3015

FLAT PANEL INDUSTRIAL MONITOR

Hardware Guide

XYCOM™ AUTOMATION
a subsidiary of Pro-face America

Revision	Description	Date
E	Update	7/02

Xycom Automation Part Number: 300150(E)

The information contained within this document is subject to change without notice. Xycom does not guarantee the accuracy of the information.

United States FCC Part 15, Subpart B, Class A EMI Compliance Statement:

NOTE: 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 can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 own expense.

For European Users: WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

INSTALLATION: Electromagnetic Compatibility WARNING

The connection of non-shielded equipment interface cables to this equipment will invalidate FCC EMI and European Union EMC compliance and may result in electromagnetic interference and/or susceptibility levels which are in violation of regulations which apply to the legal operation of this device. It is the responsibility of the system integrator and/or user to apply the following directions which relate to installation and configuration:

All interface cables must include shielded cables. Braid/foil type shields are recommended. Communication cable connectors must be metal, ideally zinc die-cast backshell types, and provide 360 degree protection about the interface wires. The cable shield braid must be terminated directly to the metal connector shell, ground drain wires alone are not adequate.

Protective measures for power and interface cables as described within this manual must be applied. Do not leave cables connected to unused interfaces or disconnected at one end. Changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Table of Contents

1 Product Overview

Xycom Automation's 3015 industrial monitors meet the rigorous requirements of the plant floor with high-resolution flat panel displays in a ruggedized housing with an optional resistive membrane touchscreen. The 3015 monitor delivers crisp, bright text and graphics with a low current draw and fits into panels that CRT's can't.

PRODUCT FEATURES

- 15" flat panel TFT XGA color display, supporting resolutions up to 1024x768 @ 75 Hz
- Equivalent viewing area to a 17" CRT without the size or weight
- Impact-resistant display shield
- Shallow mounting depth
- On screen color, brightness, contrast, and position adjustment controls
- NEMA 4/4X/12 sealed front panel
- Class I, Division 2 Hazardous Locations certified
- Optional analog resistive touchscreen

PARTS VERIFICATION

When you remove the 3015 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.

- 3015 unit
- Terminal block for creating power connector
- Mounting hardware (fourteen #10-32 nuts with washers)
- Warranty registration business reply card
- 6' video cable
- 6' serial cable (touchscreen only)
- Touchscreen manuals and diskette (touchscreen only): MicroTouch TruePoint Touch Monitor *TouchWare User's Guide* (for Windows 95, Windows 3.1, and MS-DOS); MicroTouch TruePoint Touch Monitor *TouchWare for Windows NT User's Guide*
- *Documentation and Support Library* CD-ROM

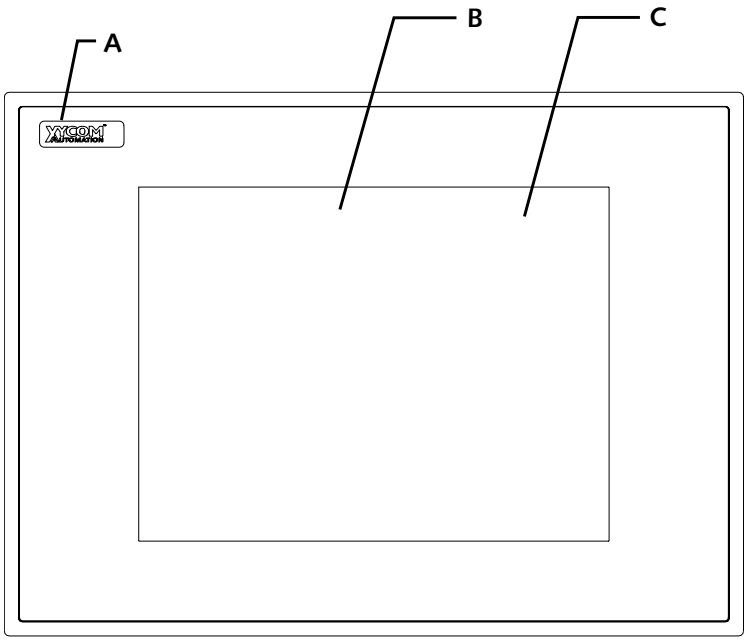


Figure 1. Front Panel.
A. Logo Area
B. Display
C. Touchscreen (optional)

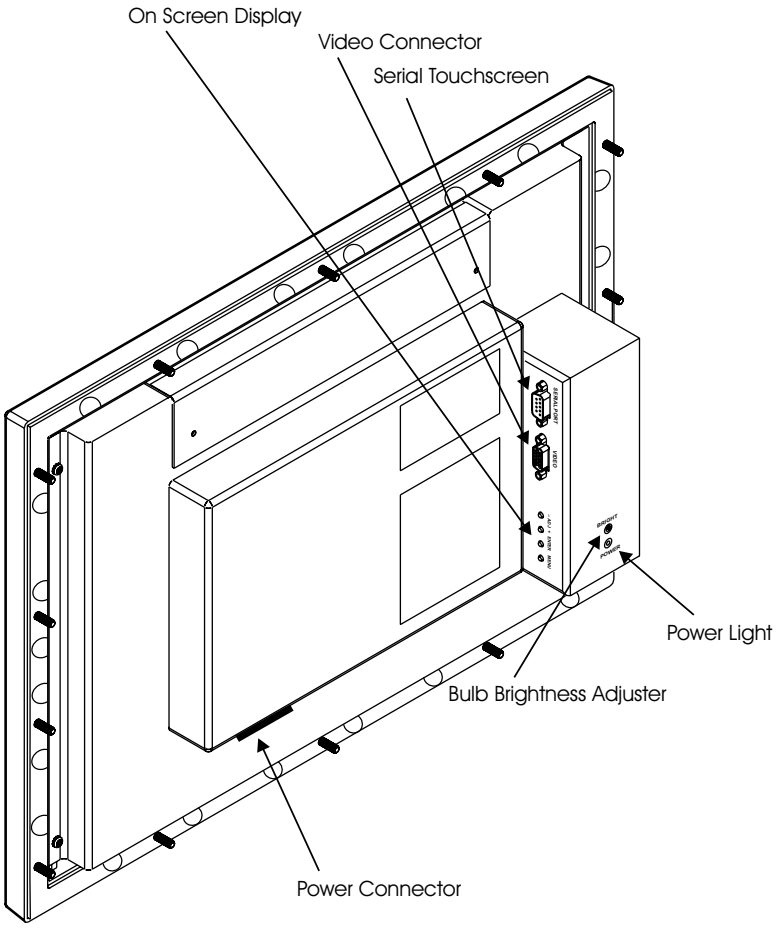
External Views

Logo Area: The front panel incorporates a logo panel that can be customized. Figure 4 depicts the label dimensions and provides the recommended requirements for a customized label.

