



# *GE Fanuc Intelligent Platforms*

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*Industrial Monitors*

*ST-M241 Flat Panel Monitor*

*Hardware User's Manual*

*January 2008*

## *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 Intelligent Platforms assumes no obligation of notice to holders of this document with respect to changes subsequently made.

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## **Content of This Manual**

This manual describes the features and operation of the ST-M241 industrial monitor product.

# Chapter 1

## *ST-M241 Monitor Features*

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The ST-M241 monitor is a 12.1" rugged flat panel monitor designed for the industrial environment.

The monitor is a fully self-contained PC-compatible monitor with a built in 12.1" display and Infrared touch screen. The unit is housed in a sturdy cast aluminum enclosure.

The unit is supplied completely assembled and requires only mounting, connecting cables, and installing the touch screen driver on the source PC.

### **Feature Summary**

When you purchase a ST-M241 monitor, you receive

- ‡ LCD monitor
- ‡ 6' external power cord
- ‡ 6' video cable
- ‡ 6' touch screen serial cable

## Standard Features

- 12.1” Color Active Matrix TFT- SVGA 800x600 resolution
- Serial infrared touch screen
- RGB HD15 VGA video port
- DB9 connector for serial communication with touch screen
- External OSD keypad with connection via rear interface
- AC power input with connection via rear interface
- Cast aluminum housing

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## Optional Features

The following features are optional on all systems. Contact your GE Fanuc sales representative for details.

- Sunlight readable display
- Front mounted brightness control
- Rear I/O cover

## I/O Connectors and OSD Control

The ST-M241 provides I/O connectors on the back of each unit for video, touch screen, OSD and power.

## POWER INPUT

Input power is provided via a three-prong connector on back of the monitor. The monitor will turn on when power is applied.

## Standard I/O

The ST-M241 monitor provides the following I/O interface channels:

- One Video port for analog VGA or SOG input
- One Touch port for serial communication between touch screen and a PC COM port.

# Chapter 2

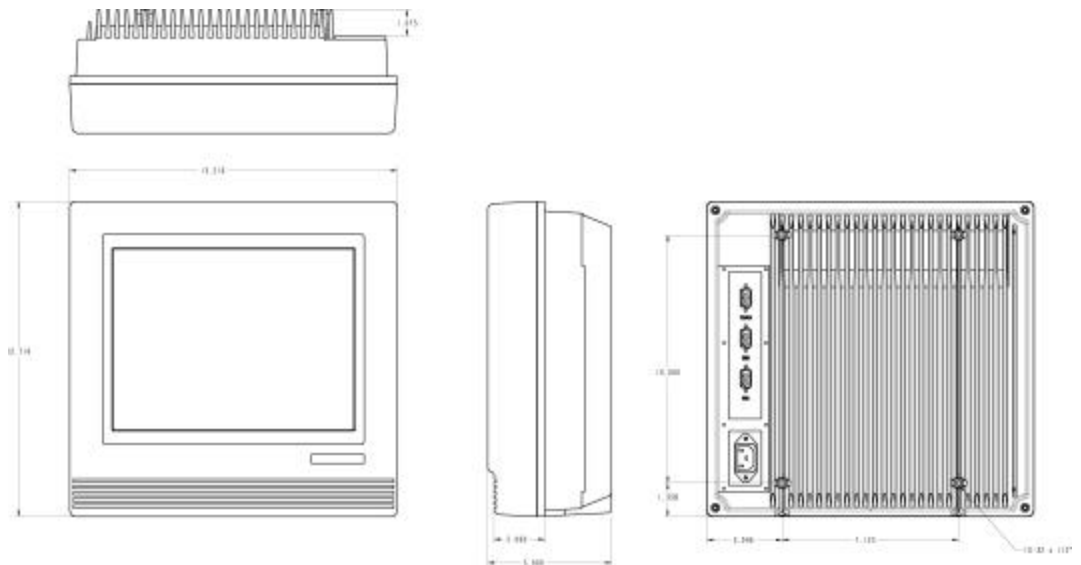
## Hardware Installation

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The ST-M241 is designed to be used as either a free standing monitor or rear mounted via threaded holes on the rear of the unit.

