrupt = 4
- I/O Address = 3F8

Image Recovery

The following procedure provides instruction on how to use the *Field Image Recovery Disk* (44A749863-G01Rxx). This disk will enable you to recover all software on your computer as received initially from GE Fanuc.

Warning

Before attempting an Image Recovery on your unit, make sure to record all critical settings and conduct a full back up of all CIMPLICITY Projects and critical documents. You will also need to have your CIMPLICITY registration and Microsoft Authorization Numbers handy. This process will clear all contents from your Hard Drive and return your system to the factory configuration.

Instructions for Image Recovery

1. Prior to Image Recovery, a standard PS/2-type keyboard will need to be connected to the external keyboard port.
2. Insert the *Field Image Recovery Disk* into the Floppy Drive
3. After inserting the Recovery Disk, the system will prompt you to restore the image. Select <1> to “RESTORE SYSTEM TO ORIGINAL CONDITION”. If you have initiated this process in error, press <2> and Exit the Recovery program.
4. Select <1> again to “PROCEED WITH SOFTWARE RESTORE”. Choose <2> to cancel Recovery and exit to MS-DOS®.
5. At this point the factory image will be recovered from a hidden partition on the Hard Drive. This will take approximately 12 minutes. When prompted, reboot your system.
6. After rebooting your unit, the system will bring you to the initial startup screens as received from the factory. Refer to the Display Station User’s Guide for Microsoft set-up, Network configuration, and CIMPLICITY HMI initialization.

If you have any questions about this procedure, please contact 1-800 GE FANUC.

® MS-DOS is a registered trademark of Microsoft Corporation.

Shutting Down the Computer

WARNING: To avoid damaging files, always shut down the Windows NT operating system before removing power from your Display Station 2010 product.

To shut down Windows NT software, select **Shut Down** from the Start menu.

Chapter 3

Hardware Installation

The Display Station 2010 has been designed for a simple, quick installation.

A single cut-out is required to mount the Display Station 2010. Eight spring-loaded clips are supplied, and are used behind the mounting panel to secure the unit.

Mounting Guidelines

NOTE: The IP65 rating applies to the front panel of the Display Station 2010 only, not the rear of the unit.

- In an industrial environment, the panel into which the unit is mounted should provide protection from dust, dirt and water.
- The panel into which the unit is mounted should be capable of supporting the weight of the Display Station 2010 without distortion to the panel. The mounting clips will support a panel thickness of up to 5mm (0.2 inch).
- All eight mounting clips must be fitted properly to achieve a good seal between the Display Station 2010 and the panel to which it is mounted.
- Inlets and outlets must have at least 25mm of space around them and not be obstructed.
- Adequate airflow around the exterior of the unit is important to the interior temperature of the unit. Two fans are used to create air flow through the Display Station 2010, ensuring that a correct working temperature is maintained.

Incoming air passes through a filter that removes dust and dirt. The filter should be checked and replaced regularly.

Mounting Procedure

Use the following procedure to mount the Display Station 2010:

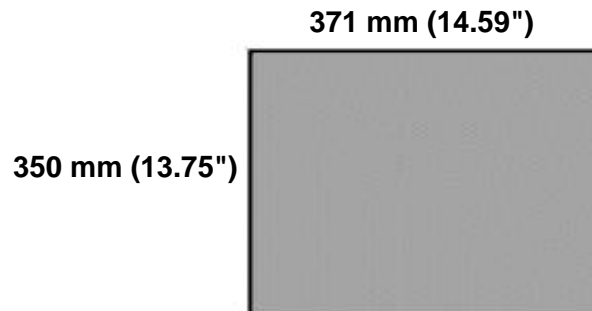
Step 1 for 10.4" unit

1. Cut an opening in the panel to the dimensions shown. The cut-out dimensions of 321.6 x 256.8mm (12.66" x 10.11") allow a 1.2mm clearance on each edge of the front of the Display Station 2010. The unit requires a minimum of 164mm (6.4") depth when mounted.



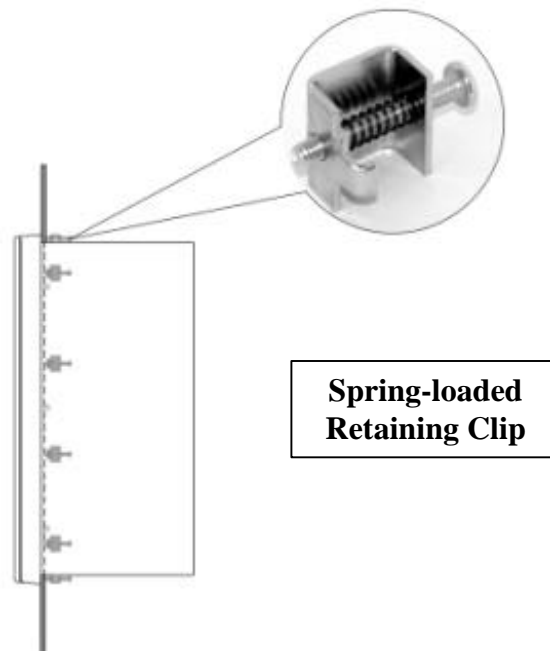
Step 1 for 12.1" unit

1. Cut an opening in the panel to the dimensions shown. The cut-out dimensions of 371 x 350mm (14.59" x 13.75") allow a 1.2mm clearance on each edge of the front of the Display Station 2010. The unit requires a minimum of 164mm (6.4") depth when mounted.