Display: The 15" TFT XGA (1024 x 768) color display is protected from breakage by an impact-resistant shield and can display complex operations with clarity.

Touchscreen (optional): An optional analog resistive touchscreen provides a flexible, easy-to-use interface for operator input.

Figure 2. I/O Panel.



Power Connector: The power connector is on the back, lower left of the unit. The input range for the supply is 100 -240 VAC, 0.6A, 50/60Hz. Refer to page 31 for power connector pinouts.

Bulb Brightness Adjuster: The brightness adjuster adjusts the brightness of the bulbs. To make an adjustment, turn the rubber adjuster with a mini flat head screwdriver.

Power Light: The power light glows when the power is on.

Video Connector: This 15-pin high-density female connector is used to connect the 3015 monitor to your computer's video output. Refer to page 31 for video connector pinouts.

Serial Touchscreen Connector: If your display comes equipped with a touchscreen, you can connect a cable between this connector and the COM1 or COM2 port on the computer. Refer to page 32 for touchscreen connector pinouts. You must also load the appropriate touchscreen driver. Refer to chapter 3 for installation instructions.

On Screen Display (OSD) Controls: The on screen display video controls consist of four buttons and control brightness, contrast, color, and position adjustment. Refer to page 14 for more information on adjusting the display.

Opening the Unit

To replace your unit's front panel rear assembly (see Spare Parts on page 25), you will need to follow the instructions **To Remove the Front Panel from the Rear Assembly**. If you have a touchscreen unit, you will need to follow the instructions **To Access the Touchscreen Controller when replacing the front panel or when changing the controllers settings.**

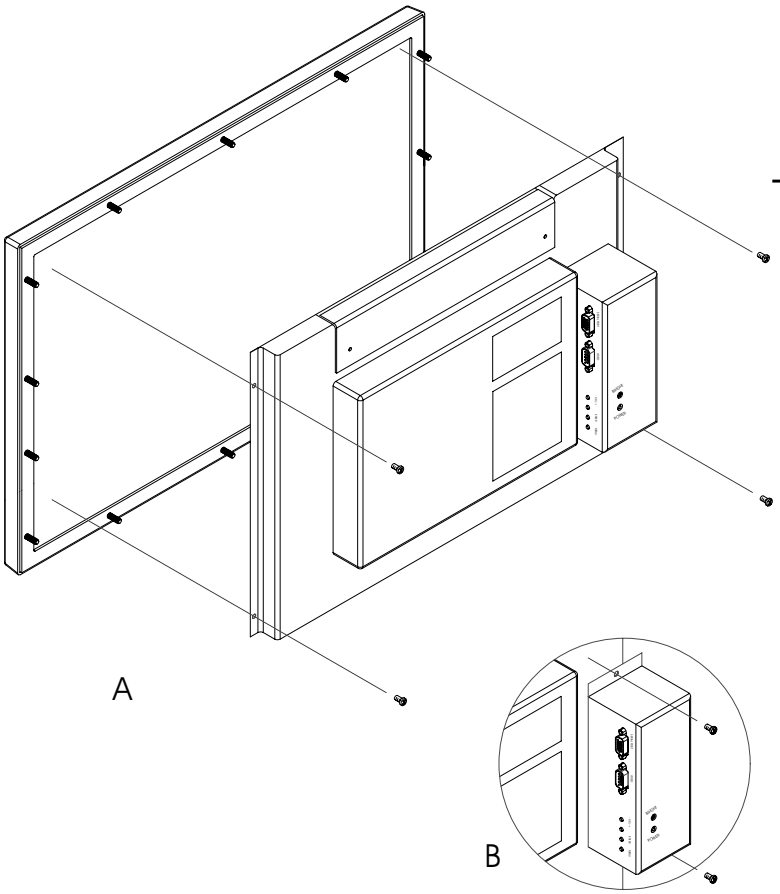


Figure 3. Opening the unit
A. To remove the unit from the rear assembly
B. To access the touchscreen controller card.

Warning: **EXPLOSION HAZARD** Do not disconnect equipment unless the power has been disconnected or the area is known to be non-hazardous.

Warning: **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 operating in hazardous locations, disconnect power before replacing or wiring modules.

***RISQUE* D' EXPLOSION** Dans les situations hasardees, couper la courant avant de remplacer ou de cabler les modules.

Warning: You must disconnect the power cable and any other external cables connected to the unit before opening the unit.To close the unit perform the open unit steps in reverse order.

To Remove the Front Panel from the Rear Assembly

1. Lay the unit facedown, and remove the four screws holding front panel to the rear assembly (see figure 3).
2. Flip the unit over and begin to lift off the front panel. If a touchscreen is installed, disconnect the touchscreen cable at the top of the unit before completely removing the front panel.

To Access the Touchscreen Controller Card

1. Lay the unit facedown, and remove the two screws holding the controller box to the rear assembly (see figure 3).
2. Locate the touchscreen controller inside the controller box.
3. When replacing the card, unlatch and carefully ease the touchscreen controller out of its connector slot.

Note: Examine and record the jumper configuration that is unique to your old controller. The new controller jumper settings must be set to be identical to the old controller before installation.

CREATING A CUSTOMIZED LOGO

You may place a customized label on the unit. Figure 4 provides the dimensions and recommended requirements for a customized label.

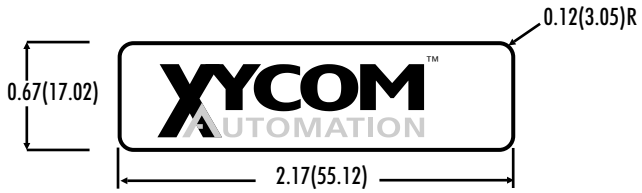


Figure 4. Customized Logo.

Once you have created a customized label, place it over the "Xycom Automation" label.

Warning: Safety regulations for hazardous locations will not allow inclusion of a standard power cord with these monitors. For installation outside of classified hazardous locations, a standard power cord with an IEC 320 termination can be used.

