2000-SoftScreen™

Industrial Workstation

P/N 97668-001C

Printed in the United States of America
Part Number 97668-001C

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XYCOM REVISION RECORD

Revision	*Description*	*Date*
A	Manual Released	6/91
B	Manual Updated (PCN #151)	6/93
C	Manual Updated	7/94

Address comments concerning this manual to:

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Part Number: ***97668-001C***

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WARNING

Dangerous voltages are present within the 2000-SoftScreen Workstation. These voltages will remain after all electrical power is turned off. Use caution whenever the front panel is opened. Avoid touching high-voltage areas within the SoftScreen Workstation. Do not work alone.

WARNING

The fragile Cathode Ray Tube (CRT) is exposed when the front panel is opened. Wear safety glasses to protect eyes in case of accidental breakage. The internal coating of the CRT is extremely TOXIC. If exposed, RINSE IMMEDIATELY and consult a physician.

1.1 USING THIS MANUAL

This manual provides both in-depth information and a quick start-up section. Use the outline below to help you locate information (refer to the table of contents or index for page numbers).

Chapter 1 **Introduction**
- Product overview
- System components (front and back panel descriptions)
- Quick Start-up

> **NOTE**
> The Quick Start-up (page 1-6) provides the basic steps to get your system up and running without going through the whole manual.

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1.2 PRODUCT OVERVIEW

The 2000-SoftScreen™ Workstation consists of three parts: the 2000 operator interface workstation, the SoftScreen PLC direct connect firmware chip, and a software program for offline development. This manual discusses the 2000-SoftScreen Workstation and firmware chip. For information on the base terminal, see the 2000-Industrial Workstation Manual. For information on the development system, see the SoftScreen Development System Manual.

> **NOTE**
> The 2000-SoftScreen Workstation is available with front panel keypads as the 2005. For brevity, "2000-SoftScreen Workstation" is used in this manual to refer to both the 2000 and 2005 units.

The 2000 Industrial Workstation is shipped with a 2000-01 firmware chip for base terminal emulation. This chip needs to be removed and replaced by the SoftScreen firmware chip (see section 2.3.1). The 2000-SoftScreen Workstation is a rugged operator interface that displays applications created on the SoftScreen development system. It communicates with various brands of PLCs to read and write data to the application screens.

The 2000-SoftScreen Workstation features a 9" amber CRT protected by an impact-resistant Lexan shield. The unit is sealed to NEMA 4/NEMA 12 standards and can be mounted in a standard 19" rack or in an equipment enclosure panel.

The 2000-SoftScreen Workstation is a display terminal specifically designed to perform reliably under the extreme conditions of shock, vibration, temperature, and humidity found on a plant floor. It combines many standard desktop terminal features, comprehensive character oriented graphics, and a flexible configuration. The 2000-SoftScreen Workstation provides 128 Kbytes of RAM memory.

The Workstation features two RS-232C or RS-485 configurable serial ports, a Centronics compatible parallel port, a matrix parallel keyboard port, and a standard keyboard port. It can accommodate one of several keyboards: a full-stroke PC/AT or XT style keyboard, a sealed alphanumeric keyboard with 20 function keys, or a sealed 58-key keypad, also with 20 function keys.

1.3 UNPACKING THE SYSTEM

When you receive your 2000-SoftScreen Workstation, verify that you have the parts listed below. It also is a good idea to save the box and inner wrapper of the 2000-SoftScreen Workstation in case you need to re-ship the unit.

- 2000-SoftScreen Workstation
  with 2000-01 base firmware chip installed

- 2000-SSXX SoftScreen PLC direct connect firmware chip

- Documentation kit, which includes:
  2000-SoftScreen manual
  2000-Base terminal manual
  Business reply card
  Any options such as SoftScreen development system, keyboards, etc.

1.4 SYSTEM COMPONENTS

This section describes the components of the front, back, bottom, and side panels of the workstation.

1.4.1 Front Panel

The 2000-SoftScreen Workstation is equipped with a NEMA 4/NEMA 12 sealed front panel. This panel protects the interior of the system from harsh environmental conditions whenever the system is properly panel-mounted. No ports or keypads are located on the front panel. (A front panel keypad is available on the 2005 and 2050/2060. See Chapter 5 for more information.)