Step 2-5 for both the 10.4" and 12.1" unit

2. Detach the rear housing from the front of the Display Station 2010 following the instructions in the section entitled "Operating the Field Detachable Rear Housing." Position the front of the Display Station 2010 in the cut-out and fit the eight spring loaded retaining clips into the slots on the Display Station 2010. All eight clips must be used to produce a good seal.



3. Tighten the screws on each clip so that the spring is compressed by the nut. To ensure a good seal between the Display Station 2010 and the mounting panel, the clips must be tightened evenly. (Tighten each of the clips in turn, a little at a time.)
4. When the springs are fully compressed, no further tightening of the clips is necessary. The Display Station 2010 is locked into place.
6. Reattach the rear of the Display Station 2010 to the mounted front following the instructions under “Reattaching the Rear Housing.”

Operating the Field Detachable Rear Housing

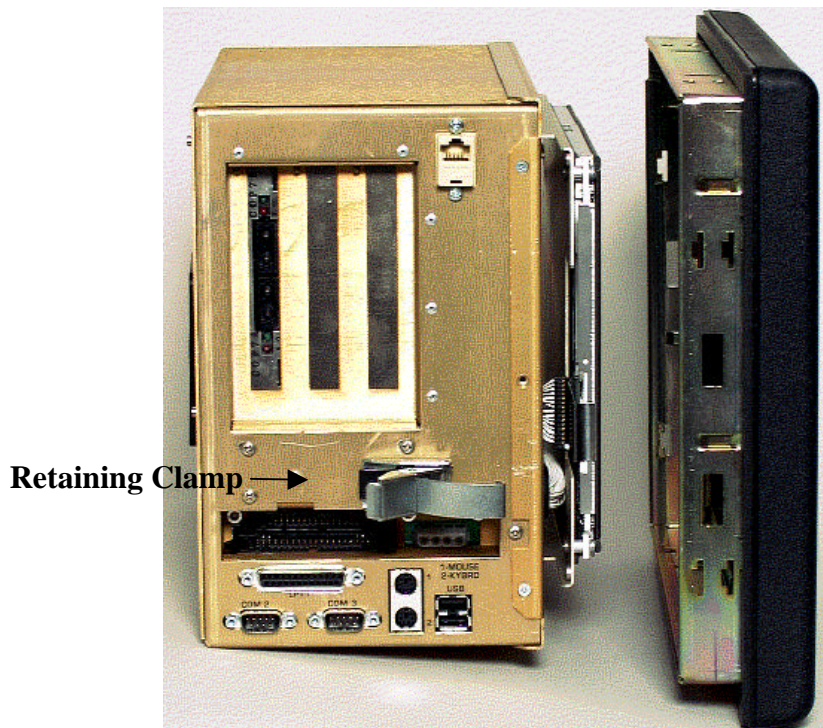
The Display Station 2010 is equipped with a field detachable rear housing to facilitate the mobility of the CPU unit. This feature allows you to detach and completely separate the CPU from the touch-screen for installation or maintenance needs.

CAUTION: Power down the Display Station 2010 and remove the power cord from the power source before detaching or reattaching the rear housing.

Detaching the Rear Housing

1. Push the silver clamps located in the middle of both sides of the rear housing towards the front of the Display Station 2010.

2. Unlatch the now loosened retaining clamps from the front housing.
3. Pull the rear housing apart from the front housing by pulling straight back on the rear housing.



Reattaching the Rear Housing

1. Line up the rear housing with the front housing. Take special care to ensure that there is no dust inside the front housing. Any foreign material caught between the front and rear housing will become magnified during operation.
2. Insert the rear housing into the front housing, making sure that the touch screen nodes are lined up correctly.

WARNING: Failure to align the rear housing with the front of the Display Station 2010, may cause damage to the touch screen.

3. Fasten the retaining clamps of the rear housing to the corresponding slots in the front housing.
4. Pull the clamps back towards the rear of the unit, securing the rear housing to the front of the Display Station 2010.