VIDEO ANALOG MODES SUPPORTED

VESA Modes

Mode	Resolution	Total	Horizontal		Vertical		Nominal Pixel Clock (MHZ)
			Nominal Frequency +/-0.5 KHz	Sync Polarity	Nominal Frequency +/-1Hz	Sync Polarity	
VGA	640x480@60 Hz	800x525	31.469	N	59.940	N	25.175
	640x480@72 Hz	832x520	37.861	N	72.809	N	31.500
	640x480@75 Hz	840x500	37.500	N	75.000	N	31.500
SVGA	800x600@56 Hz	1024x625	35.156	N/P	56.250	N/P	36.000
	800x600@60 Hz	1056x628	37.879	P	60.317	P	40.000
	800x600@72 Hz	1040x666	48.077	P	72.188	P	50.000
	800x600@75 Hz	1056x625	46.875	P	75.000	P	49.500
XGA	1024x768@60 Hz	1344x806	48.363	N	60.004	N	65.000
	1024x768@70 Hz	1328x806	56.476	N	70.069	N	75.000
	1024x768@75 Hz	1312x800	60.023	P	75.029	P	78.750

IBM Modes[a]

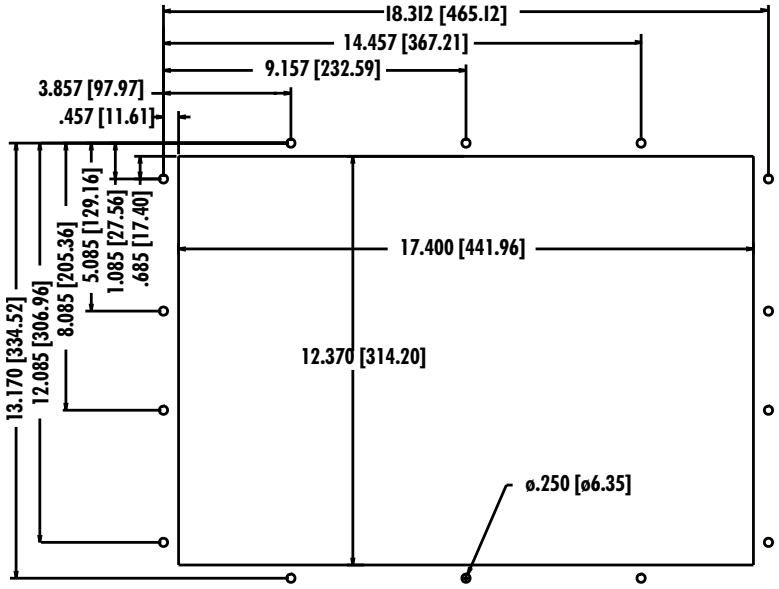
Mode	Resolution	Total	Horizontal		Vertical		Nominal Pixel Clock (MHZ)
			Nominal Frequency +/-0.5 KHz	Sync Polarity	Nominal Frequency +/-1Hz	Sync Polarity	
EGA	640x350@70 Hz	800x449	31.469	P	70.086	N	25.175
CGA	640x400@70 Hz	800x449	31.469	N	70.086	P	25.175
EGA	720x350@70 Hz	900x449	31.469	P	70.086	N	28.322
DOS	720x400@70 Hz	900x449	31.469	N	70.087	P	28.322
XGA	1024x768@72 Hz	1304x798	57.515	P	72.1	P	75.000

MAC Modes[a]

Mode	Resolution	Total	Horizontal		Vertical		Nominal Pixel Clock (MHZ)
			Nominal Frequency +/-0.5 KHz	Sync Polarity	Nominal Frequency +/-1Hz	Sync Polarity	
VGA (14")	640x480@67 Hz	864x525	35.000	N	66.6667	N	30.240
SVGA (16")	832x624@75 Hz	1152x667	49.728	N	74.551	N	57.284
XGA (19")	1024x768@60 Hz	1312x813	48.780	N	60.001	N	64.000
	1024x768@75 Hz	1328x804	60.241	N	74.927	N	80.000

[a]Calibration of on screen parameters may be necessary.

PRODUCT DIMENSIONS



3015 Unit Dimensions

Height	14.20″ (360.7 mm)
Width	19.00″ (482.6 mm)
Depth	4.00″ (101.6 mm)
Mounting Depth	3.25″ (82.6 mm)
Weight	14 lbs. (6.3 kg)

Note: The 3015's front panel size and mounting dimensions are identical to Xycom Automation's 3515T, 3512KPM, and 3515KPM PC products.

Note: The 3015 can also be mounted in an EIA standard 19″ rack.

PRODUCT SPECIFICATIONS AND RATINGS

Environmental

	Operating	Nonoperating
Thermal	0C to 50° C	-20C to 60° C
Humidity	20% to 80% RH, noncondensing	20% to 80% RH, noncondensing
Shock	15g peak acceleration, 11 msec duration	30g peak acceleration, 11 msec duration
Vibration 5-2000 Hz	.006″ peak to peak displacement 1.0g maximum acceleration	.015″ peak to peak displacement 2.5g maximum acceleration
Altitude	Sea level to 10,000 ft.	Sea level to 40,000 ft.

Electrical

AC power 100-240 VAC, 0.6A, 50/60 Hz

Regulatory Compliance

CE

- EN 55022: Class A
- EN 50082-2
- EN 60950

FCC

- 47 CFR, Part 15, Class A

Safety Agency Approvals

UL

- UL 1950
- UL 1604

CUL

- CSA-C22.2, #950
- CSA-C22.2, #213

Front Panel

- NEMA 4/4X/12, IP65

2 Installation

ENVIRONMENTAL CONSIDERATIONS

The system's rugged design allows it to be installed in most industrial environments. You can refer to the unit's electrical and environmental specifications and tolerances (page 7) for more detailed information.

System Power

Using isolation transformers on the incoming AC power line to the system is always a good practice. 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.

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).

Observe the following practices:

- Separate ground wires (P.E. or Protective Earth) 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 a nearby Earth structure such as a steel support beam. Connect each different apparatus to a single Earth Ground point in a "star" configuration with low impedance cable. Scrape away paint and other nonconductive material from the area where a chassis makes contact with the enclosure. In addition to the ground connection made through the mounting bolt or stud, use a one-inch metal braid or size #8 AWG wire to connect between each chassis and the enclosure at the mounting bolt or stud.

Excessive Heat

To keep the temperature in range, the cooling air at the base of the system must not exceed the maximum temperature specification (see page 7). Allocate proper spacing between internal components installed in the enclosure.

When the air temperature is higher than the specified maximum in the enclosure, use a fan or air conditioner to lower the temperature.

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 at 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 high- 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 Variation

The power supply section of the unit is built to sustain the specified line fluctuations (see page 7) and still allow the system to function in its operating margin. As long as the incoming voltage is adequate, the power supply provides all the logic voltages necessary to support the monitor unit.