1.4.2 **Back Panel**

The 2000-SoftScreen Workstation back panel provides access to the ports, the power assembly, jumpers, switches, and the firmware chip. Figure 1-1 shows the location of these features:

Table 1.1 Back Panel Components

Component	Description
Power Switch	Controls the power flow to the terminal.
Power Receptacle	Connects the power cord.
Fuse Receptacle	Contains the terminal fuse behind a plastic end cap.
Jumpers	Configures the ports as either RS-232-C or RS -485.
DIP Switches	Configures the system for specific keyboard/keypad/touch screen options.
Serial Ports (2)	For PCL and other peripheral connections; 9-pin D-type interface.
Printer Port	For Printer connection; 25-pin female D-type interface.
Parallel KYBD	For matrix-type sealed keyboard connection; 26-pin male interface.
Serial KYBD	For PC/AT or XT style keyboard connection.
Firmware Socket	For firmware installation.

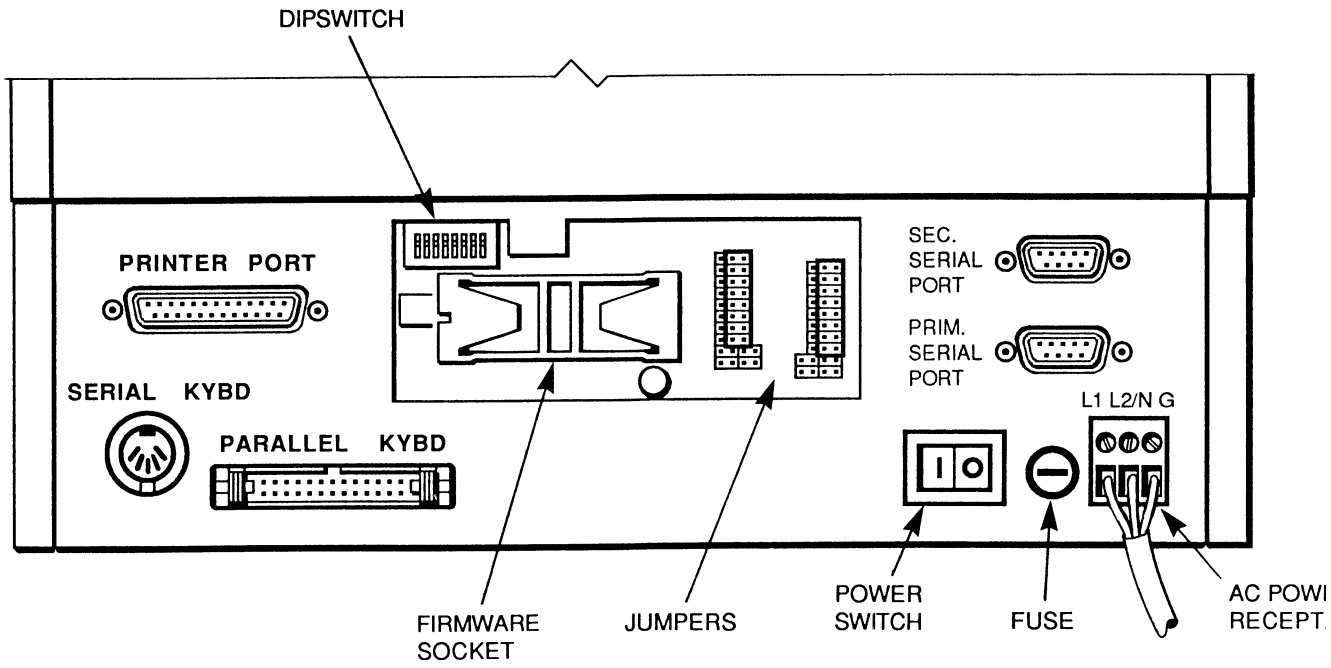

Figure 1-1. 2000-SoftScreen Back Panel

1.4.3 Bottom and Side Panels

The 2000-SoftScreen Workstation bottom panel provides access to a video contrast control:

- **Video Contrast** - The unit is shipped with proper video contrast adjustment. If video re-adjustment is necessary, insert a small, nonconducting screwdriver in the hole labeled video contrast (located at the bottom center of the bottom side panel) and gently turn the screwdriver until the desired contrast is attained.

The 2000-SoftScreen Workstation right side panel (referenced from front of unit) provides the following screen adjustment controls:

- **Focus**
- **Brightness**
- **Width**
- **Horizontal center**
- **Vertical linearity**
- **Vertical hold**
- **Vertical size**

Although these display qualities may also be adjusted with a small screwdriver, such adjustments should not be necessary, and are not recommended.

> **NOTE**
> Please refer all problems concerning video display adjustment to the Xycom Application Engineering Department.

1.5 QUICK START-UP

> **WARNING**
> The power cable must be connected to a properly grounded outlet. Do **NOT** use an adapter plug that prevents the workstation from being properly grounded through the power cable. Before connecting electrical power to the workstation, turn the power **OFF**.

