# INDUSTRIAL COMPUTER SOURCE®

# Model 9014A Series
# Product Manual

MANUAL NUMBER :   00431-001-5A

# FOREWARD

This product manual provides information to install, operate and or program the referenced product(s) manufactured or distributed by Industrial Computer Source. The following pages contain information regarding the warranty and repair policies.

Technical assistance is available at: **1-800-480-0044**.

**Manual Errors, Omissions and Bugs:** A "Bug Sheet" is included as the last page of this manual. Please use the "Bug Sheet" if you experience any problems with the manual that requires correction.

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# Guarantee

A thirty day money-back guarantee is provided on all **standard** products sold. **Special order products** are covered by our Limited Warranty, *however they may not be returned for refund or credit. EPROMs, RAM, Flash EPROMs or other forms of solid electronic media are not returnable for credit - but for replacement only. Extended Warranty available. Consult factory.*

## Refunds

In order to receive refund on a product purchase price, the product must not have been damaged by the customer or by the common carrier chosen by the customer to return the goods, and the product must be returned complete (meaning all manuals, software, cables, etc.) within 30 days of receipt and in as-new and resalable condition. The **Return Procedure** must be followed to assure prompt refund.

## Restocking  Charges

Product returned *after* 30 days, and *before* 90 days, of the purchase will be subject to a **minimum** 20% restocking charge and any charges for damaged or missing parts.

Products not returned within 90 days of purchase, or products which are not in as-new and re-saleable condition, are not eligible for credit return and will be returned to the customer.

## Limited Warranty

One year limited warranty on all products sold with the exception of the "Performance Series" I/O products, which are warranted to the original purchaser, for as long as they own the product, subject to all other conditions below, including those regarding neglect, misuse and acts of God. Within one year of purchase, Industrial Computer Source will repair or replace, at our option, any defective product. At any time after one year, we will repair or replace, at our option, any defective "Performance Series" I/O product sold. This does not include products damaged in shipment, or damaged through customer neglect or misuse. Industrial Computer Source will service the warranty for all standard catalog products for the first year from the date of shipment. After the first year, for products not manufactured by Industrial Computer Source, the remainder of the manufacturer's warranty, if any, will be serviced by the manufacturer directly.

The **Return Procedure** must be followed to assure repair or replacement. Industrial Computer Source will normally return your replacement or repaired item via UPS Blue. *Overnight delivery or delivery via other carriers is available at additional charge.*

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Industrial Computer Source or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Industrial Computer Source or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the owners' manual.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Industrial Computer Source reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

**Shipments not in compliance with this Guarantee and Limited Warranty Return Policy will not be accepted by Industrial Computer Source.**

# Return Procedure

For any Limited Warranty or Guarantee return, please contact Industrial Computer Source's Customer Service at **1-800-480-0044** and obtain a Return Material Authorization (RMA) Number. All product(s) returned to Industrial Computer Source for service or credit **must** be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items **must** be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty **must** include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing date of purchase.

> To reduce risk of damage, returns of product must be in an Industrial Computer Source shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Industrial Computer Source Customer Service at a nominal cost.

# Limitation of Liability

In no event shall Industrial Computer Source be liable for any defect in hardware or software or loss or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Industrial Computer Source liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Industrial Computer Source or its authorized agent.

Some *Sales Items* and *Customized Systems* are **not** subject to the guarantee and limited warranty. However in these instances , any deviations will be disclosed prior to sales and noted in the original invoice. ***Industrial Computer Source reserves the right to refuse returns or credits on software or special order items.***

# Advisories

Three types of advisories are used throughout the manual to stress important points or warn of potential hazards to the user or the system. They are the Note, the Caution, and the Warning.  Following is an example of each type of advisory:

> **Note:**  The note is used to present special instruction, or to provide extra information which may help to simplify the use of the product.

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## CAUTION!

A Caution is used to alert you to a situation which if ignored may cause injury or damage equipment.

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## WARNING!

A Warning is used to alert you of a situation which if ignored will cause serious injury.

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Cautions and Warnings are accented with triangular symbols.  The exclamation symbol is used in all cautions and warnings to help alert you to the important instructions.  The lightning flash symbol is used on the left hand side of a caution or a warning if the advisory relates to the presence of voltage which may be of sufficient magnitude to cause electrical shock.

Use caution when servicing any electrical component. We have tried to identify the areas which may pose a Caution or Warning condition in this manual; however, Industrial Computer Source does not claim to have covered all situations which might require the use of a Caution or Warning.

You must refer to the documentation for any component you install into a computer system to insure proper precautions and procedures are followed.

# List of Items Furnished

The 9014A-P or 9014-R will contain the following:

•        Monitor with attached video cable

•        Power cable

•        9014A Series Product Manual

The 9014A-PIR or 9014A-RIR will contain the following:

•        Monitor with attached video and MID cable.

•        Power cable

•        9014A Series Product Manual

•        Touch Systems Diagnostics User's Guide

•        Windows Driver User's Guide

•        Programers Guide

•        Software Disk

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**Current Revision 5A**

**April  1997**

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# Chapter 1: Introduction

## General

The 9014A series monitor provides an industrial grade display unit suitable for rack or panel mount configurations. The rack mount unit (-R) will fit in a 19" RETMA standard rack with at least 16" of free vertical space. The panel mount version (-P) meets NEMA 4 requirements at the front panel.