Unusual AC line variations may cause undesirable system shutdowns. As a first step to reduce line variations, you can correct any possible feed problems in the distribution system. If this correction does not solve the problem, use a constant voltage transformer. The constant voltage transformer stabilizes the input voltage to the systems by compensating for voltage changes at the primary in order to maintain a steady voltage at the secondary. When using a constant voltage transformer, check that the power rating is sufficient to supply the unit.

Location and Enclosure

- Place the unit to allow easy access to the system ports.
- Account for the unit's dimensions when selecting an installation location or enclosure (see page 7).
- You can maintain the NEMA 4 seal by mounting the unit in an approved enclosure that has a 14 gauge (0.075"/1.9 mm thick) steel or (0.125"/3.2 mm thick) aluminum front face.
- Place the unit at a comfortable working level.
- Mount the unit in an upright position, if possible.
- Consider locations of accessories such as AC power outlets and lighting (interior lighting and windows) for installation and maintenance convenience.
- Prevent condensation by installing a thermostat-controlled heater or air conditioner.
- Avoid obstructing the air flow to allow for maximum cooling.
- Place any fans or blowers close to the heat-generating devices. If using a fan, make sure that outside air is not brought inside the enclosure unless a fabric or other reliable filter is used. This filtration prevents conductive particles or other harmful contaminants from entering the enclosure.
- 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).
- Do not place incoming power line devices (such as isolation or constant voltage transformers, local power disconnects, and surge suppressers) near the system. The proper location of incoming line devices keeps power wire runs as short as possible and minimizes electrical noise transmitted to the unit.
- Make sure the location does not exceed the unit's shock, vibration, and temperature specifications (see page 7 for specifications).
- Install the unit so it does not cause a hazard from uneven mechanical loading.
- Incorporate a readily-accessible disconnect device in the fixed wiring on permanently connected equipment.
- Avoid overloading the supply circuit.

THE POWER SUPPLY

See page 7 for the electrical specifications of available power supplies.

Warning: **EXPLOSION HAZARD** Do not disconnect equipment unless the power has been disconnected or the area is known to be non-hazardous.

Warning: **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 operating in hazardous locations, disconnect power before replacing or wiring modules.

RISQUE **D' EXPLOSION** Dans les situations hasardees, couper la courant avant de remplacer ou de cabler les modules.

To Attach the Power Cable

1. Before you can connect your unit to a power source, you must create a power cable. See below.
2. Attach one end of the power cord to the power receptacle and the other end to a properly grounded outlet.

Creating an AC Power Supply Cable

You will need the following materials:

- A three-position power connector supplied, (see figure 5)
- 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 80° C or better.

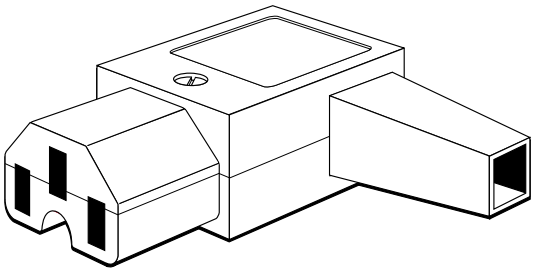


Figure 5. AC Power Connector.

To Create an AC Cable

1. Cut the wire cable to the desired length.
2. Strip 0.25-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 there is no exposed wire. 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 (see figure 6). Insert the Protective Earth ground (PE) wire, the neutral (N) wire, and the line (L) wire around the corresponding screw. Be sure that no bare wires are exposed.

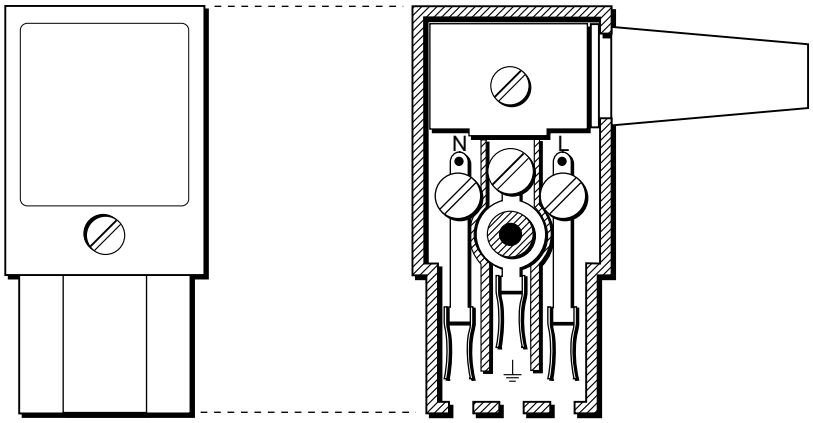


Figure 6. Internal View of AC Power Connector.

5. Tighten the three screws above the wires to hold them firmly in place.
6. Use the screw provided to secure and strain-relief the power cable inside the connector. Plug the power cable into the power supply located on the back of the unit.
7. Once the power cable and other optional interface cables are installed, installation is complete.

Cable Retainer Bracket

Once you have created the power cable, attach the retainer bracket that secures the cable connector to the unit. You *must* use this retainer bracket in hazardous locations.

Warning: Absence of this bracket can allow a power connector to become disengaged. An explosion could result if this occurs in the presence of a hazardous environment. **Refer to Appendix B for information regarding hazardous locations.**

To Attach the Retainer Bracket

1. Plug the completed cable into the system's power supply.
2. Place the retainer bracket over the connector so that the shorter sides wrap around the connector and the screw holes on the large flange line up with those on the case (see figure 7).

3. Insert the two M3 x 0.5 metric screws and tighten to the standard torque (11-in/lb).

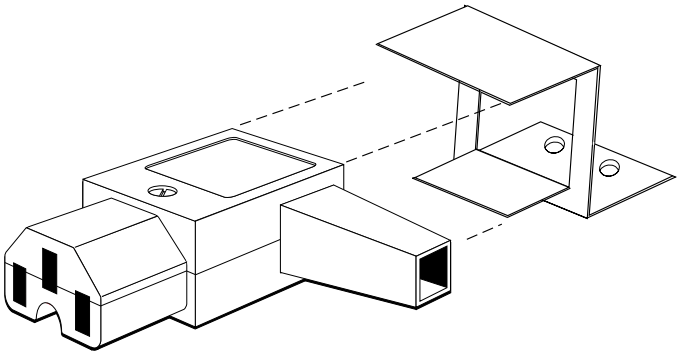


Figure 7. Cable Retainer Bracket.

Warning: Be sure to completely loosen the two securing screws on the retainer bracket when disconnecting the power cord from the unit. **Please refer to Appendix B for information regarding hazardous locations.**

ADJUSTING THE DISPLAY

The on screen display (OSD) menu is displayed (refer to figure 8) when the MENU button on the back of the monitor (refer to figure 2) is pressed with the monitor powered up and inputs properly connected.