1. Remove the cover plate from the back panel of the unit by loosening the two screws. Save the screws and washers.

2. Install the firmware chip according to the instructions in section 2.3.1.

3. Set the jumpers to configure the serial ports as RS-232C or RS-485, depending on your PLC specifications. Both the primary and secondary serial ports are shipped configured to RS-232C. The jumper settings are listed in Section 2.3.2.

4. Set the switches to define the type of keyboard used and the location of the SoftScreen program files. The default configuration for the switches is OFF, which selects an AT keyboard and stores programs in battery-backed CMOS RAM. Switch settings are listed in Section 2.3.3.

5. Replace the cover plate.

6. Secure the 2000 in a suitable mounting location (refer to Section 2.3.4).

7. With a screwdriver, remove the plastic end cap to the fuse receptacle. Check the fuse for serviceability and correct rating (.75 amp Slo-Blo). Replace the cap.

8. Connect to your particular PLC from the primary serial port. See Appendix B for pinout descriptions. Make sure the jumpers are set to RS-232C or RS-485, depending on the requirements of your PLC. See section 2.3.2.

9. If connecting to the SoftScreen development system PC/AT, attach the cable from the 2000's secondary serial port to port 1 or 2 of the development system.

10. Fabricate the power cable according to the instructions in Section 2.3.6, and plug the power cable into the power receptacle.

11. Plug the end of the power cable into a properly grounded outlet.

12. Turn on the power to the system.

> **NOTE**
> The 2000-SoftScreen Workstation has an auto-sensing power supply that automatically adjusts to the voltage supplied (120 VAC or 240 VAC). There are no switches or voltage cards to change.

When the terminal is powered-up it goes through a set sequence, which consists of:

- Clearing all command and data queues
- Performing a diagnostic RAM and ROM test

To access the SoftScreen Workstation menus, press **<CTRL><BREAK>**, or for a 2005 unit, you can also press 9 and PageDown simultaneously on the keypad.

2.1 INTRODUCTION

This chapter describes how to prepare the 2000-SoftScreen Workstation for use including setting the jumpers and switches, installing the firmware chip, and connecting the 2000-SoftScreen Workstation to both the PC/AT development system and to the PLC or PLC network. (The cabling necessary for the PLC connection is detailed in Appendix B.)

2.2 SYSTEM REQUIREMENTS

The minimum recommended hardware components needed to operate the 2000-SoftScreen Workstation are:

- The 2000 base terminal
- A 2000-SoftScreen firmware chip
- A full-stroke PC/AT or XT keyboard

  or
- A sealed membrane keyboard

Although several different keyboards and keypads may be used with the 2000, a full alphanumeric key set is recommended for programming.

2.3 PREPARING THE 2000-SOFTSCREEN WORKSTATION FOR USE

Preparing the 2000-SoftScreen Workstation for use involves five major steps:

- Removing the base terminal chip and replacing it with the SoftScreen chip
- Setting the jumpers and switches (if required)
- Mounting the unit
- Installing options
- Creating and connecting the power cord

Each step is explained in the following subsections.

2.3.1 **Installing the Firmware**

All 2000 Workstations are shipped with the 2000-01 (base terminal) firmware chip installed. To install the SoftScreen firmware chip, follow the instructions below.

> **WARNING**
> Never open any piece of equipment without disconnecting all external power sources.

> **CAUTION**
> Back up screen programs prior to changing EPROM firmware. Existing screen programs are cleared upon power up whenever upgraded or different firmware is installed.

1. Remove the cover plate from the back panel of the unit by loosening the two screws as shown in Figure 2-1 below. Save the screws and washers.