The chassis is constructed from 18 gauge, cold rolled steel to provide a ruggedized enclosure. It allows easy access to all monitor controls while protecting the monitor from many industrial hazards. The monitor used in the 9014A series is a CE Compliant, 14" Super VGA monitor. It is a multi-scan monitor, capable of synchronizing to the frequencies listed in table 1-1.

| H-frequency | V-frequency | Resolution |
|:-----------:|:-----------:|:----------:|
| 31.5KHz | 70Hz | 640x350 |
| 31.5KHz | 70Hz | 720x400 |
| 31.5KHz | 60Hz | 640x480 |
| 35.2KHz | 56Hz | 800x600 |
| 35.5KHz | 87Hz | 1024x768  (interlace) |

**Table 1-1: Monitor Frequencies**

## Power Saver Feature

If your CPU uses a power saver feature or you use a screen blanking program, the 9014A monitor will reduce its power consumption when the CPU is not is use. During normal operations, the monitor will consume < 70 watts. When the CPU enters its power down mode or the screen blanker blanks the screen, the monitor will enter its power saver mode and reduce its consumption to < 15 watts. The power indicator will turn amber when this condition is present. The power saver feature exceeds the Environmental Protection Agency's (EPA) Energy Star requirements.

## Controls and Indicator

### Monitor

The 9014A series monitor has adjustments for many display parameters to give you the optimum display under a variety of conditions. Each adjustment is listed below with an explanation of its function.

### V-center

The V-center adjusts the vertical center of the display from top to bottom without changing the actual size of the display.

### V-size

The V-size adjusts the vertical size of the display area without changing the actual center of the display.

### H-center

The H-center adjusts the horizontal center of the display from side to side without changing the actual size of the display.

### H-size

The H-size adjusts the horizontal size of the display area without changing the actual center of the display.

### Contrast

The contrast adjustment allows you to adjust the range between the darkest and lightest points of the display.

### Brightness

The brightness adjustment allows you to adjusts the display's brightness

### Power Switch

The power switch is a push type switch. Depressing the power switch will cause the monitor's power state to reverse: if power is on, depressing the power switch will turn power off; if it is off, depressing the power switch will turn power on.

### Power Indicator

The power indicator is a multipurpose indicator. When power is on, the indicator will be green. If the monitor is in its power saver mode, the indicator will be amber. When power is turned off, the indicator will be out.
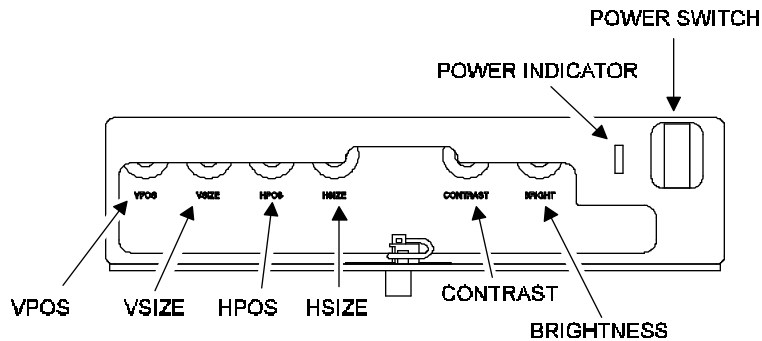


**Figure 1-1: Control Locations**

## IR Touch Screen (IR Models Only)

The 9014A-RIR and -PIR include an infer red touch screen module. This option allows you to input commands by touching the monitor screen instead of using a mouse or keyboard. The touch screen scanning grid is comprised of 30 horizontal and 40 vertical scanning beams. The touch screen is capable of operating in Enter Point, Tracking, Continuous, and Exit Point modes.

An RS-232 serial controller is included with the monitor. It provides the interface between the touch screen and the host computer. It is mounted inside the monitor enclosure and receives +12V from a seperate power supply. The controller operates at 300-19,200 baud, either auto ranging or jumper selected via W3 on the controller. Input to the controller is proved through a DB-9 connector on the rear of the monitor.

## Specifications

### Dimensions (W x H x D)

9014A-R

19.00 x 15.72 x 15.54in

482.60 x 399.29 x 394.72mm

9014A-P

16.75 x 16.75 x 15.54in

425.4 x 425.4 x 394.7mm

### Weight

9014A-X        45 lbs

### Physical Construction

Front panel- 12 gauge steel

Paint- Cardinal Paint, #8103-44705, Gray, Medium texture, Water based

Chassis- 18 gauge steel, Gold zinc plate finish

### Viewing area

13"