The currently selected or active menu item is highlighted and is indicated in the top bar. The bottom bar indicates the input image resolution and vertical frequency. Each graphic icon represents a single menu item or entry to a submenu. The + and - buttons on the back of the monitor are used to scroll through items within the main menu. The ENTER button is used to activate the highlighted item. The MENU button is used to close the OSD menu.

The first menu item is highlighted by default. If the main menu is activated again within fifteen seconds after a menu exit, the previously selected menu item will be highlighted. The default menu item is reset after a fifteen second timeout, an input mode change, or after a source input cable is disconnected.

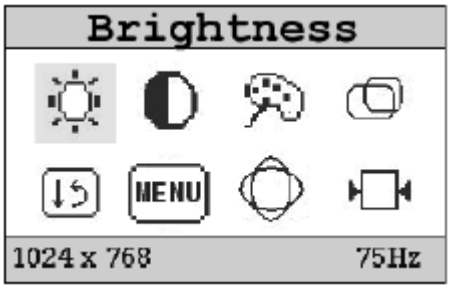


Figure 8. Main OSD Menu.

There are eight items within the main menu:

Icon	Function	Description
	Brightness	Adjusts image brightness
	Contrast	Adjusts image contrast
	Color	Adjusts image color
	Position	Adjusts image position on the display
	Image	Configures clocks per line and clock phase
MENU	Video Modes	Selects signal standard
	Auto Config	Auto-configures phase/clock

Icon	Function	Description
	Miscellaneous	Resets factory default parameters, adjusts the OSD timeout, adjusts the OSD menu position, displays system information

Note: The 3015 is calibrated at the factory for high resolution.

Once a menu item is activated with the ENTER button on the back of the monitor, the + and - buttons are used to adjust the settings. Once a setting is adjusted, pressing ENTER will save the new setting and return you to the previous menu. Pressing the MENU button while adjusting a setting will return you to the previous menu without saving the adjustment.

Brightness

The brightness control is used to adjust the image brightness. A slider indicating the current brightness is displayed (refer to figure 9). The brightness value is adjusted to the input signal.

Figure 9. Brightness Control.

Contrast

The Contrast control is used to adjust image contrast. A slider indicates the current contrast setting (refer to figure 10). The contrast value is adjusted according to the input signal. The RGB channel is set in the screen contrast.

Figure 10. Contrast Control.

Color

The color menu contains four items to adjust RGB colors (refer to figure 11). Menu items are displayed according to the input port signal.

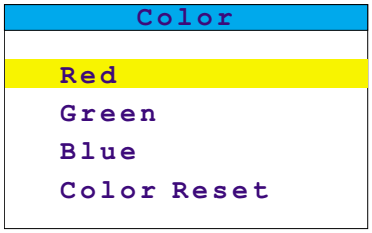


Figure 11. Color Menu.

The red, green, and blue controls (refer to figure 12) are used to adjust each color channel in PC graphics.

The color reset control resets each color to the factory settings. The default selection is *No*. If *Yes* is selected, each color is automatically reset to the factory settings. A *Please Wait* message is displayed during the automatic color reset process. After the process is completed successfully, *Completed* is displayed. Otherwise, *Aborted* is displayed to indicate that the process failed.

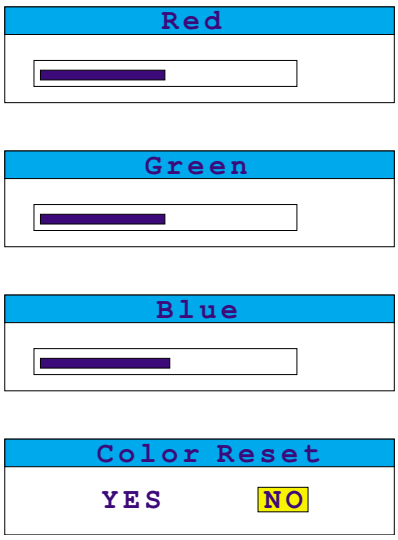


Figure 12. Red, Green, Blue, and Color Reset Controls.

Position

The position menu (refer to figure 13) allows the image position to be adjusted. The menu items are displayed according to the input port signal.

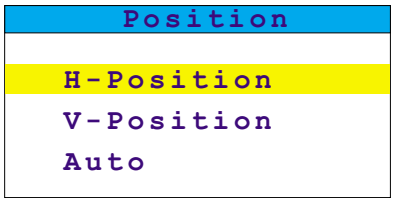


Figure 13. Position Menu.

The H-Position and V-Position controls (refer to figure 17) allow the user to adjust the horizontal and vertical image positions.

Auto (automatic center) performs automatic adjustment of both the horizontal and vertical image positions. The default selection is *NO*. If *YES* is selected, the image is centered automatically according to the current graphics resolution. A *Please Wait* message is displayed during the automatic configuration process. After the process is

completed successfully, *Completed* is displayed. Otherwise, *Aborted* is displayed to indicate that the process failed.

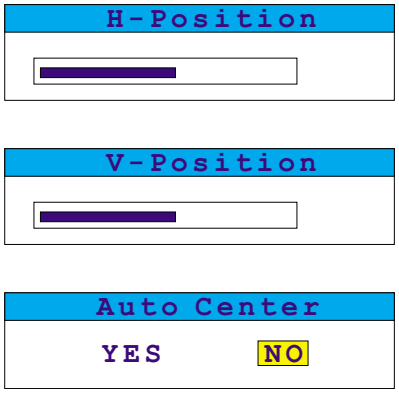


Figure 17. H-Position, V-Position, and Auto Center Controls.

Image

The image menu includes two options to adjust the display image (refer to figure 14). The menu items are displayed according to the input port signal.

Figure 14. Image Menu.

The phase control is used to adjust the phase sample pixel clock. The clock control is used to adjust the number of clock pixels per line (samples per line). The range of clock adjustment is +/- 40 pixels from the VESA standard, in increments of two pixels (refer to figure 15).

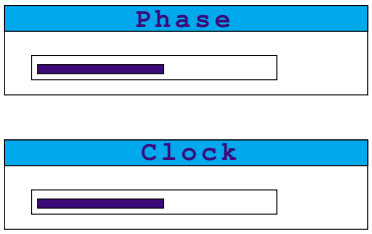


Figure 15. Phase and Clock Controls.

Video Modes

The first four items (EGAI, EGAII, DOS, and CGA) select the proper text mode. The last two items (VESA and MAC) must match the PC/Macintosh system to get the best visual (refer to figure 16).