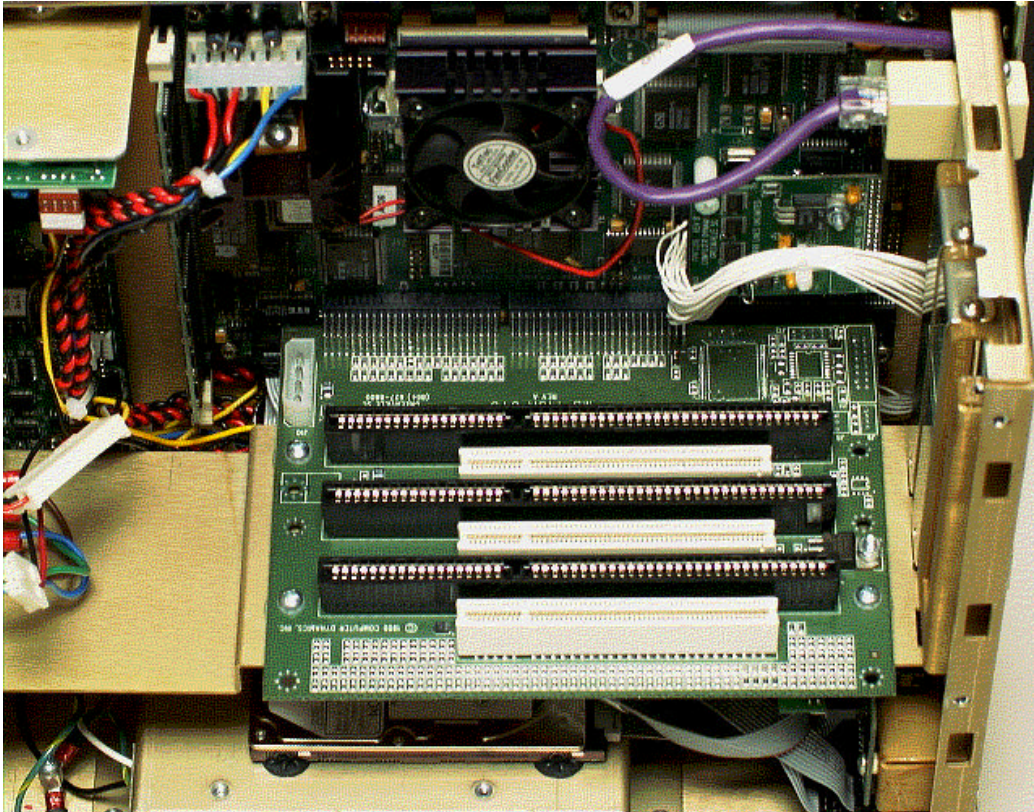
Installing an ISA or PCI Card

NOTE: Installation of the ISA or PCI card can be made easier by separating the rear housing from the front housing.

The Display Station 2010 provides both ISA and PCI expansion slots. Before installing a card into the unit, follow these precautions.

- Remove the rear housing from the front housing of the Display Station 2010.
- Remove the back cover from the rear housing
- PC cards are packaged in static-safe bags to protect them during shipping. Before removing the card from this bag, be prepared to handle it in a static-safe environment.
- Wear a properly functioning anti-static strap and be sure that you are fully grounded. Never touch the card or any components inside the Display Station 2010 unless you are wearing an anti-static strap.
- Any surface the unprotected card is placed on should be static-safe, facilitated by anti-static mats, if possible.
- Extra caution should be taken in cold, dry weather, when static charges can easily build up.

There are three ISA sockets and 3 PCI sockets in the Display Station 2000. However, only two of the PCI sockets are usable. The slot label, PCI 3, is used by other system resources within the Display Station 2010.



**Internal View of Display Station 2010 NT Model
WTE**

To install the card,

- Locate the appropriate slot (ISA or PCI)
- Remove the screw and expansion slot cover (or remove the old card from the slot). Save the screw for later use when securing the new card.
- Insert the new card, gold edge first, into the selected slot.
- Secure the card in the slot with the screw.

