9406

Industrial Flat-Panel Display

P/N 113731-001B

XYCOM
750 North Maple Road
Saline, Michigan 48176-1292
(313) 429-4971

Revision	*Description*	*Date*
A	Manual Released	10/96
B	Manual Updated	9/97

xycom
Technical Publications Department
750 North Maple Road
Saline, MI 48176–1292

Table of Contents

Chapter 1 – Product Overview

The 9406 incorporates a 10.4-inch high-brightness color TFT LCD flat panel display with a NEMA 4/4X/12/IP65-sealed front panel in a package that is ideal for the factory floor and other harsh environments. The LCD display is protected by an impact-resistant shield. On-screen display options are provided for changing contrast, horizontal and vertical position, signal tune, and levels of red, green, and blue. An optional resistive touch screen is also available.

Product Features

The 9406 industrial flat panel display offers the following features:

- 640 x 480 high-brightness LCD flat-panel display (10.4-inch diagonal)
- NEMA/4/4X/12/IP65-sealed front panel
- Class I, Division 2 Hazardous Location certified
- Optional RS-232C serial output resistive touch screen

Parts Verification

When you remove the 9406 from its shipping carton, verify that you have the parts listed below. Save the box and inner wrapping in case you need to reship the unit.

- 9406 unit
- Power connector
- 9406 Industrial Flat Panel Display manual
- Mounting hardware (12 #10-32 mounting nuts)
- Cable clamp and #6-32 screw
- Business reply card
- Six-foot video cable
- Six-foot serial touch cable (optional)
- Touch screen manual and diskette (optional)

System Components

This section describes the components on the front and I/O panels of the 9406.

Front Panel

Figure Chapter 1 -1 illustrates the 9406's front panel.

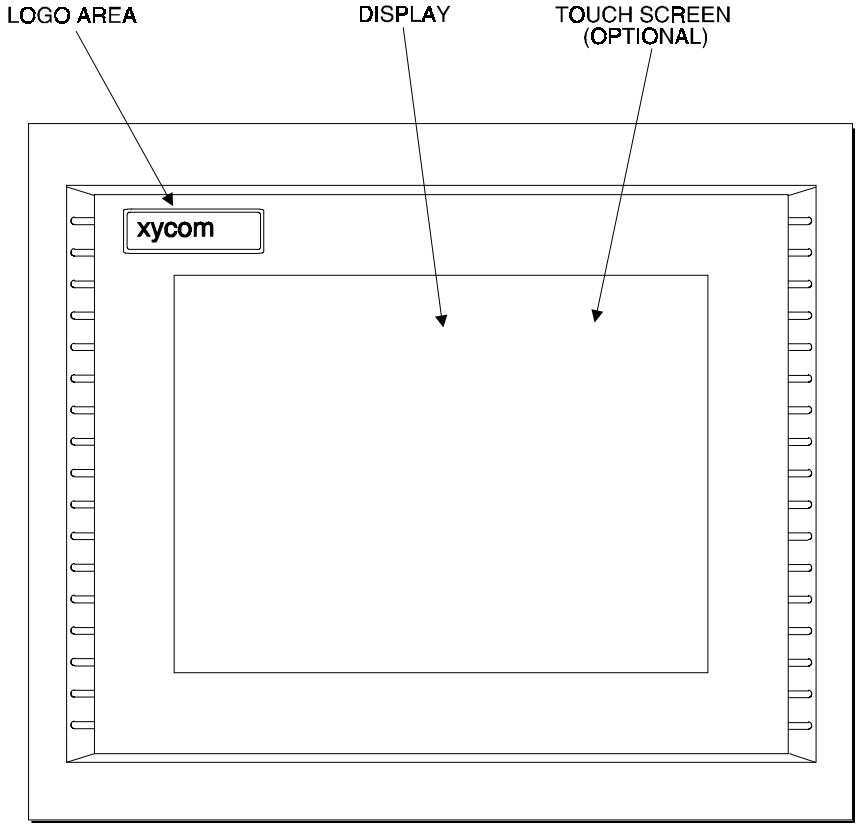

Figure Chapter 1 -1. 9406 Front Panel

Display The 10.4-inch display is protected from breakage by an impact-resistant shield.

Logo The front panel incorporates a logo panel, which can be customized. Figure Chapter 1 -2 depicts the label dimensions and provides the recommended requirements for a customized label.