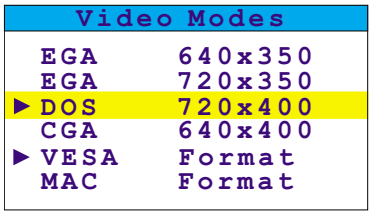


Figure 16. Video Modes Menu.

Auto Configuration

The auto configuration control (refer to figure 18) is used to perform automatic configuration of clock and position. The default selection in the box is *NO*. After *YES* is selected and automatic CLK/POS is started, a *Please Wait* message is displayed. The system first performs a vertical position adjustment to position the image at the top of the display. Next, a horizontal position adjustment is made to position the image at the left of the display. Then, the system will automatically find the correct clocks per line within a tolerance of +/- 32 clocks per line. Finally, a phase adjustment is performed, varying the sampling point of the phase over 360 degrees in 32 steps to find the best approximation phase setting. After the process is completed successfully, *Completed* is displayed. Otherwise, *Aborted* is displayed.

Figure 18. Auto Configuration Control.

The vertical position and horizontal position can be adjusted individually from the Position menu, and the phase and clock controls can be fine-tuned from the Image menu.

Miscellaneous

The Miscellaneous menu is used to select miscellaneous OSD settings and submenus (refer to figure 19).

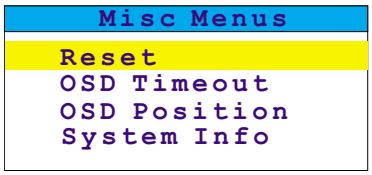


Figure 19. Miscellaneous Menu.

The Reset control (refer to figure 20) is used to reload all the factory default parameters. The default selection is NO. If *YES* is selected, all previously saved changes in memory are replaced by the factory defaults.A *Please Wait* message is displayed during the automatic configuration process. After the process is completed successfully, *Completed* is displayed. Otherwise, *Aborted* is displayed to indicate that the process failed.

Figure 20. Reset Control.

The OSD Timeout control is used to set the OSD idle time-out. If no active action, key press, or automatic configuration occurs for the defined period, the OSD menu is closed. There are four OSD time-out values available: 15, 30, 45, and 60 seconds.

The OSD Position is used to set the OSD menu position. The horizontal and vertical position can be adjusted separately (refer to figure 21).

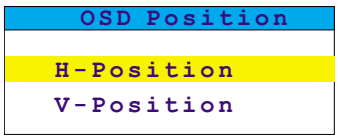


Figure 21. OSD Menu Position Controls.

Each position adjustment item reveals a slider window. The maximum position values are based on the size of the OSD menu.

The System Information menu provides the user with detailed information on the current input format. V-frequency, H-frequency, Pixel Clk, Width, and Height are indicated.

INSTALLING THE UNIT

After you have selected and prepared an appropriate location, hooked up the power supply, and adjusted the display, you can install the unit.

Panel-Mounting

The system is generally 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 nearby equipment can generate.

> ***Warning:*** For class II hazardous locations the 3015 MUST be installed within a dust-proof enclosure. **Refer to Appendix B for information regarding hazardous locations.**

To Panel-Mount the Unit

Refer to the mounting specifications (page 7) for your unit to complete these steps.

1. Cut an opening in the panel. Create a cutout in the panel to specifications. Make sure the area around the cutout is free of metal burrs.
2. Drill the mounting holes to specifications.
3. Secure the unit in place.
4. Tighten the mounting nuts to specifications.

Rack-Mounting

You can position and secure the unit in a 19" universal spacing rack. Refer to the mounting specifications (page 7) for your unit to complete these steps.

> ***Warning:*** Install the unit in a manner that does not create an unsafe load condition when mounted in the rack. You may need to reconfigure other equipment in the rack.

> ***Warning:*** For class II hazardous locations the 3015 MUST be installed within a dust-proof enclosure. **Refer to Appendix B for information regarding hazardous locations.**

To Rack-Mount the Unit

1. Attach the unit securely in the rack, using the proper mounting hardware for your rack.
2. Install the unit in the rack, using standard rack-mounting hardware.
3. To remove the unit from the rack, reverse the procedure.

3 Operator Input

Xycom Automation offers models with different integrated operator input options. These options are designated by the model numbers as follows:

(no designation) No Keypad, no touchscreen

T Touchscreen (no keypad)

This chapter includes information about the possible operator input options of your unit.

TOUCHSCREEN

Xycom Automation's touchscreen complies with environmental specifications and maintains a NEMA 4 seal when panel-mounted. It remains operational even after 30 million touches. Installation and configuration requirements vary according to the operating system in use. If you change the operating system, you must install and configure the corresponding touchscreen driver software.

Installing Touchscreen Drivers

If your system has a touchscreen controller you must determine which driver(s) to install.

Power up the system to see what response the Input LED gives. You must watch closely for the Input LED response during power up to see the response. If the LED flashes three times at power up it has a Xycom touchscreen controller. After flashing three times the LED will be constantly and dimly lit. However, if at power up the LED is constantly and dimly lit (with no flashing) your system has a Microtouch touchscreen controller.

You will install the driver that corresponds to the touchscreen controller and the operating system of the host computer.

1. Insert the *Documentation and Support Library CD* in the CD-ROM.

2. Navigate to the ***Drivers/Touchscreen*** folder.

3. Inside that folder are other folders with the titles of various drivers. Refer to the following matrix to determine which driver(s) you need for your system.

	DOS	Windows
Microtouch (Touchware)	Touchware 3.4	Touchware 5.62
Xycom (Touch-base)	Touch-base/DOS	Touch-base/Windows

4. Copy the needed files to your computer or install them from the ***Documentation and Support Library CD***.

> ***Note:*** *All touchs*creen units ship with the MS-DOS, Windows 3.x, Windows 95, Windows NT, and Windows 2000 touchscreen drivers.

> ***Note:*** For Xycom/Touch-Base touchscreen systems, the UPDD driver must be installed in Serial Mode. Simultaneous touch screen operation can be achieved by choosing two touch devices, one on COM1 and the second on COM2, during installion. Separate calibration will be required for each screen. Once installed, run the Pointer Device Control Panel applet and select Help for details.

Calibrating the Touchscreen

If you need to recalibrate the touchscreen, refer to the sections in the touchscreen manual that explain calibrating the touchscreen and using the diagnostic utility.

For Xycom/Touch-Base controllers, if you need to recalibrate the touchscreen, run the Pointer Devices Control Panel applet. Select Help for details about calibrating. For best results, use the 25 point calibration setting with Start In At set to 0.