### Power Requirements

100-240VAC, 50/60Hz, 1.0A

### Connectors

Power Input- Three prong, grounded receptacle

Video Input- 15 pin D-Sub type

IR Touch Screen (IR Models Only)- DB-9 connector

### Picture Tube

14", Tinted, 90 degree deflection, Non-glare

0.28mm dot pitch

### Operating Temperature

$0^\circ$ C to $40^\circ$ C

### Storage Temperature

$-20^\circ$ C to $60^\circ$ C

### Agency Approvals

FCC Class A

CE Compliance 73/23/EEC, EMC 89/336/EEC

## Touch Screen Controller

### Frame Scan Rate

20-50 scans/second (frame size dependant)

### Reporting Modes

Scan, Coordinate

### Operating Modes

Enter Point, Tracking, Continuous, Exit Point

### Data Rates

300, 600, 1200, 2400, 4800, 9600, 19,200

### Charater Length

Fixed at 8 bits

### Stop Bits

Transmits 1; recieves 1, 1.5, or 2

### Parity

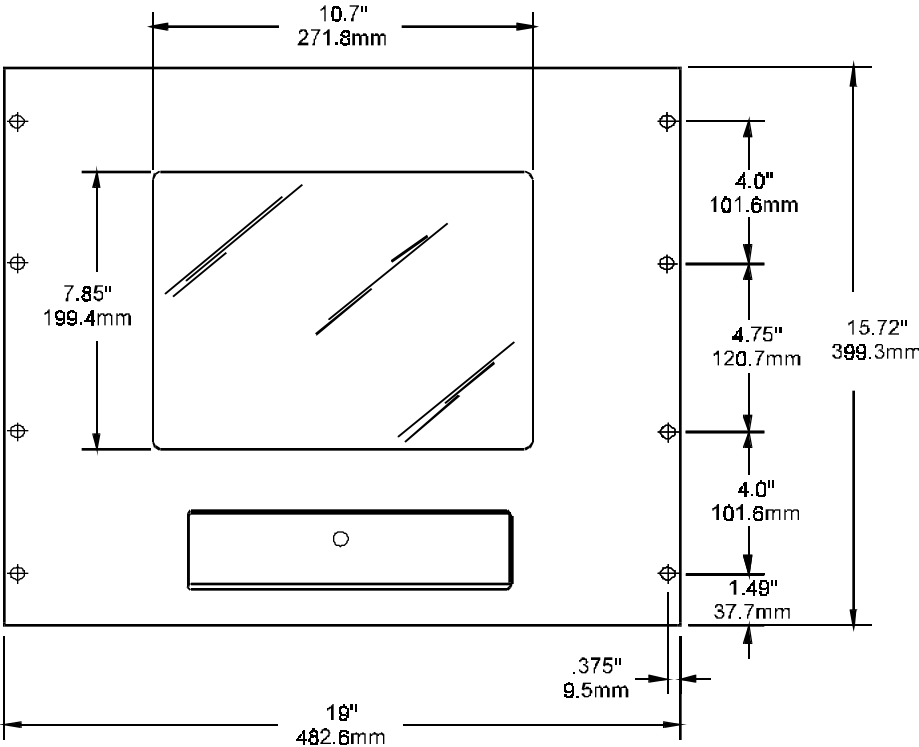Odd, even, or none

# Dimensional Drawings
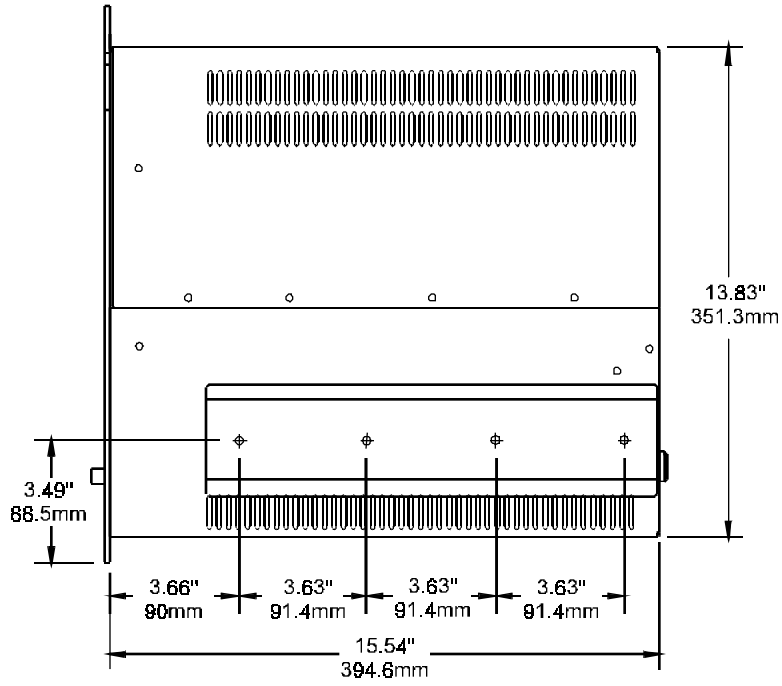


**Figure 1-2: 9014A-R(IR) Front View**

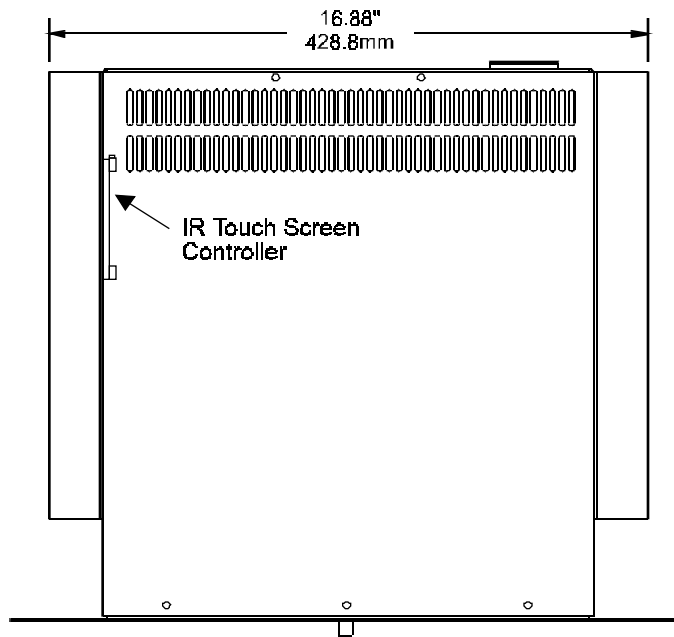**Figure 1-3: 9014A-R(IR) Side View**



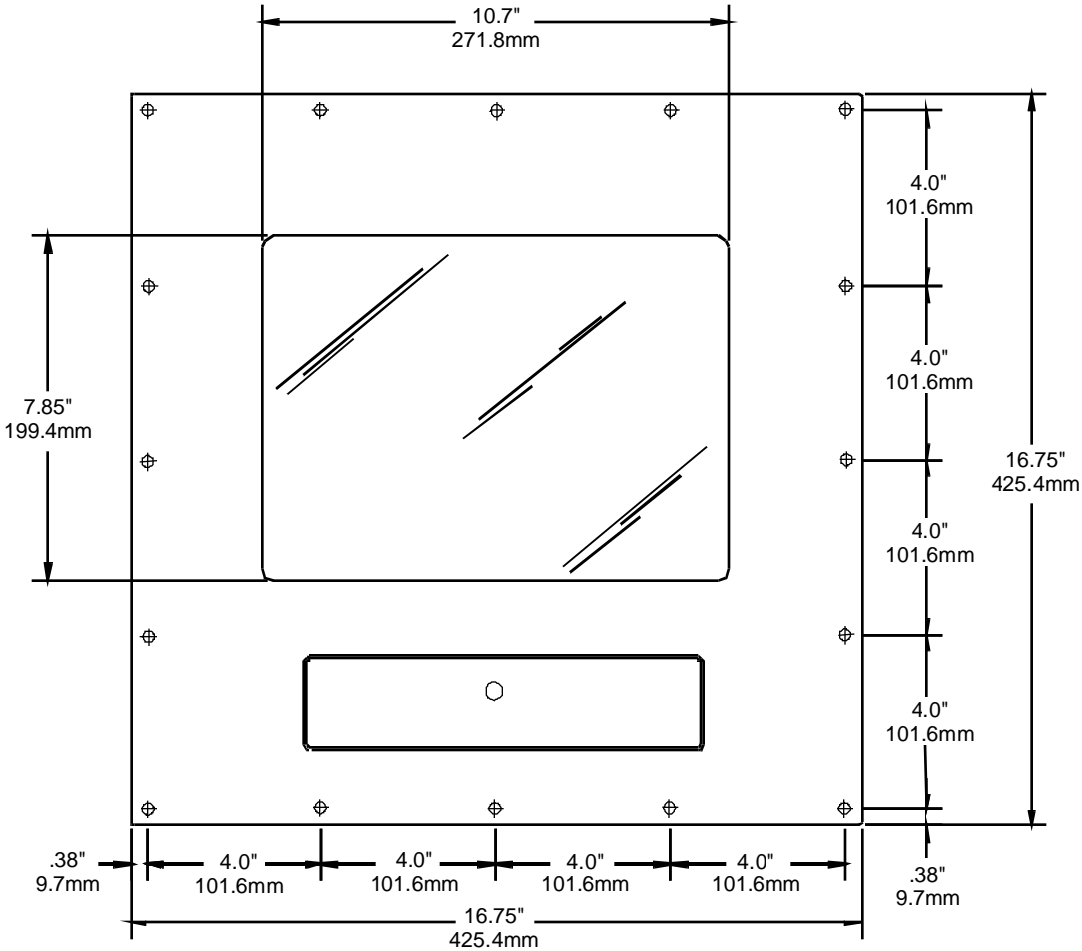**Figure 1-4: 9014A-R(IR) Top View**
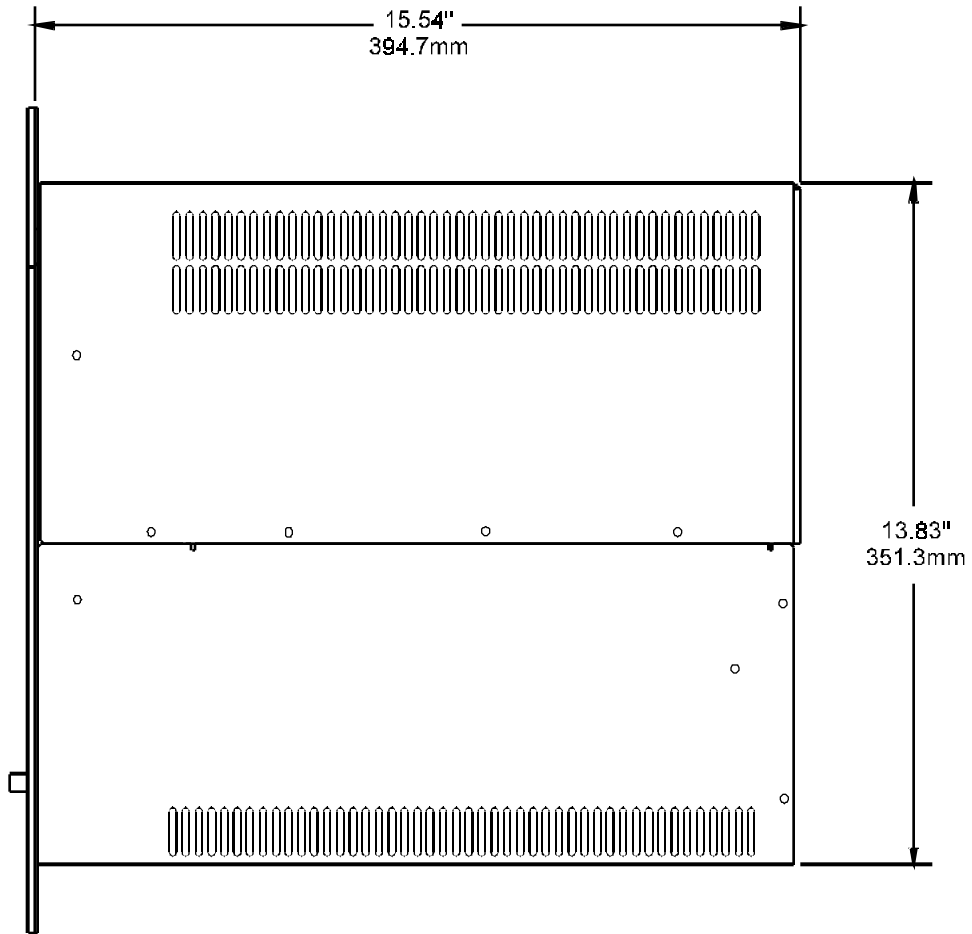
**Figure 1-5: 9014A-P(IR) Front View**