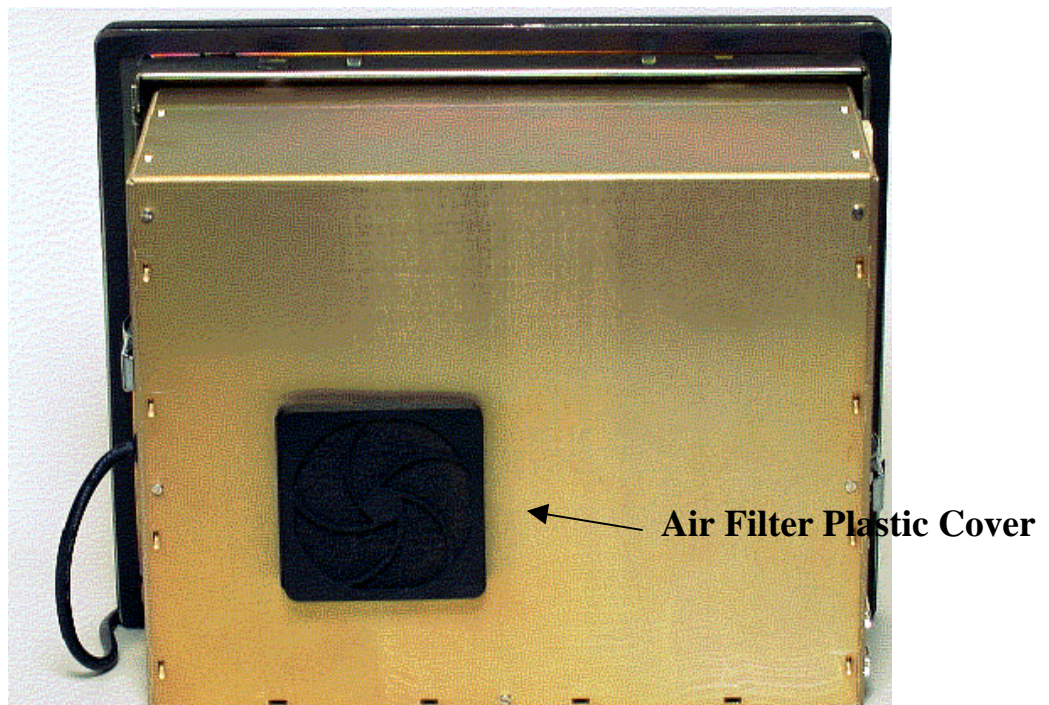
Changing the Air Filter Element

The air filter element should be changed or cleaned every three months -- sooner in dusty environments. If the air filter is not changed at suitable intervals, or if a non-approved filter is used, the unit may overheat. For details of approved filter elements, refer to "Environmental Specifications" in Appendix A.

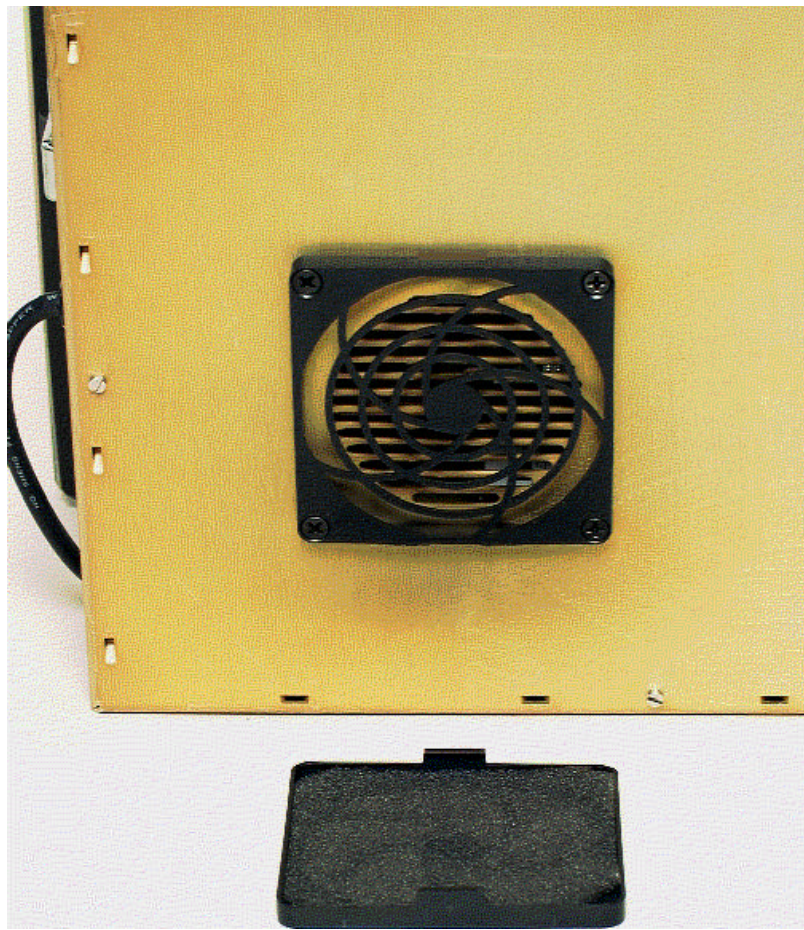
The filter element is located on the outside of unit, on the rear housing back-plate.

CAUTION: Power down the Display Station 2010 before replacing the air filter.

1. Pull the plastic cover from the air filter at the back of the Display Station 2010.
2. Replace the old filter with the new filter.
3. Snap the cover back onto the back plate of the Display Station 2010.



Back side with filter cover



Back side with filter cover removed

This chapter describes the connector layout on the Display Station 2010. Keyboard and data connectors are provided on the proprietary cards fitted in the Display Station 2010.

- Keyboard (CPU card)
- PS2 Mouse Port (CPU card)
- Serial Ports COM 2 and COM 3 (CPU card)
- Parallel Port – 25-pin (CPU card)
- Network (PCI expansion card and CPU card)

For details about connectors on proprietary cards you have installed in the Display Station, refer to the manufacturer's documentation provided with your card.

CAUTION: External devices (printer, external disk drive, etc.) should **not** be connected or disconnected from the Display Station 2010 while the unit is powered up.