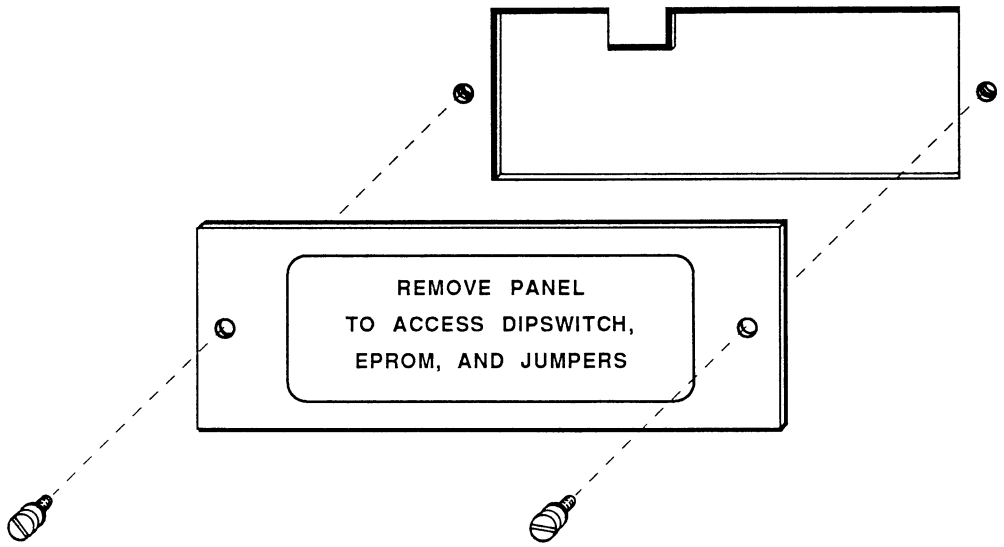

Figure 2-1. Removing the Cover Plate

2. Remove the 2000-01 firmware chip from its socket in the middle of the 2000-SoftScreen back panel.

3. Install the SoftScreen firmware chip into the socket, orienting pin one of the chip holder to pin one of the socket, as shown in Figure 2-2 below. Apply gentle, even pressure, and be sure that no pins are bent or out of alignment.

4. Replace the cover plate. (If jumpers or switches need to be changed, leave the plate off).

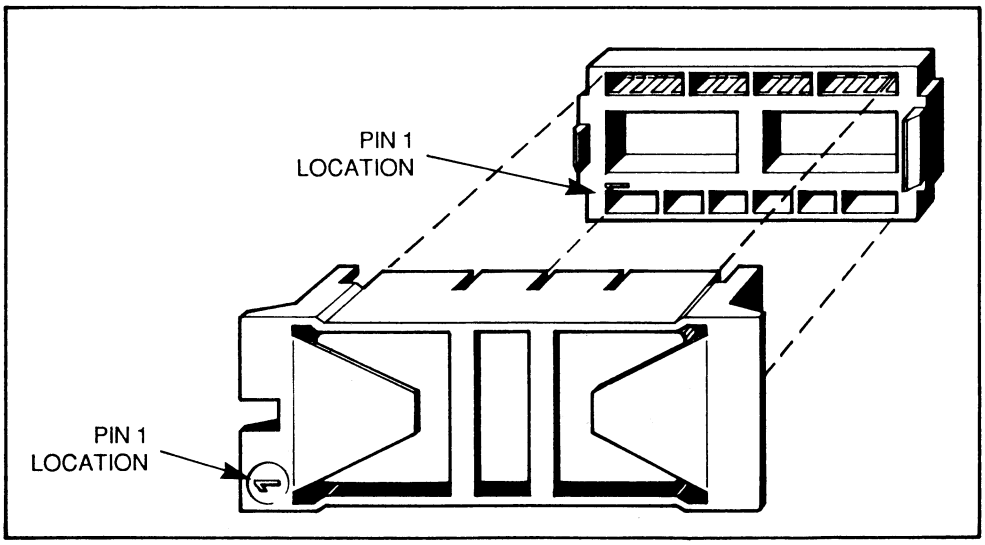

Figure 2-2. Installing the Firmware Chip

2.3.2 **Setting the Serial Port Jumpers**

Two clusters of jumpers are located on the back panel of the workstation, beneath the cover plate. These jumpers are used to configure the serial ports as either RS-232C (shipping configuration) or RS-485.

The primary serial port is used for connecting to the PLC or PLC network. Jumpers J13 - J24 configure the primary serial port.

The secondary serial port is used for connecting to the SoftScreen offline development system. Jumpers J1 - J12 configure the secondary serial port.

Figure 2-3 shows the arrangement of these jumpers. Jumper settings are listed in Tables 2-1 and 2-2.