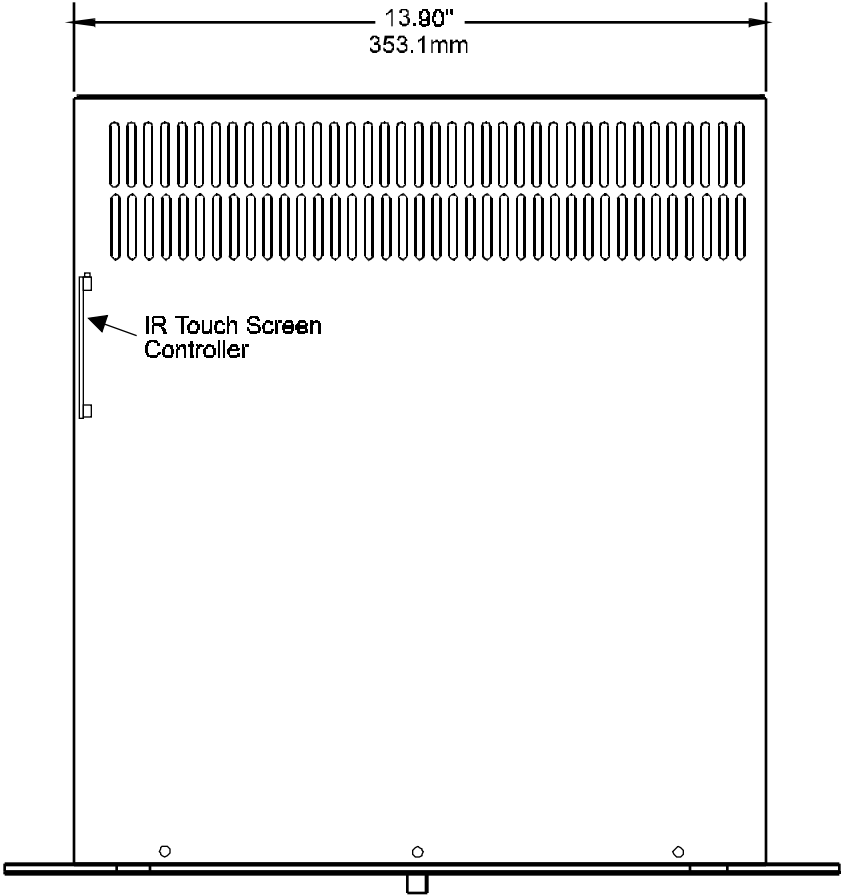**Figure 1-6: 9014A-P(IR) Side View**

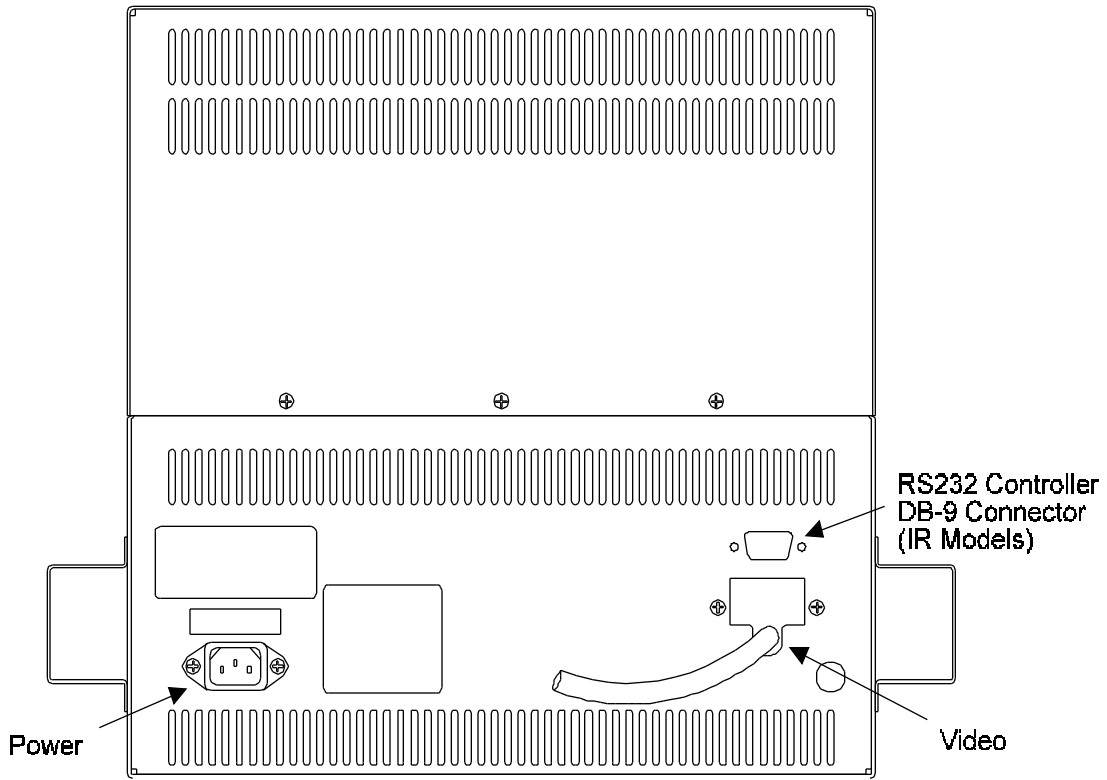**Figure 1-7: 9014A-P(IR) Top View**

**Figure 1-8:  9014A  Rear View**

# Chapter 2: Installation and Operation

The 9014A may be mounted in a standard RETMA rack (-R) or in a panel or bulkhead location (-P). When selecting a location to mount the monitor, insure proper ventilation will be maintained. Do not mount the monitor near a heat source. Also, do not block or cover any ventilation slots on the monitors chassis. Electrical power must be connected to the unit with a certified power cord for the country where the equipment is to be used. Position the monitor near its power source or receptacle to help prevent damage to the power cord.

## CAUTION!

Do not position the monitor where the power cord will span over a traffic area or where it may be bent or pinched. Damage to the power cord could result in injury to personnel or damage to equipment.

If the power cord is damaged or is not suitable for the country of use, replace with a 3-conductor, 18AWG (0.75mm$^2$ cross sectional area) cord, certified to the local electrical codes.

## Rack Mount

Installation of the rack mount versions of the monitor is simply a matter of bolting it into the 19" equipment rack via the front panel mounting holes. Equipment slide rails, model 7500-RMK, are recommended to provide easier access to the monitor for connection and troubleshooting, as required. The chassis and slide rails are set on RTMA standard spacing and will fit into any standard equipment rack with 16" of vertical space available.

If you have also purchased the 7500-RMK rack mount slides kit, install them following the included instructions. When the rails are installed, part in the rack and part on the monitor, install the monitor in the rack by sliding it in on the rails. When the chassis is slid into the rack, secure it in position by installing eight retaining screws through the holes of the front panel. Failure to do so may allow the monitor to slide forward if the cabinet is tilted or vibrated resulting in possible mechanical or electrical damage to your system or injury to personnel.

## Panel Mount

Panel mount models are designed for bulkhead or panel mounting. Mounting holes around the inside perimeter of the front panel should be used to secure the monitor to the panel. A front panel gasket is installed which will provide NEMA 4 level protection from the environment. This rating is achieved only at the front panel and only when properly mounted. Dimensions of the monitor and spacing of the mounting holes are given in figure 1-5.

## Connection

### Monitor

To connect the monitor to your system, a suitable video adapter capable of providing the proper signal as listed in figure 1-1, is required. Install the video adapter according to its instructions. Once this is accomplished, complete the following instructions:

1) Insure power is OFF on the monitor and computer.