You need to calibrate the touchscreen if

- The cursor does not follow the movement of your finger or pen
- You adjust the size of the video image or change the video mode

4 Maintenance

PREVENTIVE MAINTENANCE

Preventive maintenance consists of several basic procedures that will reduce the chance of system malfunction. Schedule preventive maintenance along with the regular equipment maintenance to minimize down time.

- Clean the screen using a nonresidue cleaner such as a mild window cleaning solution or CRT screen cleaner. Take care not to scratch or mar the screen face.
- Base your maintenance schedule on the type of environment the system is in (i.e., if the area is dusty, schedule maintenance more often than if it is a dry, clean area).
- Check connections to I/O modules, especially in environments where shock could loosen the connections. Check all plugs, sockets, and module connections.
- Remove unnecessary articles, such as drawings or manuals, from the unit. They can obstruct air flow and create hot spots, which causes the system to malfunction.
- Do not place noise-generating equipment near the unit.
- Replace the module with the correct type. If the new module solves the problem but the failure reoccurs, check for inductive loads that may be generating voltage and current spikes and may require external suppression.

XYCOM RECOMMENDED HARD DRIVE PREVENTATIVE MAINTENANCE

Xycom Automation has recognized that hard drive failures may begin to increase an average of four to five years into the life of most computers used in industrial applications. Therefore, it is our recommendation as a preventative maintenance measure that all hard drives used in these types of applications be replaced before the four to five year time period to avoid any down time related to hard drive failure.

The purpose of this message is to merely bring this to our customer's attention, to offer alternative solutions, and to provide all of our customers with the excellent service they deserve.

Any questions regarding this issue may be directed to our support center at support@xycom.com.

Please note Xycom recommends frequent back ups of your hard drive, especially before beginning any preventative maintenance procedures.

CHEMICAL COMPATIBILITY

Certain combinations of chemical environments, temperature, and stress can adversely affect parts made from thermoplastic resin. For this reason, material which may come in contact with 3015 monitors should be carefully evaluated under end-use conditions

for compatibility. You should also follow the use and compatibility recommendations of the material manufacturer.

Chemical Class	Effects
Acids	No effect under most common conditions of concentration and temperature.
Alcohols	Generally compatible at low concentration and room temperature. Higher concentrations and elevated temperatures result in etching and attack evidenced by decomposition.
Alkalis	Generally compatible at low concentration and room temperature. Higher concentrations and elevated temperatures result in etching and attack evidenced by decomposition.
Aliphatic Hydrocarbons	Generally compatible
Amines	Surface crystallization and chemical attack. Avoid.
Aromatic Hydrocarbons	Partial solvents and severe stress cracking agents. Avoid.
Detergents and cleaners	Mild soap solutions are compatible. Strong alkaline materials should be avoided.
Esters	Causes severe crystallization. Partial solvents. Avoid.
Greases and oils	Pure petroleum types generally compatible. Many additives used with them are not compatible.
Halogenated Hydrocarbons	Solvents. Avoid.
Ketones	Causes severe crystallization and stress cracking. Partial solvents. Avoid.
Silicone oil and greases	Generally compatible up to 85° C (185° F). Some contain aromatic hydrocarbons which should be avoided.

Compatible Lubricants

Lubricants	Manufacturer
DC® 230 Molykote® 33	Dow Corning Midland, MI 48640 (800) 248-2345
Harmony® 68 Security® 68	Gulf Oil Petroleum Prod. Dept. Pittsburgh, PA 15230 (412) 655-6247
Lubriplate® Aero	Fisher Bros. Refinery 129 Lockwood Street Newark, NJ 07105
Martemp® 2500	E.F. Houghton & Co. 303 W. Lehigh Ave. Philadelphia, PA 19133 (215) 666-4000
Nyogel® 795A Rheolube® 368 Rheolube® 723G Rheolube® 788 Synthetic Oil® 181	Wm. J Nye P.O. Box G-927 New Bedford, MA 02742 (617) 966-6721
SF® 1147 Versilube® F-50	GE Silicone Products Waterford, NY 12188 (518) 237-3330
Terrestic ® 77	Exxon P.O. Box 2180 Houston, TX 77092 (713) 680-5712

If you want to use a lubricant that is not listed, contact the appropriate manufacturer to determine compatibility.

Compatible Cleaning Agents

Type	Agents
Aliphatics	Hexane, Heptane, White Kerosene Mineral Spirits, Petroleum Ethers (65° C boiling point)
Alcohols	Methyl, Isopropyl and Isobutyl, 1 + 3 Denatured Alcohol
Halogenated hydrocarbons	Freons TF & TE
Detergents and cleaners	Mild Soap and Water Solution, VM&P Naphtha Fantastik®, Windex®, Joy®, Top Job®, Mr. Clean®, Formula 409®

If you want to use an agent that is not listed, contact the appropriate manufacturer to determine compatibility.

Compatible aliphatics, alcohols, and halogenated hydrocarbons should be used only for wiping or short-term immersion (less than 10 minutes). If parts are in complete immersion, remove all traces of solvent by forced-air drying or rinsing in hot water.

Noncompatible, Detrimental Cleaning Agents

Type	Agents
Bases	25% Ammonium Hydroxide, 10% Potassium Hydroxide, Sodium Hydroxide
Organic Solvents	Lacquer Thinner, Toluene, Methyl Cellosolve, Methylethylketone

PRODUCT REPAIR PROGRAM

Xycom Automation's Product Repair and Customization Department (PR&C) restores equipment to normal operating condition, and implements engineering changes that enhance operating specifications. Returned products are tested with standard Xycom Automation test diagnostics.

To prepare the unit for shipment

1. Obtain an RMA number for your unit by calling your nearest Xycom Automation Repair Department or Xycom Automation, Inc. at 1-800-289-9266 or 734-429-4971. Please have the following information available:
   - Company name and shipping and billing addresses
   - Type of service desired: product repair or product exchange
   - Product model number, part number, quantity, serial number(s), and warranty status
   - Failure mode and failure systems
   - Purchase order number or repair order number
2. Make sure the front panel assembly is properly attached to the unit.
3. Attach failure information to the unit to speed processing.
4. Place the unit securely in its original packaging or an equivalent heavy-duty box.
5. Mark the RMA number on your purchase order and on the outside of the box.
6. Send the unit to the address given when you receive your RMA number.

SPARE PARTS

The following replacement kits are available for the 3015 monitor. Touchscreen controllers are included with the 3015T front panel replacement kit. See page 4 for instructions on removing the front panel and accessing the touchscreen controller card.