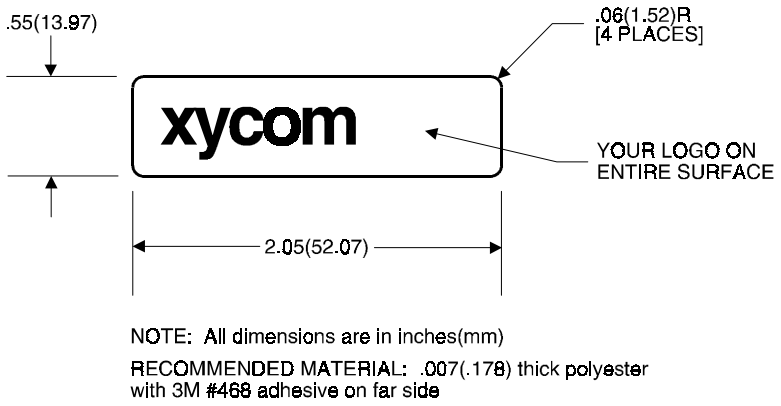

Figure Chapter 1 -2. Logo Label Dimensions

I/O Panel

Figure Chapter 1 -3 illustrates the I/O panel on the bottom of the 9406.

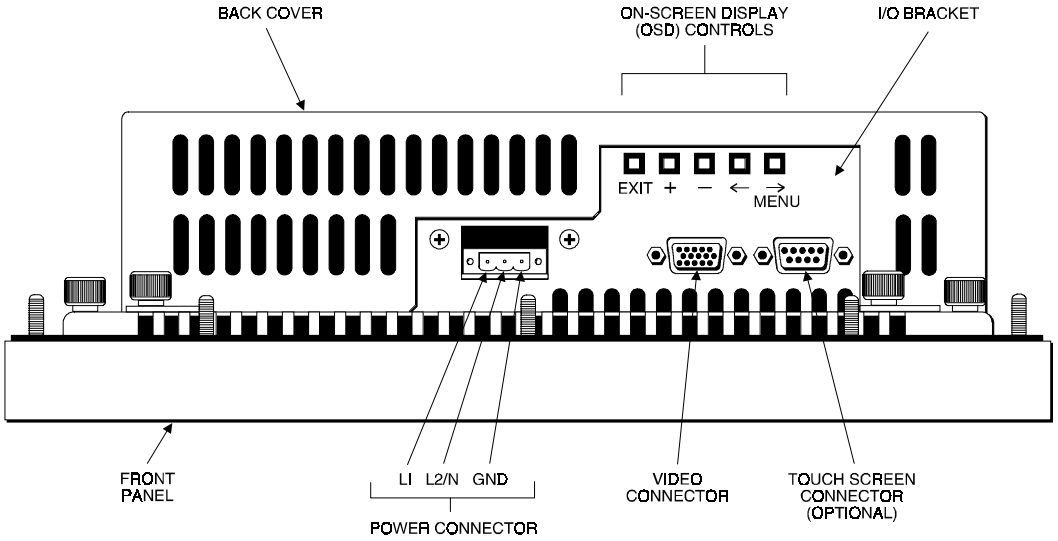

Figure Chapter 1 -3. 9406 I/O Panel

On-screen Display Controls — The on-screen display video controls consist of five buttons. Refer to Chapter 3 for more information on adjusting the display.

Power Connector — The power connector is labeled L1 L2/N GND on the bottom of the unit. The input range for the supply is 90-250 VAC, 47-63 Hz. Refer to Appendix C for power connector pinouts.

Video Connector — This 15-pin high-density female connector is used to connect the 9406 to your computer's video output. Refer to Appendix C for video connector pinouts.

Touch Screen Connector

If your display comes equipped with a touch screen, you must connect a cable between this connector and the COM1 or COM2 port on the computer. Refer to Appendix C for touch screen connector pinouts. You must also load the touch screen driver. Refer to Chapter 2 for installation instructions.

Specifications

Table Chapter 1 -1. Environmental Specifications

Characteristic	Specification
Temperature	
Operating	0° to 50° C (32° to 122° F)
Non-operating	-20° to 60° C(-4° to 140° F)
Humidity	
Operating	20% to 90% RH, non-condensing
Non-operating	20% to 90% RH, non-condensing
Altitude	
Operating	Sea level to 10,000 feet (3048 m)
Non-operating	Sea level to 40,000 feet (12192 m)
Shock	
Operating	15 g peak acceleration (11 msec duration)
Non-operating	30 g peak acceleration (11 msec duration)
Vibration	
Frequency	5 to 2000 Hz
Operating	.006” (.15 mm) peak-to-peak displacement 1.0 g maximum acceleration
Non-operating	.015” (.38 mm) peak-to-peak displacement 2.5 g maximum acceleration

Table Chapter 1 -2. Hardware Specifications

Characteristic	Specification
Mechanical Height Width Depth Overall Behind front panel Weight	 11 inches 13 inches (across front panel) 3.8 inches 2.8 inches 7 pounds
Electrical	90-250 VAC, 47-63 Hz, universal input .3 A maximum
Mounting	Panel mounting

Regulatory Compliance

The 9406 display complies with the following standards.