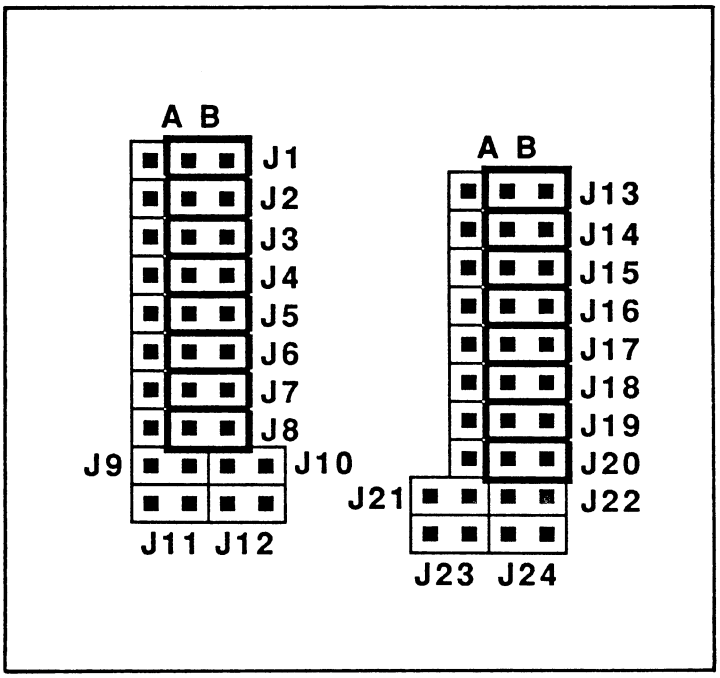

Figure 2-3. Port Configuration Jumpers Set for RS-232C

Table 2-1. Primary Serial Port Jumper Settings

Jumper	RS-485	RS-232*
J13	A	B
J14	A	B
J15	A	B
J16	A	B
J17	A	B
J18	A	B
J19	A	B
J20	A	B

* shipping configuration

Table 2-2. Secondary Serial Port Jumper Settings

Jumper	RS-485/ Multidrop	RS-232*	RS-485
J1	A	B	B
J2	A	B	A
J3	A	B	A
J4	A	B	A
J5	A	B	A
J6	A	B	A
J7	A	B	A
J8	A	B	A

* shipping configuration

When configured for RS-485, the inputs CTS and RXD may be terminated. Each signal for each port is independently terminated by a pair of jumpers. Installing the jumpers as indicated below will terminate a specific signal.

Secondary Serial Port	**Primary Serial Port**
RXD: J11, J12 IN	RXD: J23, J24 IN
CTS: J9, J10 IN	CTS: J21, J22 IN

All of these jumpers are OUT when shipped.

2.3.3 Setting the System Configuration Switches

A bank of 8 DIP switches is located on the back panel of the 2000, beneath the cover plate. These switches indicate which type of keyboard is connected to the system and where the SoftScreen programs will be located. Figure 2-4 shows the switch bank. When the switch is up (top of the terminal orientation) it is ON. The default shipping configuration for all switches is OFF. Switch settings are shown in Table 2-3:

Table 2-3. Switch Settings

Switch	Function	Settings
1	Keyboard Type	ON = XT keyboard OFF* = AT keyboard
3	SoftScreen Program Location	ON = programs in EPROM OFF* = programs in RAM
2, 4, 5, 6, 7 & 8	Reserved	Should remain in OFF* position

* shipping configuration

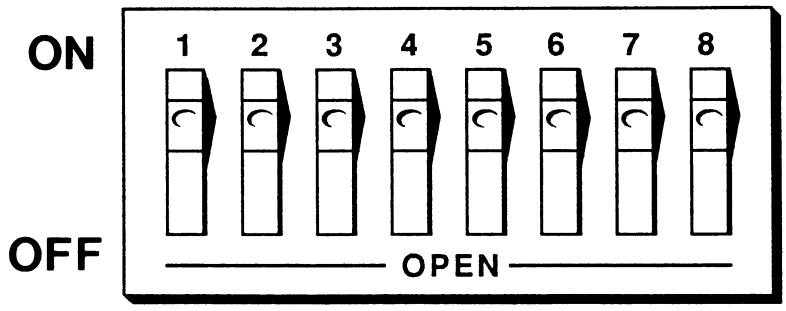

Figure 2-4. System Configuration Switches

2.3.4 Mounting the 2000-SoftScreen Workstation

The 2000-SoftScreen Workstation can be rack or panel mounted. The unit is designed to be secured with mounting extrusions, so no holes need to be drilled in the panel or rack mount adapter plate. The 2000-SoftScreen Workstation's rugged design allows it to be installed in most industrial environments. The 2000-SoftScreen Workstation is generally placed in a NEMA 4/12 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.

Once you have found a location for the 2000-SoftScreen Workstation, install it in the enclosure according to the manufacturer's instructions. Consider the following points and precautions before placing the workstation inside an enclosure:

- **Select an enclosure** that will allow access to the 2000-SoftScreen ports.
- **Account for the unit's depth as well as cabling** when choosing the depth of the enclosure
- **Mount the 2000-SoftScreen in an upright position**.
- **Place the 2000-SoftScreen at a comfortable working level**.
- **Consider locations of accessories** such as AC power outlets and lighting (interior lighting and windows) for installation and maintenance convenience.
- **If condensation is expected**, install a thermostat-controlled heater or air conditioner
- **To allow for maximum cooling, avoid obstructing the air flow.**
- **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 also 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 interference (RFI) (equipment such as high power welding machines, induction heating equipment, and large motor starters).
- **Place incoming power lines (such as isolation or constant voltage transformers, local power disconnects, and surge suppressors) away from the workstation.** The proper location of incoming line devices keeps power wire runs as short as possible, and minimizes electrical noise transmitted to the workstation.
- **Make sure the location does not exceed the 2000-SoftScreen's temperature specifications**.