Description	Xycom Part Number
3015 front panel replacement kit 3015T front panel replacement kit	140018-001 140019-001
Rear unit assembly replacement kit	140020-001

5 Troubleshooting

This chapter is intended to supplement the rest of the manual. It provides charts of general operational problems, their possible causes, and corrective actions that can be taken. Consult chapter 2 for installation and chapter 4 for maintenance information.

> ***Note:*** Remember when replacing a particular unit or performing service procedures that the unit may have been customized and had options installed. Make sure you maintain configuration changes that were made to support these customizations or options.

REPAIRING THE UNIT

In some cases, a problem will indicate you should replace a component. If the unit is under warranty, we recommend you order a complete replacement unit rather than replacing only the damaged part. If you replace a part instead of replacing the entire unit, you may find that other parts are defective and additional downtime may occur.

If the unit is no longer under warranty, the customer may wish to replace only the defective part to reduce costs. Spare parts (see page 26) can be ordered directly from Xycom Automation. We do not recommend third-party replacement components as they may not be compatible with the unit's hardware and software.

When a failed unit is returned to Xycom Automation for repair, a detailed and accurate problem description must accompany it (see page 26).

TROUBLESHOOTING CHARTS

Following is a troubleshooting chart to help diagnose and correct problems. The chart provides one or more probable causes and a corresponding course of action for each problem. The causes listed are not necessarily complete, and the recommended action may not necessarily be appropriate for a particular situation.

Possible causes are ordered by the simplicity of the corrective action. Items that are usually the easiest to check are listed first.

The chart is only a guideline and does not replace proper diagnostic procedures. It remains your responsibility to verify that the actions taken to correct a problem are appropriate.

Also, you should try to determine the failure's root cause. For example, if the line fuse has blown, you should try to establish the reason for the excess current that caused the fuse to blow, to prevent it from recurring.

General Operational Problems

Use this chart when there is a problem, but no error messages occur during power-up or normal operation.

Problem	Cause	Action
Blank Screen	Power disconnected	Check power supply voltage and connection integrity
	Video cable disconnected	Check video cable and connection integrity
	Line fuse blown	Replace fuse and determine cause
	Faulty RAM in host computer	Replace SIMMs
Screen color or picture is distorted	Video drivers were not loaded	Load correct video drivers
Touchscreen inoperable	Touchscreen driver changed	Update touchscreen drivers
	Controller failed	Call factory
COM2 inoperable	Touchscreen conflict under Windows NT operating system	Find alternate port for serial device

A Pinouts

This appendix provides the pinouts for the power, video, and touchscreen connectors.

Power Connector

AC Pin Number	AC Description
1	L
2	N
3	AC_GND

Video Connector

Pin Number	Signal
1	RED
2	GRN
3	BLU
4	NC
5	GND
6	GND
7	GND
8	GND
9	PC+5V
10	Cable Detect (GND)
11	NC
12	Monitor ID bit 1
13	HSYNC
14	VSYNC
15	Monitor ID bit 3

Serial Touchscreen Connector

Pin Number	Signal
1	NC
2	RX
3	TX
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

B Hazardous Location Installations

Xycom Automation designed the 3015 to meet Class I, Division 2 Hazardous Location application requirements. Division 2 locations are locations that are normally non-hazardous, but could become hazardous due to accidents that may expose the area to flammable vapors, gases, or combustible dusts.

These units have been designed as nonincendive 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 units 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 Automation design intent. Xycom Automation accepts no responsibility for installations of this equipment or any devices attached to this equipment in Division 1 locations.

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

In accordance with federal, state/provincial, and local regulations, all hazardous location installations should be inspected by the authority having jurisdiction, prior to use. Only technically qualified personnel should install, service, and inspect these units.

Warning: 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.

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 the power has been disconnected or the area is known to be non-hazardous.

***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 operating in hazardous locations, disconnect power before replacing or wiring modules.

***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 or mouse when the unit is operating in 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 as a general description for those not familiar with generic hazardous location requirements.

People responsible for installing 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 gases, vapors, or combustible dusts and particles can exist due to 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: Xycom Automation units are not suitable for installation within Division 1 locations.

Note: Electrical equipment cannot be installed in Division 1 locations unless it is intrinsically safe, installed inside approved explosion-proof enclosures, or installed inside 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 units from which they can escape only in cases of accidental rupture or breakdown of such enclosures or units, 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 units.
- 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.

GROUP RATINGS

All electrical equipment that 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 what the equipment group rating will be. 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 units are designed to be installed within clean and dry enclosures 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 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 to maintain a proper panel seal. If you are going to use non-metal type enclosures, such as plastic or fiberglass, 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. Tighten the nuts on the mounting studs per the instructions in the section , "*Mounting the Unit*."

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. It is the customer's responsibility to ensure that the installation is compliant with codes and regulations that apply to the specific location. Reference NFPA 70, Article 500 for specific regulations in the United States.

POWER SWITCH

The units do not have a power switch. The amount of input power required by these units classifies the power switch as an incendive device because the voltage and current across the make/break device are capable of creating a spark.

Hazardous location regulations state that a power switch rated for ordinary locations may be used if it is located in a non-hazardous area. 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.

CABLE CONNECTIONS

Division 2 hazardous location regulations require that all cable connections be provided with adequate strain relief and positive interlock. Never connect or disconnect a cable while power is applied at either end of the cable.

All communication cables should include a chassis ground shield. The D-sub style connector housing should be a metal conductive type (e.g., molded zinc), and the ground shield braid should be well terminated directly to the connector housing. Do not use a shield drain wire.

The outer diameter of the cable must be suited to the inner diameter of the cable connector strain relief to ensure that a reliable degree of strain relief is maintained. Always secure the D-Sub connectors to the workstation mating connectors via the two screws located on both sides.

Warning: Never connect or disconnect the communication cables while power is applied at either end of the cable. This may result in an incendiary spark. Permanent damage to the workstation communication components may occur.

OPERATION AND MAINTENANCE

The units have been designed to comply with relevant spark ignition tests.

> ***Warning:*** To maintain a safe condition, do *not* use an external keyboard or mouse when the unit is operating in a hazardous environment.

Always observe the following rules with respect to hazardous location installations:

1. Always install the workstations within an enclosure suitable for the specific application. General purpose enclosures may be acceptable for Class I applications, but are never acceptable for Class II applications. Type 4 (IP 65) enclosures are recommended even when not required by regulations.
2. Keep enclosure doors or openings closed at all times to avoid the accumulation of foreign matter inside the workstation.
3. Never subject the unit to any installation or service procedures unless power is removed and the area is non-hazardous. This includes installing or removing power cables or communication cables, or removing the unit's back cover.
4. Only technically qualified service personnel should perform installation and service. These workstations are designed to require no service in the course of normal operation by an operator.

Index

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