The following drawing shows the overall monitor dimensions:



This chapter describes the connector layout and cabling of the ST-M241 monitor. All power and communication connectors are described in this section.

All connectors are located on back of the monitor.

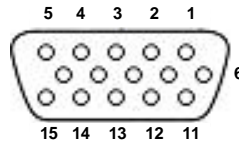
- AC power input connector
- Analog RGB video connector
- Serial touch screen communication connector
- OSD keypad input connector

## **Power Input**

ST-M241 monitors are powered by 120 VAC. The unit will turn after power is applied to the three-prong power connector on the rear of the unit. This is accomplished with the 6' power cable that is shipped with the monitor. There are no user serviceable fuses.

## Analog RGB Connector

ST-M241 monitors receive analog RGB input via the HD15 connector on the rear of the monitor. This is accomplished with the 6' video cable that is shipped with the monitor. One end of the cable would connect to the HD15 connector on the ST-M241 while the other end would connect to the HD15 on the host PC. The standard connector pin out is shown below.

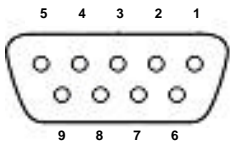


Pin	Signal	Pin	Signal
1	Red, analog	9	DDC +5V
2	Green, analog	10	Digital Ground
3	Blue, analog	11	Reserved (grounded)
4	Reserved (grounded)	12	DDC Data
5	Digital Ground	13	Horizontal Sync
6	Analog Ground (Red)	14	Vertical Sync
7	Analog Ground (Green)	15	DDC Clock
	8	Analog Ground (Blue)	

## Touch Screen Serial Connector

A ST-M241 with Infrared touch screen provides serial cable access to the touch via the DB9 connector on the back of the monitor. This is accomplished with the 6' serial cable that is shipped with the monitor. One end of the cable would connect to the DB9 connector on the ST-M241 while the other end would connect to the DB9 on the host PC.

The standard connector pin out is shown below.



Pin	Assignment
1	Not Connected
2	TX (Transmit Data)
3	RX (Receive Data)
4	Not Connected
5	Not Connected
6	Not Connected
7	Not Connected
8	Not Connected
9	Signal Ground

## **OSD Keypad Connector**

An OSD keypad ships as an accessory with each ST-M241 monitor. This keypad connects to the monitor via the labeled connector on back of the monitor. This is accomplished via a cable that ships with the keypad.

## **Optional I/O cover**

The ST-M241 has an optional I/O cover that is used to cover and seal all the I/O connections. Its primary use is to shield the connections from outside contaminants. The cover has sealable holes that allow the I/O cables to pass through and reach the connectors. If ordered with the ST-M241, the cover will be installed prior to shipping from the factory.

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

- Setup
- Operator Interfaces

## Setup

### **Powering Up The ST-M241 Monitor**

The ST-M241 monitor is turned on by applying power to the input power connector.

### **Powering Down The ST-M241 Monitor**

The ST-M241 monitor is turned off by removing power from the input power connector.

# Operator Interfaces

## Touch Screen

The ST-M241 includes an Infrared touch screen on the flat panel display.

The touch screen provides an efficient and reliable method of entering information. The screen responds to a touch of your finger with or without a glove.

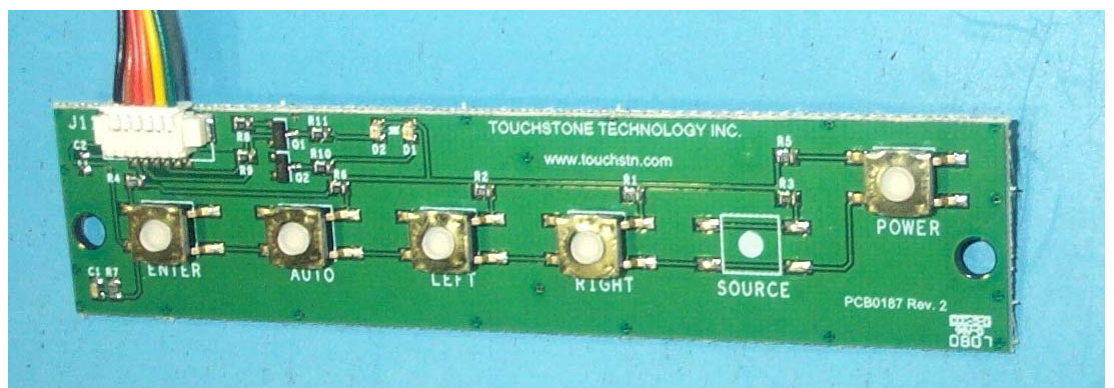
The touch screen communicates serially with a PC COM port.