Power Input

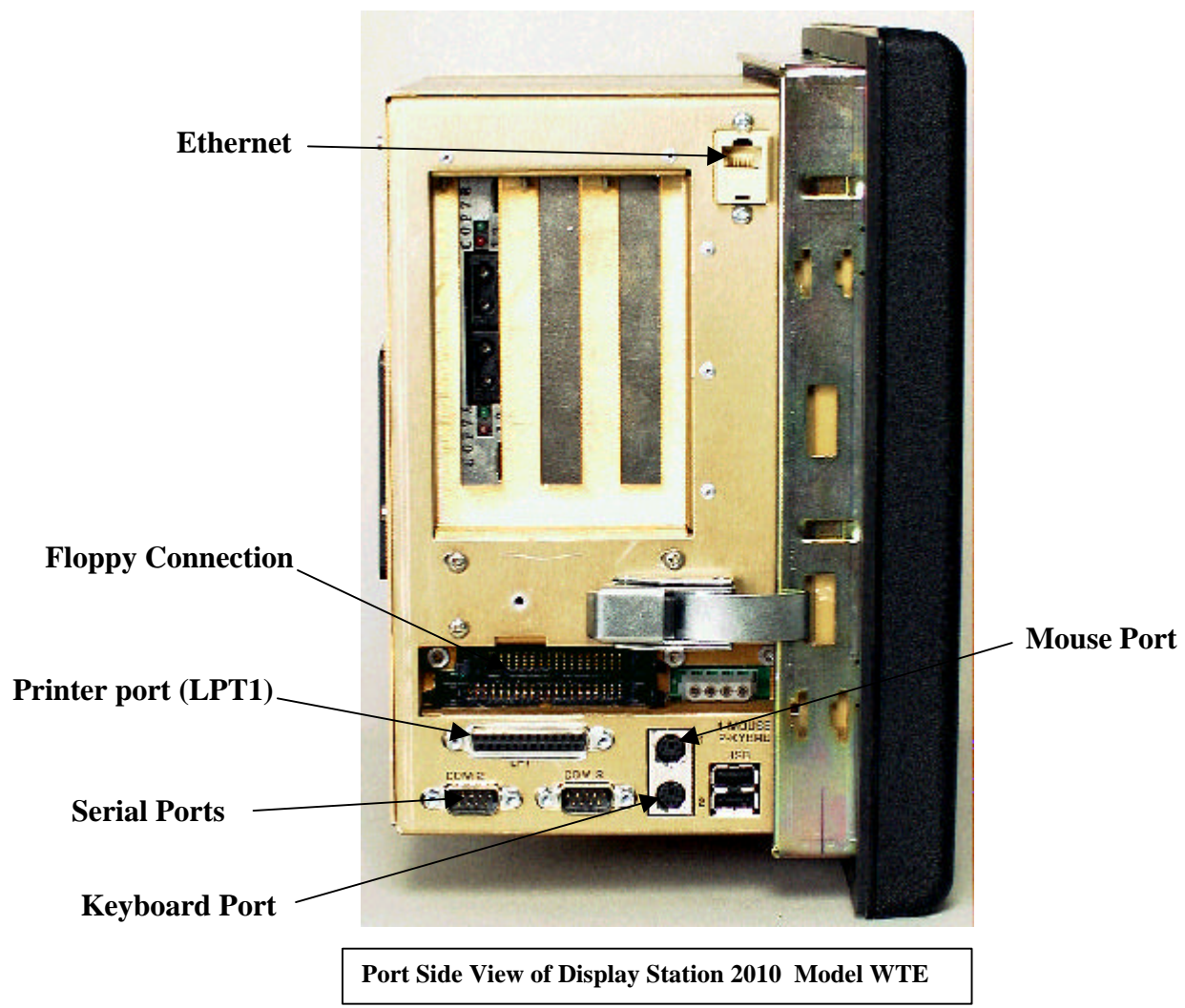
The Display Station 2010 is powered by an internal, autoranging AC power supply unit that accepts 115 to 230 VAC input ranges.

For power supply details, refer to specifications in Appendix A.

System I/O

The Display Station 2010 motherboard provides the following I/O interface channels:

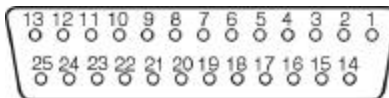
- Two serial interface ports that use standard 9 pin D type connectors.
- An enhanced parallel port, which is accessible at the side of the unit.
- Two USB ports.
- A Mouse
- A Keyboard Port
- A Floppy Drive Connection
- A CD-ROM Drive Connection
- A Network Connection (Ethernet)



Port Side View of Display Station 2010 Model WTE

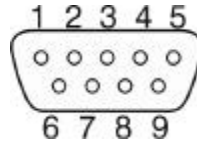
Printer Port LPT1

A 25 pin D type female connector mounted on the side access panel of the Display Station 2010 is used for the printer port.