2) Connect the video cable from the monitor to the video adapter.

3) Connect the power cord to the monitor and an acceptable power source.

**Note:** To maintain CE compliance, shielded cables *must* be used for connection of the monitor.

After the physical installation, the computer BIOS may need to be altered to take advantage of the display offered by your new monitor. Perform the alteration according to your CPU manual.

### IR Touch Screen (Option)

Connection of the IR touch screen can be accomplished by performing the following steps:

1) Insure power is OFF on the monitor and computer.

2) Connect the RS-232 serial cable from the DB-9 connector on the monitor to a serial port on the computer.

The touch screen controller is mounted towards the rear of the monitor on the left hand side (Figure 1-4). It contains two jumpers, W3 and W4. W3 controls the baud rate and parity settings and W4 selects the desired input voltage to the controller. The default setting for W4 is autobaud/autoparity (no jumpers installed) and +12 volts for W3 (jumpered between 3 and 4).

**Note:** It is very important that the voltage setting on jumper W4 is set to +12 volts or the touch screen may not operate properly.
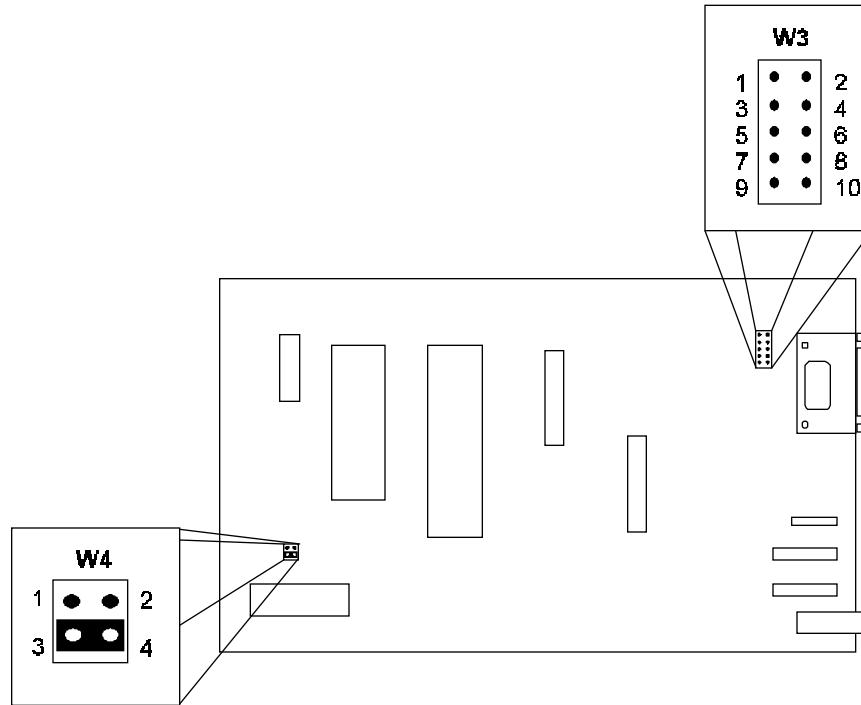
**Figure 2-1: RS-232 Jumper Locations**

| W3 Baud Rate Settings | | | |
|:---:|:---:|:---:|:---:|
| **Baud Rate** | **1 and 2** | **3 and 4** | **5 and 6** |
| **300** | ON | ON | ON |
| **600** | OFF | ON | ON |
| **1200** | ON | OFF | ON |
| **2400** | OFF | OFF | ON |
| **4800** | ON | ON | OFF |
| **9600** | OFF | ON | OFF |
| **19200** | ON | OFF | OFF |
| **\* AUTO** | OFF | OFF | OFF |

**Table 2-1: IR Controller Baud Rate Setting**

\* Default jumper setting

| W3 Parity Set | | |
|---|---|---|
| **Parity Set** | **7 and 8** | **9 and 10** |
| **\* EVEN** | OFF | OFF |
| **ODD** | ON | OFF |
| **NONE** | OFF | ON |

**Table 2-2: IR Controller Parity Setting**

| W4 Voltage Select | | |
|---|---|---|
| **Voltage** | **1 and 2** | **3 and 4** |
| +5V | ON | OFF |
| **\*  +12V** | **OFF** | **ON** |

**Table 2-3: IR Controller Voltage Setting**

\* Default jumper setting

For further information on configuring the IR touch screen and controller, please refer to the Touch Screen Diagnostics User's Guide.

## Operation

### Monitor

After the monitor is installed and connected to the computer, operation is as simple as turning it on and adjusting the display parameters to your preference. Turn power on the monitor by pressing and releasing the power switch. The power indicator should light to indicate that power is applied. Turn power on the computer and allow the system to stabilize. This will provide the needed video signal from the graphics adapter.

To adjust the display controls, run a program that uses a full screen, multi-color display. This will provide a full screen with contrasting colors to aid in adjustments. For information on the individual adjustments, refer to the Controls and Indicator section of Chapter 1.

### IR Touch Screen (Option)

For information on operation of the IR touch screen, please refer to the Touch Screen Diagnostics User's Guide.