The touch screen requires a software driver to operate. This driver is based on the operating system being used. Please contact the vendor at 1-864-627-8800 for information and driver availability.

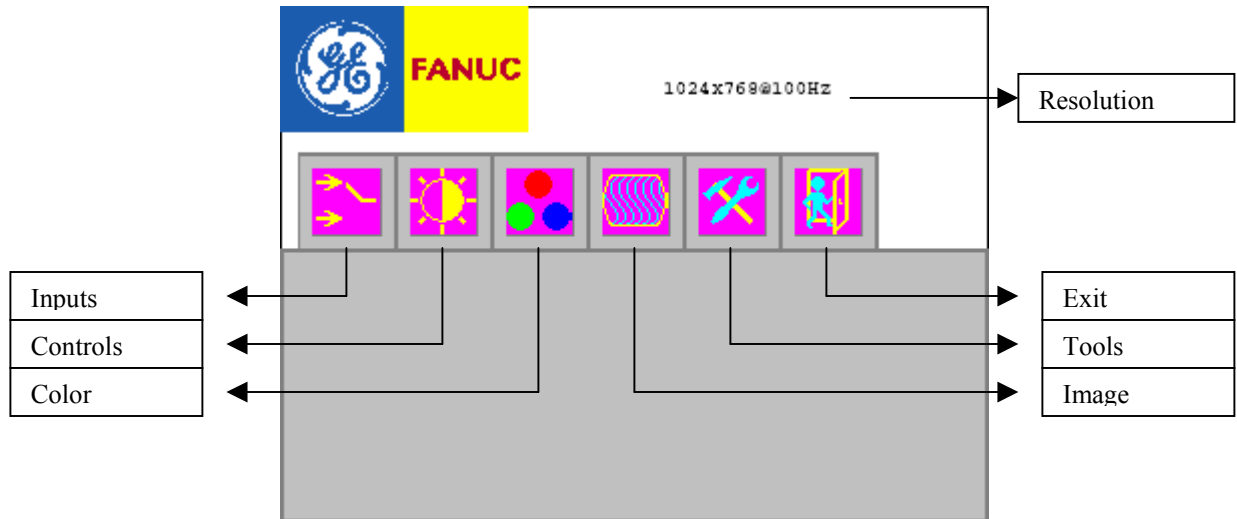
## OSD (On Screen Display)

The button board controls the OSD with switch presses. The “Power” button applies power to or removes power from the controller board. The “Auto” button adjusts the picture to fit the screen. The “Enter”, “Left”, and “Right” buttons operate the OSD. The “Enter” brings up the OSD. It also selects menus and sub-menus. “Left” and “Right” move between OSD menus and increment/decrement controls.