Pin	Assignment	Pin	Assignment
1	Strobe	10	Acknowledge
2	Data Bit 0	11	Busy
3	Data Bit 1	12	Paper End
4	Data Bit 2	13	Select Out
5	Data Bit 3	14	Auto Feed XT
6	Data Bit 4	15	Error
7	Data Bit 5	16	Initialize Printer
8	Data Bit 6	17	Select In (from Printer)
9	Data Bit 7	18 to 25	Ground

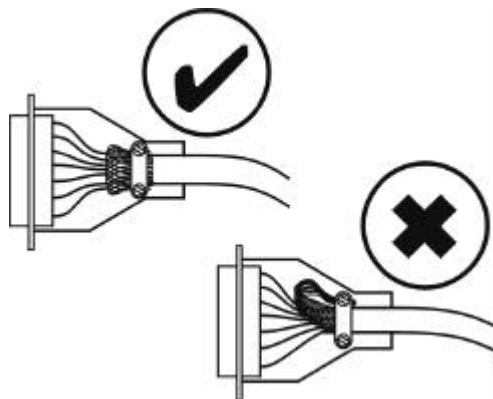
Serial Communication Cables



RS-232C Name	PIN	Assignment
CF	1	DCD (Data Carrier Detect)
BB	2	RX (Receive Data)
BA	3	TX (Transmit Data)
CD	4	DTR (Data Terminal Ready)
AB	5	GND (Signal Ground)
CC	6	DSR (Data Set Ready)
CA	7	RTS (Request to Send)
CB	8	CTS (Clear to Send)
CE	9	RI (Ring Indicator)

To ensure that the installation meets the EMC radiation specification, the serial cables must comply with the following requirements:

- The cables must be shielded
- The D type connector covers must provide EMC shielding (e.g. Metallized plastic or die cast metal covers)
- The cables must be terminated with 360 degree termination of the shield, as illustrated below:



Chapter 5

System Operation

This chapter provides details of system operation. The following topics are covered:

- System Peripherals
- Graphics Controller
- Operator Interfaces

System Peripherals

Hard Disk Drive

The Display Station 2010 has an internal system hard drive for the mass storage of data. The drive is a standard unit with EIDE/ATA-2 interface.

Graphics Controller

A dedicated graphics controller card, attached to the motherboard, provides the interface for the flat panel display.

The following features are supported:

- Display panel resolutions of VGA (640 x 480) with 256 color support for 10.4 “ unit
- Display panel resolutions of SVGA (800x600) with 256 color support for 12.1” unit

Display Types

The Display Station 2010 has either a 10.4 inch color TFT (VGA resolution) screen or a 12.1 inch color TFT (SVGA resolution) screen. These flat screen displays have the following features:

- High Luminance (equal to or greater than 200cd/m2).
- Wide angle viewing.
- A built-in backlight with a long life backlight tube (equal to or greater than 25,000 hrs).

Floppy Drive

An interface connection for a floppy driver unit is located on the side of the Display Station 2010. This is a standard floppy drive interface

CD Drive

A connection is provided to interface a CD ROM Drive to the Display Station 2010. This connection uses the standards IDE interface for the CD Drive.

Operator Interfaces

External Keyboard and Mouse

An external keyboard and mouse (both using PS2 connectors) can be attached to connectors on the side of the unit.

The touch screen and PS2 mouse will work simultaneously if the mouse is Microsoft or IBM PS2 compatible. Because Microsoft Windows can load only one mouse driver at a time, it is not possible to provide simultaneous support for a mouse that requires its own specific Windows driver.

If you are installing an optional serial card, none of the ports can be configured as COM 1, which conflicts with the touch screen.

Touch Screen

The Display Station 2010 includes a resistive overlay touch screen on the flat panel display.

The touch screen has a touch-resolution of 1024 x 1024 touch points and provides an efficient and reliable method of entering information. The screen responds to the touch of your finger, with or without a glove.

The touch screen is connected internally to the COM 1 serial port, which allows it to function with a variety of software packages. If you install a card that has settings that conflict with the COM 1 serial port, you will need to change the card's configuration.

Touch Screen Driver for Windows

Software is supplied with a driver to interface with the touch screen surround.

The touch screen is internally connected to COM1. Parameters must be set within the driver so that they match the hardware settings. The factory default settings are:

COM Port	=	1
Interrupt	=	4
I/O Address	=	3F8

These parameters are written into the system registry file by the driver setup utility. The driver is installed, configured and calibrated at the time of manufacture.

Function Keys

Function keys on the front of the units are also used for manual data input for the Display Station 2010. These keys are very similar to the function keys on a QWERTY keyboard and are assigned codes F1 through F12. The left arrow key is assigned F1 and the right arrow key is F12.