# Chapter 3: Maintenance

## Cleaning

Before cleaning the monitor, insure power is OFF and the unit is unplugged. Clean the picture tube with a soft, damp cloth. Be sure to ring out the cloth so that water does not drip into or on the unit. Dry the monitor with a clean, dry cloth to prevent streaking and maintain visual clarity.

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### CAUTION!

The screen has the possibility of electrical static build up under low humidity conditions. Care should be taken NOT to discharge the screen to other electrical components as sever damage could result.

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The outside chassis may be cleaned with a damp cloth and a mild soap such as dish washing liquid. Wipe the chassis with the damp cloth and dry it with a clean cloth to remove excess moisture and soap residue.

## Repair

Your monitor should provide many years of trouble free service. However, should a failure occur, follow the included troubleshooting procedures to try and remedy the problem. If the failure persists, call Customer Service at 1-800-480-0044 for assistance.

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### CAUTION!

Never stick any object inside the monitor. It produces high voltages which could injury personnel or damage equipment. Any repairs to the monitor should be accomplished by a qualified technician only.

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### Troubleshooting

**No display**

1) Insure monitor is connected to the power source and power is available.

2) Insure monitor is turned on.

3) Insure controls are set to the proper positions. If unsure, set all controls midway. This will not provide the optimum display but should return a display to the screen.

4) Check settings on graphics adapter. If correct, replace adapter.

**Display size or position incorrect**

1) Adjust horizontal and vertical adjustments to correct improper display size and position.

**Display too dark or bright**

1) Adjust brightness and contrast adjustments to desired levels.

**Note:** For information on troubleshooting the IR touch screen, please refer to the Touch Screen Diagnostics User's Guide.

## FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be non-compliant with the appropriate standards for its intended use.

## How to remain CE Compliant

This device complies with CE Directives 72/23/EEC and EMC 89/336/EEC with the use of shielded cables for connection of the monitor to the video card. CE compliance is based on the interaction of all the components of a system.  Any modifications made to the equipment may affect the CE compliance and must be approved  in writing by Industrial Computer Source.  Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to claim CE compliance.

# Returns

If you need to return your monitor to Industrial Computer Source for any reason, the following applies:

A)      Call Customer Service for an RA number.  Our phone number is 1-800-480-0044.  The RA number must be visible on the outside of the box you pack the product into for return shipment.  Shipments without an RA number will not be accepted by Customer Service Receiving.

B)      Properly pack the product:

      1)      Remove any protruding objects, cables, rack slides, etc.

      2)      Put the monitor in a bag to prevent moisture and dirt from entering the chassis.

      3)      Provide adequate packaging.  If possible, use the original box and packing the system arrived in. A minimum of 4 inches of proper packing material is required around all sides of computer systems.  Double thick cardboard is preferred.  Styrofoam peanuts or loose fill is not sufficient.  Assume the box will be dropped several feet during shipping.

      4)      Do not ship by truck. Use a carrier such as Burlington, Airborne, or Federal Express.

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# *Declaration of Conformity*

**INDUSTRIAL COMPUTER SOURCE®**

9950 Barnes Canyon Road
San Diego, CA 92121-2720
(800) 523-2320

Industrial Computer Source declares under its own and full responsibility that the following products are compliant with the protection requirements of the 89/336/EEC and 73/23/EEC directives.

**Only specific models listed on this declaration and labeled with the CE logo are CE compliant.**

**9014A-R      9014A-P      9014A-RIR    9014A-PIR**

Conformity is accomplished by meeting the requirements of the following European harmonized standards:

> **EN 50081-1:1992**  Emissions, Generic Requirements.
>> -EN 55022 Measurement of radio interference characteristics of information technology equipment.
>
> **EN 50082-2:1995**  Immunity, Generic Requirements.
>> -EN 61000-4-2 Immunity to Electrostatic Discharge.
>> -ENV 50140 Immunity for radiated RF electromagnetic fields.
>
> **EN 50082-1:1992**  Immunity,  Generic Requirements.
>> -IEC 801-3:1984 Immunity for radiated electromagnetic fields.
>> -IEC 801-4:1988 Immunity for AC and I/O lines, fast transient common mode.
>> -IEC 65A/77B Immunity for AC lines, transients, common, and differential mode.
>
> **EN 60950:1992** Safety of Information Technology Equipment.

Information supporting this declaration is contained in the applicable Technical Construction file available from:

**INDUSTRIAL COMPUTER SOURCE EUROPE®**

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April 28, 1997
San Diego, CA

Mr. Steven R. Peltier
President & Chief Executive Officer

**BUG REPORT**

While we have tried to assure this manual is error free, it is a fact of life that works of man have errors. We request you to detail any errors you find on this BUG REPORT and return it to us. We will correct the errors/problems and send you a new manual as soon as available. Please return to:

**INDUSTRIAL COMPUTER SOURCE**®

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P. O. Box 910557
San Diego, CA 92121-0557

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Mail Stop: _____

City: _____ State: _____ Zip: _____

Phone: (_____) _____

Product:   **9014A**

Manual Revision:   **00431-001-5A**

Please list the page numbers and errors found. Thank you!