## Button Board



## Main Screen

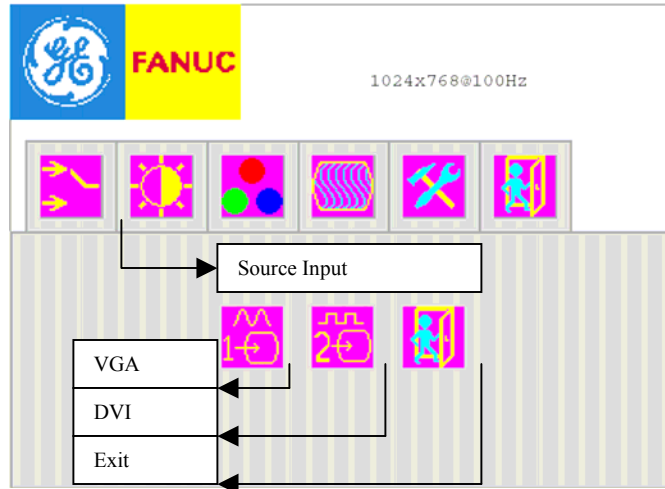


**Figure 1. Main Screen**

The Main Screen contains the menus and the resolution of the input signal. The main menu contains the menus “Inputs”, “Controls”, “Color”, “Image”, “Tools”, and “Exit”. The Inputs refers to the source inputs. The controls are the brightness and contrast type controls. The Color menu controls the color temperature of the image. The image refers to sizing and position functions. The tools control the image and menu features. And “Exit”, of course, removes the OSD from the image. The resolution refers to the resolution of the input source.

Use the “Left” and “Right” arrow buttons to move between menus and the “Enter” button to select or enter a submenu.

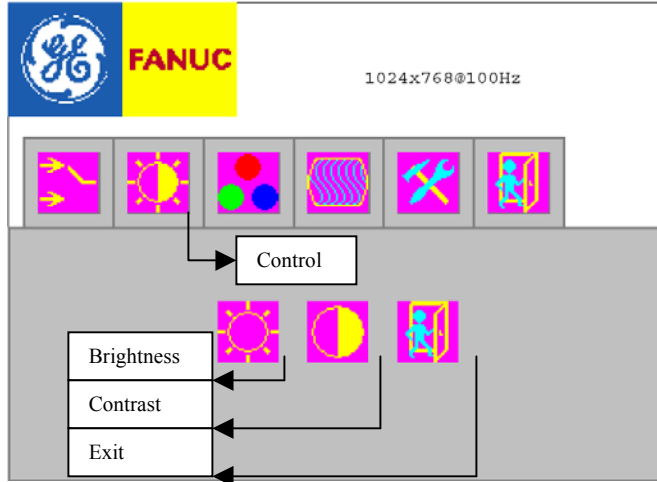
## Source Input Screen



**Figure 2. Source Input**

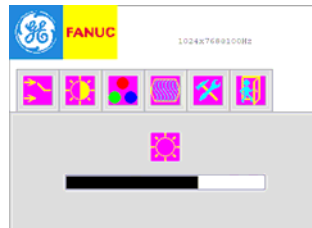
The Source Input controls the video input source. This allows switching between the analog and digital source if it is available on the hardware. If the source is not available, it will switch back to the available source automatically. Exit removes the menu from the image.

## Control Screen



**Figure 3. Control Screen**

The Control Screen controls the brightness and contrast of the video. Selecting either with “Enter” causes the following control submenu screens to appear.



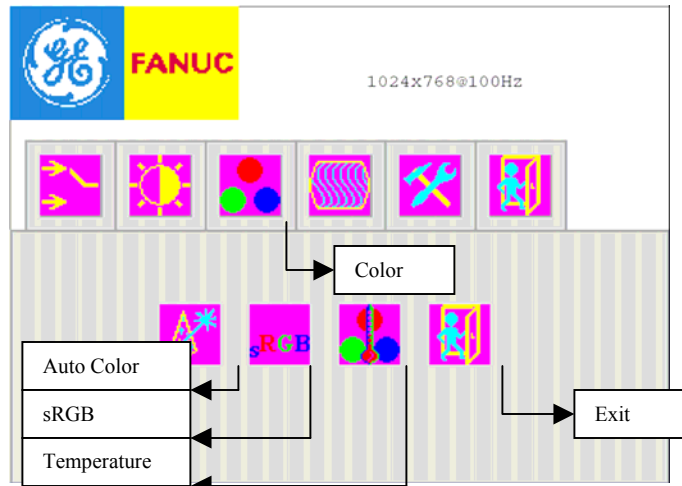
**Figure 4. Brightness**



**Figure 5. Contrast**

Figure 4 shows the brightness menu and Figure 5 shows the contrast menu. The left and right buttons increase and decrease the brightness or contrast of the display. Exit removes the menu from the image.