UL	UL 1950 (Information Technology Equipment) UL 1604 (Class I, Div 2 Hazardous Location) UL 50 (Cabinets, Type 4, 4X, and 12) IEC 529 (IP 65)	
CUL	CSA 22.2, #950 (Information Technology Equipment) CSA 22.2 #213 (Class I, Div 2 Hazardous Location)	
EU "CE Marking"	EMI Immunity Safety	EN 55022, Class A EN 50082-2: 1995 EN 60950 (CB certificate)
FCC	47 CFR, Part 15, Class A	

The manufacturing facility at Xycom, Inc. is ISO 9001 certified and is accredited by ANSI-RAB and the RvA.

Chapter 2 – Installation

The 9406's rugged design allows it to be installed in most industrial environments. The 9406 is placed in a NEMA 4/4X/12 enclosure to protect against contaminants such as dust, moisture, etc. Metal enclosures also help minimize the effects of electromagnetic radiation that may be generated by nearby equipment.

Mounting Recommendations

This section provides recommendations for installing your 9460.

General Guidelines

- Select an enclosure that will allow access to the 9406 I/O ports.
- Account for the unit's depth when choosing the depth of the enclosure.
- Mount the 9406 to allow for maximum cooling (avoid obstructing the air flow).
- Place the 9406 at a comfortable working level (usually at shoulder height).
- Consider locations of accessories such as AC power outlets and lighting (interior lighting and windows) for installation and maintenance convenience.
- Mount the unit in an approved enclosure with a 14 gage (.075"/1.9mm thick) steel or (.125"/3.2 mm thick) aluminum front face to provide a NEMA 4 seal.
- Do not select a location near equipment that generates excessive electromagnetic interference (EMI) or radio frequency interface (RFI) (equipment such as high power welding machines, induction heating equipment, and large motor starters)
- Place incoming power devices (such as isolation or constant voltage transformers, local power disconnects, and surge suppressors) away from the 9406.
- Route incoming power lines properly to keep power wire runs as short as possible and minimize electrical noise transmitted to the 9406.
- Make sure the location does not exceed the 9406's temperature specifications (see Chapter 1).
- Install the unit in such a way when installing in a rack or panel to ensure that it does not cause a hazard from uneven mechanical loading.
- Prevent condensation by installing a thermostat-controlled heater or air conditioner if needed.

System Power

It is always a good idea to use isolation transformers on the incoming AC power line to the 9406. An isolation transformer is especially desirable in cases in which heavy equipment is likely to introduce noise onto the AC line. The isolation transformer can

also serve as a step-down transformer to reduce the incoming line voltage to a desired level. The transformer should have a sufficient power rating (units of volt-amperes) to supply the load adequately (the 9406 requires 90-250 VAC, 47-63 Hz, .3 A maximum).

Proper grounding is essential to all safe electrical installations. Refer to the relevant federal, state/provincial, and local electric codes which provide data such as the size and types of conductors, color codes and connections necessary for safe grounding of electrical components. The code specifies that a grounding path must be permanent (no solder), continuous, and able to safely conduct the ground-fault current in the system with minimal impedance (minimum wire required is 18 Awg, 1 mm). The following practices should be observed:

- Separate ground wires from power wires at the point of entry to the enclosure. To minimize the ground wire length within the enclosure, locate the ground reference point near the point of entry for the plant power supply.
- All electrical racks or chassis and machine elements should be Earth Grounded in installations where high levels of electrical noise can be expected. The rack/chassis should be grounded with a ground rod or attached to nearby Earth structure such as a steel support beam. Each different apparatus should be connected to a single Earth Ground point in a “star” configuration with low impedance cable.

Excessive Heat

To keep the temperature in the specified range, the cooling air at the base of the system must not exceed 50º C (122° F). Proper spacing must also be allocated between internal components installed in the enclosure.

When the air temperature is higher than 50º C in the enclosure, a fan or air conditioner is required to keep the temperature within maximum rated conditions.

Electrical Noise

Electrical noise is seldom responsible for damaging components, unless extremely high energy or high voltage levels are present. However, noise can cause temporary malfunctions which can result in hazardous machine operation in certain applications. Noise may be present only at certain times, may appear as widely-spread intervals, or, in some cases, may exist continuously.