The actual mounting instructions begin in section 2.3.4.5 for panel mounting and 2.3.4.6 for rack mounting.

NOTE

The displays may be affected by Geomagnetic fields. Some typical effects of magnetic fields are purity (blotchy colors), distorted screens, etc. In some cases, purity problems may be correctable by powering off the unit for 30 minutes and reapplying power. In other cases a degaussing wand may be needed. Contact Xycom's Technical Services department for further questions.

2.3.4.1 System Power

It is always a good idea to use isolation transformers on the incoming AC power line to the 2000-SoftScreen Workstation. 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 National Electric Code (NEC), article 250, which provides 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. 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 grounded to a central ground bus**, normally located near the point of entry for the plant power supply of the enclosure. Paint and other nonconductive material should be scraped away from the area where a chassis makes contact with the enclosure. In addition to the ground connection made through the mounting bolt or stud, a one-inch metal braid or size #8 AWG wire can be used to connect between each chassis and the enclosure at the mounting bolt or stud.

- **The enclosure should be properly grounded to the ground bus**. Make sure a good electrical connection is made at the point of contact with the enclosure.

- **The machine ground should be connected to the enclosure and to earth ground.**

2.3.4.2 **Excessive Heat**

The 2000-SoftScreen Workstation is designed to withstand temperatures form 0° to 50°C and is cooled by convection, in which a vertical column of air is drawn in an upward direction over the surface of the components. To keep the temperature in the range, the cooling air at the base of the system must not exceed 50°C. Proper spacing must also be allocated between internal components installed in the enclosure.

When the air temperature is higher than 50°C in the enclosure, use a fan or air conditioner.

2.3.4.3 **Excessive 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 due to operating errors, 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 usually enters through input, output, and power supply lines and may be coupled into lines electrostatically through the capacitance between these lines and the noise signal carrier lines. This usually results from the presence of high voltage or long, closed-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 relays, solenoids, motors, and motor starters, especially when operated by hand contacts like push buttons or selector switches. In accordance with National Electric Code specifications, it is recommended that the high voltage and low voltage cabling be separated and dressed apart. In particular, the AC cables and switch wiring should not be in the same conduit with the PLC communication cables.

2.3.4.4 **Excessive Line Voltage**

The power supply section of the 2000-SoftScreen Workstation is built to sustain line fluctuations of 90 to 250 VAC and still allow the system to function within its operating margin. As long as the incoming voltage is adequate, the power supply provides all the logic voltages necessary to support the processor, memory, and I/O.

In cases in which the installation is subject to unusual AC line variations, a constant voltage transformer can be used to prevent the system from shutting down too often. However, a first step toward the solution of the line variations is to correct any possible feed problem in the distribution system. If this correction does not solve the problem, a constant voltage transformer must be used.

The constant voltage transformer stabilizes the input voltage to the 2000-SoftScreen Workstation 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 2000-SoftScreen Workstation.

2.3.4.5 **Panel-Mounting the Unit**

To panel mount the unit:

1. Cut a hole 11.97" wide by 9.97" high into the panel.

2. Insert the Workstation into the hole created in step one from the front of the panel.

3. Hold the workstation flush to the panel and secure it with the mounting extrusions, as shown in Figure 2-5 below. If you have an optional sealed keyboard, cut a hole 12.18" wide and 8.25" high under the hole for the 2000-SoftScreen Workstation.