Function keys directly interact with various software options offered by GE Fanuc, such as

- Basic Operation Package
- Standard Operation Software Suite
- CIMPLICITY HMI for CNC

Chapter 6

BIOS Settings

It is normally unnecessary to change the hardware configuration settings in the CMOS memory. If these settings become corrupt, use the following procedures to reload the factory configuration:

1. Connect a keyboard to the unit and turn on the power.
2. During the computer power-up sequence, press the F2 key, when prompted, to enter Setup mode. A screen will appear offering several options for changing settings, restoring default settings, and other functions.
3. Select the Load Setup Defaults option. Then, select the Save CMOS settings option. You will be prompted to exit. *Do not* exit at this time.
4. Go into Standard CMOS Setup and make the following selections:

	Type	Mode
Primary HDD master	AUTO	AUTO
Primary HDD slave	AUTO	AUTO
Secondary HDD master	AUTO	AUTO
Secondary HDD slave	AUTO	AUTO
Drive A	NONE	
Drive B	NONE	

5. Exit Standard CMOS Setup.
6. Go into Integrated Peripherals Setup. Set parallel port to ECP+EPP.
7. Select Save and then Exit Setup. The startup sequence should begin.

The system is now configured with factory CMOS settings.

This chapter contains *Self-Test Diagnostics*, *Troubleshooting*, and *Corrective Actions*.

- *Self-Test Diagnostics* describes how to respond to errors that may be detected by the automatic self test that is performed each time the Display Station 2010 powers up.
- *Troubleshooting* contains tables of symptoms, possible causes, and recommended corrective actions.
- *Corrective Actions* contains detailed procedures that are too lengthy to include in the Troubleshooting tables.

Self-Test Diagnostics

The computer automatically performs self-test diagnostics each time it is powered up. The self-test consists of a series of checks that verify correct performance of the computer hardware. When the self-test is being performed, you will see the message XXXX KB OK displayed on the screen, where XXXX is a number that increases until it matches the amount of usable memory.

System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will see an error message on the screen. There are two kinds of errors: fatal and non-fatal. If a non-fatal error occurs, the system can usually continue the boot up sequence. Non-fatal error messages usually appear on the screen with the following instruction:

press <F1> to RESUME

Write down the message and press the F1 key to continue the start-up sequence.

System Configuration Verification

These routines check the current system configuration against the values stored in the CMOS memory. If they don't match, the program will generate an error message. To correct this condition, you will need to run the BIOS setup program and correct the configuration information in memory.

There are three situations that might warrant changing the CMOS settings:

1. You are starting your system for the first time.
2. You have changed the hardware attached to your system.
3. The CMOS memory had lost power and the configuration information has been erased. If this has happened, call the Support Hotline.

See Chapter 6, *BIOS Settings*, for information on restoring factory CMOS configuration.

Troubleshooting

Powerup

Symptom	Possible Causes	Solution
Display is blank.	See “Display” in this chapter	See “Display” in this chapter
Safe Recovery Error message displayed.	Occurs on initial power up if the unit is accidentally turned off without first shutting down the Windows NT software.	The Display Station 2010 will power up normally.
Memory count during powerup self-test is incorrect.	Optional DIMM is installed incorrectly or is incompatible with the Display Station 2010 CPU.	Make sure that the appropriate memory is installed correctly.
CMOS checksum error — Defaults loaded CMOS battery failed message displayed.	CMOS battery failure.	Note: This battery has a lifetime of up to 10 years under normal operating conditions.
A screen appears just after powerup, or just after reset, which has the title “CMOS Setup Utility.”	The F2 key has been accidentally pressed.	Cycle power again. The Display Station 2010 will power up normally.
The Display Station 2010 reset even though the power was not interrupted.	The Ctrl-Alt-Del keys were pressed twice at the same time.	This should never be done, unless you are attempting to reset the Display Station 2010.

Display

Symptom	Possible Causes	Solution
Characters are dim.	Computer screen is in direct light.	Change lighting or adjust contrast.
Display is blank.	Screen temperature is outside operating range.	If Display Station 2010 is in direct sunlight, move it and allow it to cool.
	Display Station 2010 is set up for invalid video mode.	Reboot, then select VGA Mode. If Windows is now displayed, go into Control Panel, Display Settings, and change settings to the correct video driver and mode. Contact the Support Hotline for more information.
	Rear housing is not completely secured to front of Display Station 2010.	Reattach rear housing to front of Display Station 2010, making sure that the two separate parts are lined up correctly. Follow the instructions in chapter 3.
	Screen saver is active.	Touch the screen.

Memory

Symptom	Possible Causes	Solution
Memory count during powerup self-test is incorrect.	Optional DIMM is installed incorrectly or is incompatible with the Display Station 2010 CPU.	Make sure that the appropriate memory is installed correctly.
Out of Memory message is displayed or insufficient memory error occurs during operation.	System ran out of memory for the application.	Check the memory requirements for the application. (Refer to the application documentation.) Install additional memory.
	Too many terminate and stay resident (TSR) programs running.	Modify the startup folder to use only those TSR applications that are really needed.