Noise commonly enters through input, output, and power supply lines and may also be coupled through the capacitance between these lines and the noise signal carrier lines. This usually results from the presence of high voltage or long, close-spaced conductors. When control lines are closely spaced with lines carrying large currents, the coupling of magnetic fields can also occur. Use shielded cables to help minimize noise. Potential noise generators include switching components relays, solenoids, motors, and motor starters. Refer to the relevant federal, state/provincial, and local electric codes which provide data such as the size and types of conductors, color codes and connections necessary for safe grounding of electrical components. It is recommended that the high voltage and low voltage cabling be separated and dressed apart. In particular, AC cables and switch wiring should not be in the same conduit with all communication cables.

Line Voltage Considerations

The power supply section of the 9406 is built to operate within the range of 90-250 VAC.

In cases where the installation is subject to unusual AC line variations, a constant voltage transformer can be used to avoid malfunction. However, a first step toward solving line variations is to correct any possible feed problem in the distribution system. If this does not solve the problem, you must use a constant voltage transformer.

The constant voltage transformer stabilizes the input voltage to the 9406 by compensating for voltage changes at the primary to maintain a steady voltage at the secondary. When using a constant voltage transformer, check that the power rating is sufficient to supply the 9406 (the 9406 requires 90-250 VAC, 47-63 Hz, .3 A maximum).

Hazardous Location Installations

Xycom designed the 9406 with the intention of meeting the requirements of Class I, Division 2 Hazardous Locations applications. Class II, Division 2 requirements can also be met when the system is installed in an approved Type 4 enclosure. Division 2 locations are those locations that are normally non-hazardous, but could become hazardous due to accidents which may expose the area to flammable vapors, gases, or combustible dusts.

These systems have been designed as non-incendiary devices. They are not intrinsically safe and should never be operated within a Division 1 (normally hazardous) location when installed as described here. Nor should any peripheral interface device attached to these systems be located within Division 1 locations unless approved and/or certified diode barriers are placed in series with each individual signal and DC power line. Any such installations are beyond the bounds of Xycom design intent. Xycom accepts no responsibility for installations of this equipment or any devices attached to this equipment in Division 1 locations.

It is the responsibility of the customer to ensure that the product is properly rated for the location. If the intended location does not have a Class, Division, and Group rating, then users should consult the appropriate authorities having jurisdiction to determine what the correct rating for that hazardous location should be.

In accordance with federal, state/provincial, and local regulations, all hazardous location installations should be inspected by the appropriate authority having jurisdiction prior to use. These systems are to be installed, serviced, and inspected only by technically qualified personnel.

Safety Agency Approval

The 9406 has UL and CUL certifications pending, and has also been investigated for compliance with the following standards:

- *Underwriters Laboratories Inc., UL 1604 Standard for Safety*. Electrical equipment for use in Class I and Class II, Division 2, and Class III hazardous (classified) locations
- *Underwriters Laboratories Inc., UL 1950,* Information Technology Equipment

- *Canadian Standard Association, Specification C22.2 No. 213-M1987.* Non-incendiary electrical equipment for use in Class I, Division 2 hazardous locations
- *Canadian Standards Association, Specification C22.2 No. 1950,* Information Technology Equipment
- *UL File No. E180970* (pending). Suitable for use in Class I, Division 2 Groups A, B, C, and D, and Class II, Division 2, Groups F and G hazardous locations or non-hazardous locations only

Warning - Explosion Hazard

Substitution of components may impair suitability for Class I, Class II, Division 2.

Advertissment Risque D' Explosion

La substitution de composants peut rendre ce materiel inacceptable pour les emplamements de classe I, II, Division 2.

Warning - Explosion Hazard

Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Advertissment Risque D' Explosion

Avant de deconnecter l'equipment, coupler le courant ou s'assurer que l'emplacement est designe non dangereux.

Warning - Explosion Hazard

When in hazardous locations, turn off power before replacing or wiring modules.

Advertissment Risque D' Explosion

Dans les situations hasardees, couper la courant avant de remplacer ou de cabler les modules.

Warning

To maintain a safe condition, do not use an external keyboard when the unit is operating in the presence of a hazardous environment.

Definitions

The following Class and Division explanations are derived from Article 500 (Sections 5 and 6) of the United States National Fire Protection Agency National Electric Code (NFPA 70, 1990).They are not complete and are included here only for a general description for those not familiar with generic hazardous location requirements.