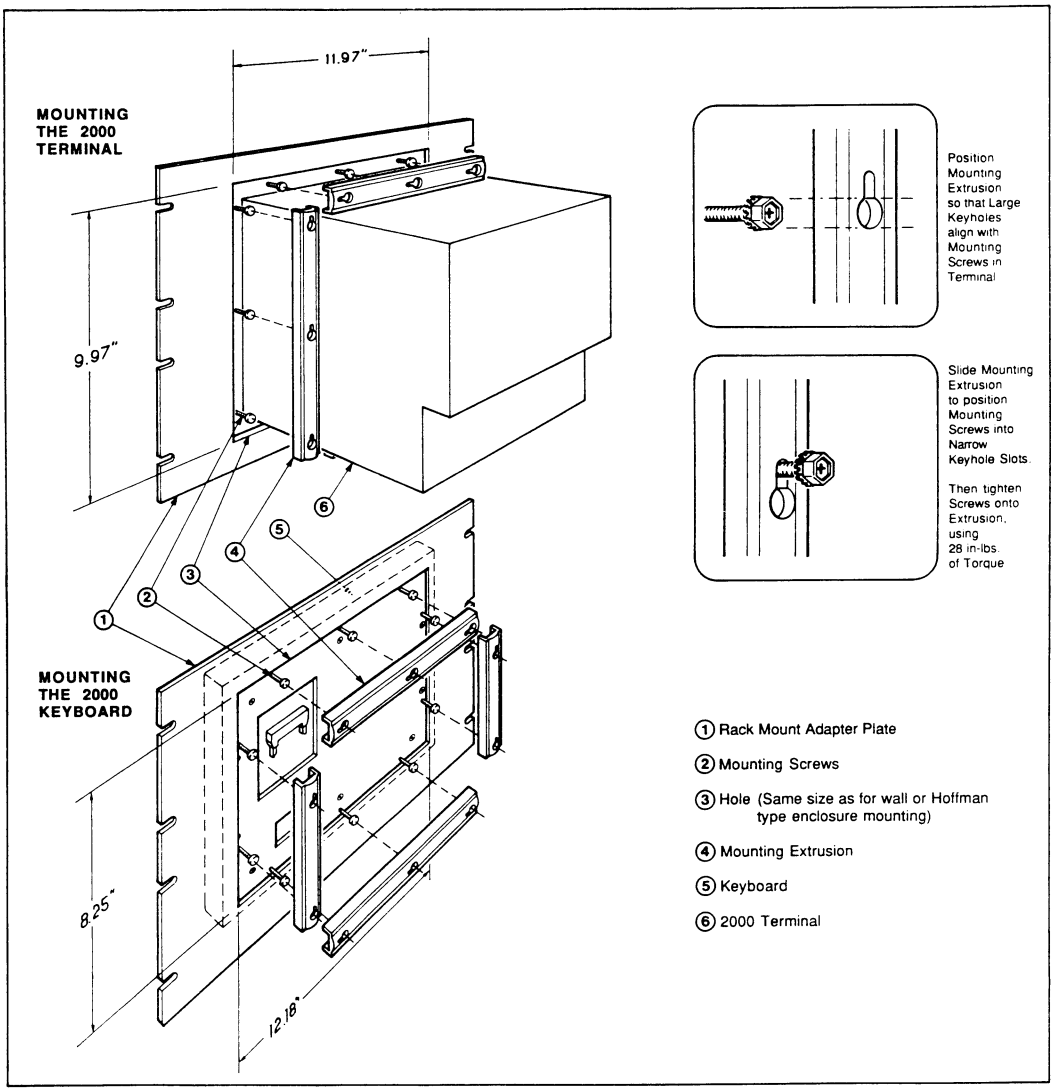

Figure 2-5. Mounting the 2000-SoftScreen and Optional Keyboard

2.3.4.6 **Rack-Mounting the Unit**

The 2000-RMA rack mount adapter plate and the 2000-KBA keyboard adapter plate are required for mounting the workstation and optional sealed keyboard in an equipment rack. The adapter plate is pre-cut; simply mount the workstation and keyboard to the plates according to the panel-mount instructions given above.

After mounting the workstation and keyboard to the adapter plates, secure each unit to a standard equipment rack with eight 1-32 studs.

2.3.5 **Installing Keyboard Options**

Several different keyboards can be used with the 2000-SoftScreen Workstation, including a full-stroke PC/AT or XT style keyboard, a full sealed QWERTY style keyboard with 20 function keys, and a sealed 58-key ABC style keypad with 20 function keys. Generally, only a sealed membrane keyboard should be used when the workstation is serving as a plant-floor operator interface. A full-stroke full-size keyboard is usually used for programming and supervisory operations.

The keyboards can be connected to the keyboard connector at the rear of the 2000-SoftScreen unit, or mounted in a rack as described in the section above.