## Color Screen



**Figure 6. Color Screen**

The first submenu under the Color Menu is the Auto Color. It automatically selects the color temperature based on the input signal.

Next is the sRGB. It sets the color temperature such that each color is equal and fully on.

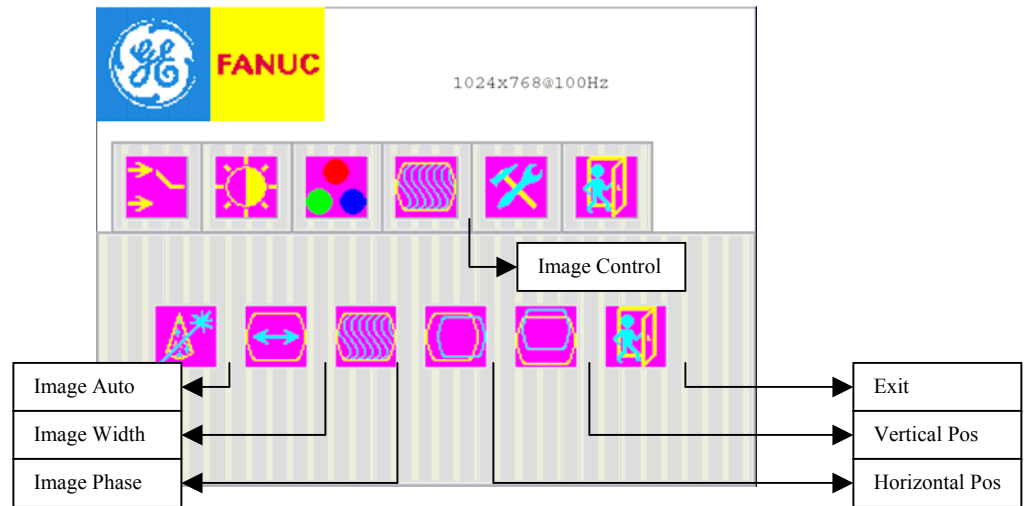


**Figure 7. Color Temperature Selector**

The Temp submenu is the Color Temperature submenu. It allows the user to select other color temperatures that they may prefer. Color Temperatures allowed are shown in Figure 7. They are a user modified color temperature, 4200k, 5000k, 6500k, 7500k, and 9300k. Again, the user may use left and right buttons to highlight the desired selection and enter to select it.

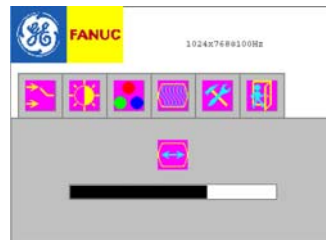
Exit still removes the menu from the image.

## Image Control



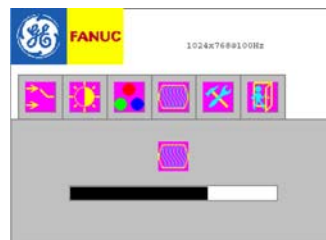
**Figure 8. Image Control**

The first submenu is the image auto. It does the same thing as the “Auto” button on the OSD button board.



**Figure 9. Image Width**

Figure 9 shows the control of the image’s width. Left makes it smaller and right makes it bigger.



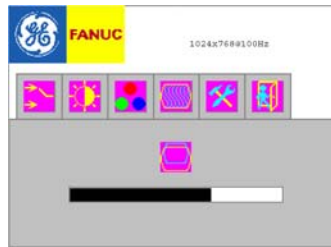
**Figure 10. Image Phase**

Figure 10 show the capability of modifying image phase.