Persons responsible for the installation of this equipment in hazardous locations are responsible for ensuring that all relevant codes and regulations related to location rating, enclosure, and wiring are met.

Class I Locations

Class I locations are those in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures.

Class II Locations

Class II locations are those that are, or may become, hazardous because of the presence of combustible dust.

Division 1 Locations

Division 1 locations are those in which flammable or ignitable gasses, vapors, or combustible dusts and particles can exist due the following conditions:

- Normal operating conditions
- Because of repair, maintenance conditions, leakage, or where mechanical failure or abnormal operation of machinery or equipment might release or cause explosive or ignitable mixtures to be released or produced
- Combustible dusts of an electrically conductive nature may be present in hazardous quantities

Note

The 9406 is not suitable for installation within Division 1 locations.

Note

Electrical equipment cannot be installed in Division 1 locations unless it is intrinsically safe, or installed inside of approved explosion-proof enclosures or inside of approved purged and pressurized enclosures.

Division 2 Locations

Division 2 locations are listed below:

- Class I volatile flammable liquids or flammable gasses are handled, processed, or used, but confined within closed containers or closed systems from which they can escape only in cases of accidental rupture or breakdown of such enclosures or systems, or in case of abnormal operation of equipment
- Ignitable concentrations of Class I vapors or gasses are normally prevented by positive mechanical ventilation, but which may become hazardous due to mechanical failure of those ventilation systems
- Location is adjacent to a Division 1 location
- Class II combustible dust is not normally in the air in quantities sufficient to produce explosive or ignitable mixtures. Dust accumulations are normally insufficient to interfere with normal operation of electrical equipment or other apparatus. Combustible dust may be in suspension in the air as a result of the following: infrequent malfunctioning of handling or processing equipment; combustible dust accumulations on, or in, the vicinity of electrical equipment; may be ignitable by abnormal operation or failure of electrical equipment.

Groups

All electrical equipment which is approved for use in hazardous locations must include a group rating. Various flammable and combustible substances are divided into these groups as a function of their individual maximum experimental safe gap (MESG), explosion pressure, and ignition temperature.

Component temperatures and the potential for spark based upon voltage, current, and circuit characteristics, within electrical equipment, will determine the equipment group rating. A device approved for installation within Class I, Group A locations may also be used in Groups B, C, or D.

Note

Approved Class I equipment may not be suitable for Class II installations. Class I includes Groups A, B, C, and D. Class II includes Groups F and G.

Enclosures

The 9406 is designed for installation within a clean and dry enclosure for both ordinary and hazardous locations. The front panel meets the requirements of UL and CSA Type 4, 4X, and 12 enclosures. The enclosure used for Class I hazardous locations should have a minimum rating of Type 12 (NEMA 12, IP 5X). However, Type 4 (IP 6X) enclosures are strongly recommended.

Panel flatness and rigidity are important if a proper panel seal is to be maintained. If non-metal type enclosures, such as plastic or fiberglass, are to be used, install a rigid metal stiffener behind the front panel. Failure to do so may result in an inadequate panel seal due to flexure of the front panel material between the stud mounts. The nuts on the mounting studs must be tightened to 25-inch pounds.

These systems are UL listed for installation within Class II locations only when installed within UL-approved Type 4 enclosures. Failure to do so voids that UL listing.

The requirements for enclosure fittings, conduit, and wiring vary according to the specific rating of the location and the type of flammable or combustible material involved. Those requirements are beyond the scope of this document and it is the responsibility of customers to ensure that their installation is compliant with codes and regulations which apply to their specific location. Reference NFPA 70, Article 500 for specific regulations in the United States.

Power Switch

The 9406 does not have a power switch. The amount of input power required by these systems classifies the power switch as an incendiary device. That is, the voltage and current across the make/break device is capable of creating a spark.

Hazardous location regulations require that a power switch rated for ordinary locations may be used if it is located in an area specified as non-hazardous. However, limits in cable length between the workstation and the power switch may apply. Otherwise the switch must be compliant with Class I, Division 1 requirements (intrinsically safe). These switches are built in a manner that prevents the possibility of a spark when contacts are made or broken.

Suitable UL-listed and/or CSA-Certified Class I, Division 1 switches must be used in hazardous locations. These switches are available from a number of sources. It is the responsibility of customers to ensure that the power switch selected for their installation has the correct hazardous location rating for the location in which it is installed.

Creating a Power Cable

> **Note**
>
> Power connector pinouts are described in Appendix C.