External PS2 Mouse

Symptom	Possible Causes	Solution
Cursor does not respond to mouse movement.	Mouse not plugged in.	Power down Display Station 2010. Plug mouse into mouse port on Control Station and reboot.
	The type of mouse is not supported.	Use a PS2 mouse.
	System is busy.	Press Ctrl-Alt-Delete to view task list.
	Mouse not detected.	Restart Display Station 2010 with external mouse connected.

Keyboard

Symptom	Possible Causes	Solution
External keyboard locks up	Keyboard not plugged into keyboard port on Display Station 2010.	Plug keyboard in.
	System is busy.	Press Ctrl-Alt-Delete to view task list.

Printing

Symptom	Possible Causes	Solution
Printer will not turn on.	Cables not connected properly. Printer power cord not plugged in.	Ensure that the cables are properly connected and that the power cord is connected to the electrical outlet.
Printer will not print.	Printer is not turned on.	Turn on the printer
	Printer is not online.	Set the printer to online.
	The device drivers for your application are not installed.	Install the correct printer drivers for your application in Windows.
	Printer that is set up for a network is not connected to the network.	Connect the printer to the network.
	Printer cable is too long, unshielded, or defective.	Replace the cable.
Printer is offline.	Paper tray is empty.	Fill the paper tray with paper. Set printer to online.
Printer prints garbled information.	Correct printer drivers not installed.	Install the correct printer driver.
	Cable is not connected properly.	Ensure that the printer cable is connected properly to the computer.
	Problem specific to printer.	Run a printer self-test. Refer to the documentation provided with your printer for instructions. If the self-test fails, the problem is printer-specific. The printing section of the software documentation and in Windows online Help may also be helpful.

Corrective Actions

CMOS Checksum Error

If the CMOS battery has failed, the following error messages will be displayed on the screen:

CMOS checksum error - Defaults loaded

CMOS battery failed

If you see the above message, you can still operate the Display Station 2010 by pressing the F2 key and manually setting up the system. (You will need to set up the computer each time the system is powered up.) For setup parameters, refer to “BIOS Settings.”

This battery has a lifetime of up to 10 years under normal operating conditions. If the battery fails, contact the Support Hotline.

If the battery failed, contact the GE Fanuc *Technical Service Hotline*. North American customers should call toll-free at **1-800-GE FANUC (1-800-433-2682)**. International customers should dial direct: **804-978-6036**.

Mechanical Specifications

Front Assembly

The Display Station 2010 has either a 10.4" or a 12.1" display screen. The front panel assembly is engineered to IP65 standards.

Main Chassis

The main chassis is manufactured from aluminum and houses the motherboard, which is mounted securely in a vertical plane, parallel to the front of the Display Station 2010.

The chassis has been designed to conform to the standards necessary to meet UL and CE approvals.

Rear Cover

The rear cover of the unit is fixed to the main chassis so that there are no slots allowing EMC emissions to escape. The cover can be removed easily without breaking any electrical connections.

Panel Mounting System

Eight spring-loaded clamps are provided for mounting the Display Station 2010 to a panel.

Field Detachable Rear Housing

The Display Station 2010 is equipped with detachable rear housing to facilitate the maintenance and installation of the unit in the field.

Functional Specifications

CPU and Memory	
Microprocessor	Pentium 233MHz minimum
User Memory	Minimum 64Mbyte
Operating System	Windows NT
Hard Disk	6.0 GB minimum, IDE standard 2.5 inch mounting

PC Backplane	
PC104/ISA Expansion Slots	2 combo ISA/PCU slots (half size) 1 ISA slot (half size)
Total current available	By default, the MAX2 board in the system should be required to provide less than 2 amps of +5 VDC, less than 1 amp of +12 VDC, and less than .5 amp of -12 VDC. An auxiliary power connector on the backplane can increase the amount of power available to the I/O boards if required.

Display	
Display Variants	10.4 inch Color TFT – VGA (640 x 480) 12.1 inch Color TFT – SVGA (800 x 600)
Active Display Area	10.4” or 12.1”

Power Requirements	
AC Models	
AC Input	90 to 264 VAC, 100W autoranging
Power Rating	47 to 63Hz; 12/4A

Ports	
Parallel Port	One: LPT1
Serial Ports	COM1 internal RS232 port COM2 external RS232 port COM3 external RS232 port
Keyboard Port	PS2
Mouse Port	PS2

Physical	
Dimensions Main Enclosure	10.4" Display Unit 305mm wide (12.47 inches) 241mm high (9.5 inches) 164mm deep (6.46 inches)
Weight (base unit with no optional cards installed)	6.8 Kg (15lbs)

Environmental Specifications

Operating Temperature	0 to 50°C (TFT) display
Storage Temperature	-20° to 60°C
Relative Humidity	5 to 90% non-condensing

Filter Pads	
Dimensions	80mm by 80mm (3.15" by 3.15")
Material	Polyurethane foam.
Performance Requirements	Retain 75% by weight of dust particles down to 5-10 microns in size Withstand temperatures to 100° C Provide flame resistance to BS2963

Note: Filter pads (reference Globe Motors part FFM3145).

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