**Figure 11. Horizontal Position**

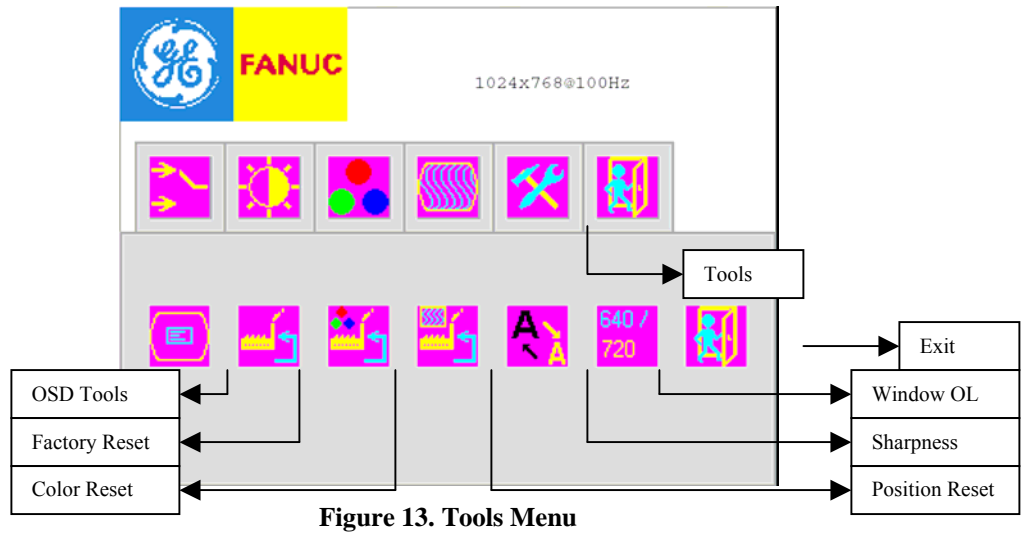
Selecting horizontal position allows the user to move the entire image left and right. The left button moves it left and the right button moves it right.



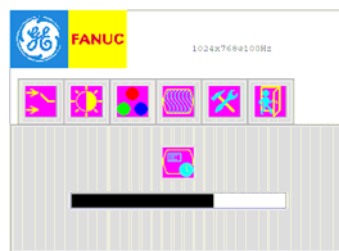
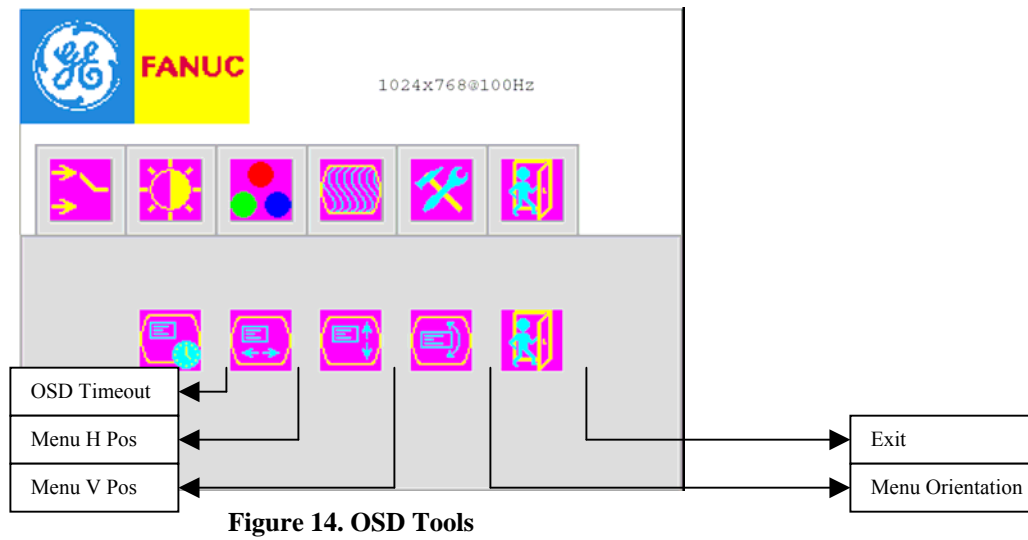
**Figure 12. Vertical Position**

Selecting vertical position allows the user to move the entire image up and down. The left button moves it up and the right button moves it down. Exit removes the menu from the image.