A power cable must be created to supply power to the 9406. You will need the following materials:

- Three-position power connector (supplied)
- A braid/foil shielded power cable, terminated at power source end, with three 18 (1.0 mm), 16 (1.3 mm), or 14 (1.6 mm) Awg solid or stranded copper wire, rated 80º C (176° F) or better.

To create the cable, perform the following steps:

1. Cut the wire cable to the desired length.
2. Strip .25-inch (6 mm) of insulation from the end of the conductor wire. No bare wire should be exposed when the cable is connected to the workstation.
3. Tin the wire ends with solder if using stranded wire. This will keep the wire from fraying.

Warning

When inserting the wire ends of the power cable into the block plug, be sure that no bare wire is exposed. Trim the wire ends of the cable or cut a new cable if necessary.

4. Insert the three wire ends of the power cable into the three holes of the block plug, as shown in Figure Chapter 2 -1. The Protective Earth ground (GND), L1, and L2/N wires should be inserted into the corresponding holes, as indicated in Figure Chapter 2 -1. Be sure that no bare wires are exposed.

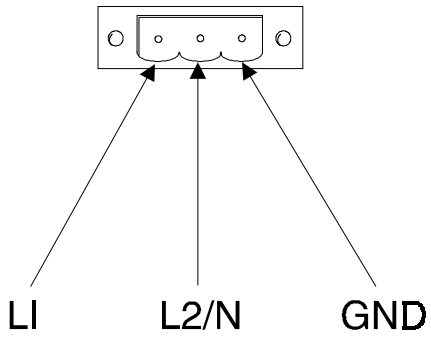

Figure Chapter 2 -1. Power Connector

5. Tighten the three screws above the wires to hold them firmly in place.

> **Warning**
>
> Never tighten the three screws of the block plug when the cable is connected to a power source. The screws are conductive and have full contact with the cable wire.

6. A cable clamp and #6-32 screw (provided) should be used to secure and strain-relief the power cable. When installing the power cable to the unit, use the securing screws on each side of the plug.
7. Once the power cable is installed, installation is complete.

> **Warning**
>
> When disconnecting the power cord from the unit, be sure to completely loosen the two securing screws on the plug.

Mounting the 9406 in a Panel

Once the considerations in the preceding sections have been met, you are ready to mount the 9406. Figure Chapter 2 -1 provides the 9406's dimensions to help you in mounting it.

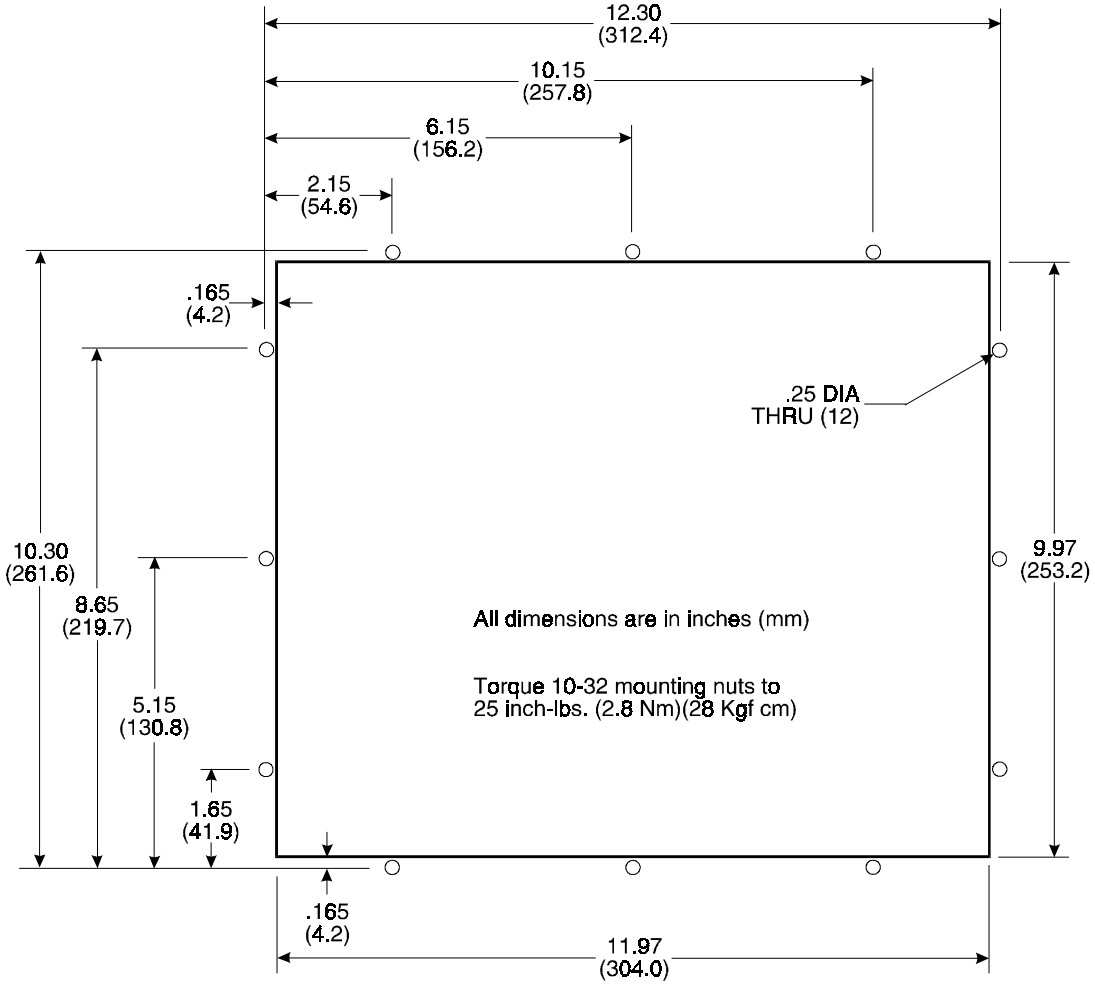

Figure Chapter 2 -1. 9406 Mounting Dimensions

Perform the following steps to mount the 9406:

1. Locate a position for your 9406 that meets the required specifications.
2. Cut the hole according to the cutout dimensions in Figure Chapter 2 -1.
3. Make sure the area around the cutout is clean and free from metal burrs.
4. Attach the power cable, making sure that the 9406 enclosure is grounded through the power cable.
5. Insert the workstation into the hole created in step 2 from the front of the panel.
6. Hold the workstation against the panel and secure it with the mounting nuts.

7. Tighten the 12 #10-32 nuts to 25-inch pounds (2.8 Newton-meters).

Warning

Do not exceed 25-inch pounds (2.8 Newton-meters) when tightening #10-32 mounting nuts.

Installing the Touch Screen Driver

Perform the following steps to install the touch screen driver in Windows 3.x:

1. From the Program Manager, select the Run command on the File menu.
2. Type A: (or B:) TWSETUP, and then press ENTER.
3. Follow the on-screen instructions to complete the installation.

Perform the following steps to install the touch screen driver in Windows 95:

1. Select the Start button on the Windows 95 task bar, and then choose the Run command.
2. Type A: (or B:) T5SETUP, and then press ENTER.
3. Follow the on-screen instructions to complete the installation.

Preparing the Display for Use

To prepare the display for use, perform the following steps.

Warning

Turn off the power to the unit and unplug the power cord before connecting or disconnecting any display cables.

1. Connect the video cable from the 15-pin video connector on the display to the 15-pin video output connector on your computer.
2. If the monitor is equipped with a touch screen, connect the nine-pin cable from the touch screen connector on the display to the COM1 or COM2 port on your computer.
3. Connect the power cord from the power connector on the display to a properly grounded 110/240 VAC, 50/60 Hz outlet.

Chapter 3 – Adjusting the Display

As shipped, the display supports 640x480 resolution, with the following specifications:

Horizontal Frequency (kHz)	31.5
Vertical Frequency (Hz)	60
Pixel Clock (MHz)	25.2
Sync Polarity	N/A

This format corresponds to the format output by video circuitry on CPU boards. You may have to adjust your PC's video driver to output this frequency.

You can adjust the 9406's display settings using the menu-driven on-screen display mode. This mode allows you to adjust the following display characteristics:

- Color
- Horizontal position
- Vertical position
- Signal tune
- Contrast

To open the on-screen display mode menu, press the right arrow (→) button, located on the 9406's I/O panel. The on-screen display mode menu will appear on screen, with five icons corresponding to the five display adjustment buttons located on the I/O panel.

Table Chapter 3 -1 describes these adjustment buttons.

Table Chapter 3 -1. On-Screen Display Buttons

Button	Function
→ MENU	Opens the on-screen display mode menu. Once this menu is open, this button moves the cursor up one menu option.
←	Moves the cursor down one menu option
-	Decreases the value of the selected menu option.
+	Increases the value of the selected menu option. If the selected menu option is a radio button, it turns the selection on or off.
EXIT	Exits the on-screen display menu, and performs the selected function (Save, Reset, or Default).

Table Chapter 3 -2 describes how to change the display settings.