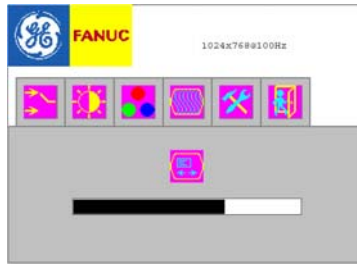
## Tools



The “Tools” menu allows miscellaneous controls.



The OSD Menu Timeout controls how long the Menu remains visible to the user. The left button decreases the time it is visible and the right button increases it.



**Figure 16. OSD Menu Horizontal Position**

The OSD Menu Horizontal Position moves the OSD Menu Horizontally.



**Figure 17. OSD Menu Vertical Position**

The OSD Menu vertical position moves the OSD Menu Vertically.



**Figure 18. OSD Direction**

OSD Direction changes the orientation of the OSD. Several options are available. The first option leaves it normal which is the default. The second mirrors it. The third displays reading from bottom to top, and the fourth displays it top to bottom. The fifth and last one displays it upside down.



**Figure 19. Menu Sharpness**

The Sharpness submenu makes the appearance of the video look sharper or less sharp.

The last submenu item is DOS text mode switch.

Exit removes the menu from the image.

## **Exit**

The main “Exit” menu removes the OSD graphic from the image.

## **Optional Dimming Adjustment**

The ST-M241 offers optional brightness control over the display.

If ordered, a rotating knob would be installed on the front of the unit. The knob would allow the operator to adjust from full screen brightness to lesser levels. Typically counterclockwise would lessen the brightness and clockwise would increase.

# Chapter 5

## *Safety Instructions*

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### Warning

**This equipment carries electric currents and contains highly sensitive components. You should not attempt modifications to the unit. If modifications need to be made, the manufacturer or an authorized service agent must be contacted. The unit must be switched off at the main power supply and the power cable disconnected during such work. Suitable precautions must be taken to avoid electrostatic discharge on contact with components. If an unauthorized person opens the product case, danger to the user may arise and the warranty will be void.**

### Caution

**To prevent damage to the unit, do not attempt to connect leads (power supply and port cables) unless the unit is switched off.**

## Damage Resulting from Inappropriate Use

If the ST-M241 displays signs of damage caused by inappropriate operating/storage conditions, mounting, or incorrect handling, the unit must be taken out of use immediately and secured against unintentional operation.

## Warranty and Repairs

Repairs under warranty may only be made by the manufacturer or by agents authorized by the manufacturer.

For return authorization, contact 1-800-627-8800 Customer Service. Be prepared to provide delivery date, product model, customer order number, unit serial number, and reason for return request.

### Caution

**Units must be returned to the factory in the original shipping container. If you do not have the original shipping container, contact Computer Dynamics for further instructions.**

## Transportation Damage

### Warning

**If the product has incurred obvious damage during transportation, do not apply power**

If the product has incurred obvious damage during transportation, you should avoid applying power. Obvious transport damage should be reported to the supplier immediately. Less obvious damage that becomes evident in the early operation of the product must be reported within five days of the initial delivery for consideration as transportation damage.

# Chapter 6

## Technical Data

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### Mechanical Specifications

#### Main Chassis

The main chassis is manufactured from cast aluminum and houses the infrared touch screen, video controller board, backlight inverter, and AC power supply.

#### Weight

Approximately 26 lbs.

### LCD Specification

Diagonal:	307.4 mm (12.1")
Resolution (Pixel):	SVGA (800 x 600)
Video Input	Standard RGB
Colors:	256K
Brightness:	350 cd/m <sup>2</sup> (downward adjustable with dimming option)

**Note:** 900 cd/m<sup>2</sup> with sunlight readable option (downward adjustable with dimming option)

### Environmental Specifications

Temperature	Operating: 0—50°C Storage: -20—60°C
Enclosure Protection	NEMA 12

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## Power Specification

### Power Consumption

35W typical for standard display configuration; 50W for sunlight readable configuration.

### Power Input (cable socket)

The power supply input to the industrial computer uses a standard IEC cable, which is provided with the unit.

<i>Pin</i>	<i>Signal</i>
Outside	100—240 VAC
Center	Ground
Outside	100—240 VAC