Table Chapter 3 -2. On-screen Display Mode Options

Menu Option	How to Adjust
Red, Green, Blue	Press the plus (+) or minus (-) buttons to adjust the baseline amount of red, green, or blue that is mixed into the colors displayed on screen.
H-Pos	Press the right (→)or left (←) arrow buttons to adjust the horizontal position of the display area.
V-Pos	Press the right (→)or left (←) arrow buttons to adjust the vertical position of the display area.
Tune	Press the right (→)or left (←) arrow buttons to finely adjust the horizontal position of the display area.
Brightness	Although you can change the values of this option using the plus (+) or minus (-) buttons, it will have no effect on the bulbs.
Contrast	Press the plus (+) or minus (-) buttons to adjust the contrast of the display area.
Pots	Leave this option turned off.
DPMS	Leave this option turned on.
Save	Select this option and then the EXIT button to save the settings you have specified.
Reset	Select this option and then the EXIT button to restore the settings to the way they were when you first entered the on-screen display menu.
Default	Select this option and then the EXIT button to restore the factory default settings.

Chapter 4 – Product Repair

Xycom's Product Repair performs services to restore equipment to normal operating condition and to implement engineering changes which enhance operating specifications. Products returned to Xycom will be tested with standard Xycom test diagnostics. Contact the Product Repair department for information on turnaround time.

Preparing the Unit for Shipment

1. Obtain a RMA number for your unit by calling the nearest Xycom Product Repair Center or call *1-800-289-9266*. Have the following information ready:
   - Company name, and shipping and billing address.
   - Type of service desired–repair or exchange
   - Product model number, part number, quantity, serial number(s), and warranty status
   - Failure mode information
   - Purchase order number or repair order number
2. To prepare the unit for shipment, make sure the panels are secured by all screws.
3. To speed processing, attach any failure information to the unit.
4. Place the unit securely in original packaging or equivalent.
5. Mark the RMA number on the outside of the box, as well as on your purchase order.
6. Send the unit to the nearest Xycom repair center.

Spare Parts List

Following is a list of available 9406 replacement parts. To order, contact the Xycom Customer Service department at 1-800-AT-XYCOM.

- Display bulb
- DOS touch screen driver
- NT touch screen driver
- OS/2 touch screen driver
- Six-foot external video cable
- Six foot external touch screen cable
- Three-pin terminal connector

Appendix A – Bulb Replacement

Perform the following steps to replace the 9406's bulb:

1. Turn off the power source.
2. Disconnect the power cable.
3. Unscrew the four rear cover thumb screws, and remove the cover.
4. Disconnect the touch screen ribbon cable, if a touch screen is installed.
5. Snip the two wire ties holding the bulb cables to the inverter standoffs.

> **Note**
>
> Bulb cables have pink and white wires.

6. Disconnect the bulb cables from the inverter connectors.
7. Disconnect the flex cable at the buffer board.
8. Unscrew the four adapter plate thumb screws and gently pull the adapter plate away from the front panel.
9. With the display facing up, remove the four screws holding the flat panel to the adapter plate and remove the flat panel.
10. Turn the display over, and then unscrew the screws on the two bulb covers.
11. Remove the covers, and then gently remove the bulb assemblies.
12. Install the new bulb assemblies (use care when rerouting the bulb cables).
13. Reattach the bulb covers using the screws removed in step 10.
14. Reattach the flat panel display to the adapter plate, being careful to feed the bulb and flex cables through the appropriate openings.
15. Reattach the bulb cables to the inverter connectors.
16. Reattach the flex cable at the buffer board, making sure the cable is firmly attached to the connector on the flat panel display.
17. Feed the touch screen cable underneath the black and red wires, and reconnect it to the touch screen connector.
18. Reattach the adapter plate to the front panel using the four thumb screws you removed in step 8.
19. Reattach the rear cover using the four thumb screws you removed in step 3.

Bulb installation is now complete. You can now reconnect the power cable, and turn on the power source.

Appendix B – Pinouts

Power Connector

Table Appendix B-1. Power Connector Pinouts

Pin	Signal
L1	Line
L2/N	Line/Neutral
GND	Ground

Touch Screen Connector

Table Appendix B-2. Touch Screen Connector Pinouts

Pin	Signal
1	N/C
2	TX
3	N/C
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

Video Connector

Table Appendix B-3. Video Connector Pinouts

Pin	Signal	Pin	Signal
1	Red	8	Blue GND
2	Green	9	N/C
3	Blue	10	GND
4	N/C	11	GND
5	GND	12	N/C
6	Red GND	13	HSYNC
7	Green GND	14	VSYNC

Index

S

T

V