2.3.6 **Creating a Power Cable**

A cable must be created to supply power to the 2000. One end of the cable will attach to a terminal block, and into the back panel of the 2000-SoftScreen unit. The other end of the cable will be connected to a standard three-prong outlet or to a termination block, depending on your particular needs. The materials needed are:

- 3-position terminal block plug (supplied)
- 14, 16, or 18 gauge solid or stranded wire
- 3-prong outlet or termination block

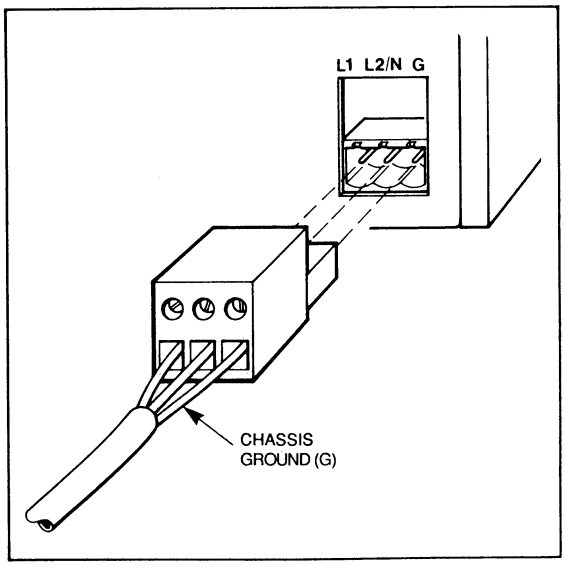

Figure 2-6. Connecting the Power Cable to the Workstation

To create a power cable:

1. Cut wire cable to the desired length.

2. Strip a 1/4 - 3/8 inch of insulation from one end of the cable. No bare wire should be exposed when the cable is connected to the workstation.

3. If using stranded wire, tin the wire ends with solder to 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 2-6. The ground, L1 and L2/N wires, should be inserted into the corresponding holes, as indicated in Figure 2-7. Be sure that no bare wire is exposed.

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. Connect the other end of the cable to a standard 3-prong electrical outlet or to a termination block, depending on your particular set-up.

The power cable can now be connected to the 2000 and an appropriate power source.

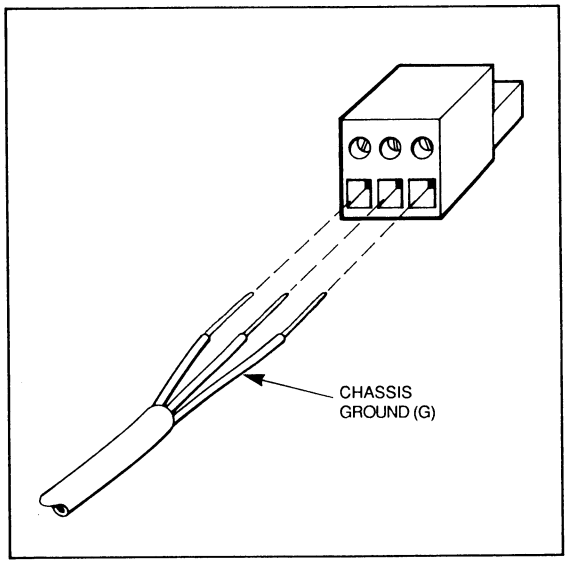

Figure 2-7. Constructing the Power Cable

The 2000-SoftScreen workstation is now ready for use. When the terminal is powered-up it goes through a set sequence, which consists of:

- Clearing all command and data queues
- Performing a diagnostic RAM and ROM test

To access the SoftScreen menus, press **<CTRL><BREAK>**. If you have a 2005, you could also press PageDown and 9 simultaneously on the keypad.

2.4 CONNECTING THE 2000-SOFTSCREEN WORKSTATION TO THE OFFLINE DEVELOPMENT SYSTEM

The 2000-SoftScreen Workstation connects to the PC/AT development system via the 2000-SoftScreen's secondary serial port, which can be jumper configured to RS-232C or RS-485.

For RS-232C, use the enclosed 9-pin to 25-pin SMART cable. First, attach the female 25-pin side of the connector adapter to the 25-pin male end of the cable. Now your cable has two female 9-pin connectors, which attach from the secondary serial port of the 2000-SoftScreen Workstation to port 1 or 2 of the PC/AT development system. The pinouts for the connection are shown in Figure 2-8 below. The switch on the cable should be positioned in the center (connector side up). Both yellow lights should be on during normal operation. For more information, see the sticker on the cable.

For RS-485, use a standard RS-485 cable to connect from the 2000-SoftScreen Workstation's secondary serial port to port 1 or 2 of your IBM PC/AT development system. The pinouts are shown on the next page.

Make sure the jumpers are set for either RS-232C or RS-485 as shown in Tables 2-1 and 2-2.

NOTE

Make sure that the PC serial port intended for use to download to the 2000-SoftScreen Workstation matches the one specified in the SoftScreen software under Config-Edit-System-Send Port.

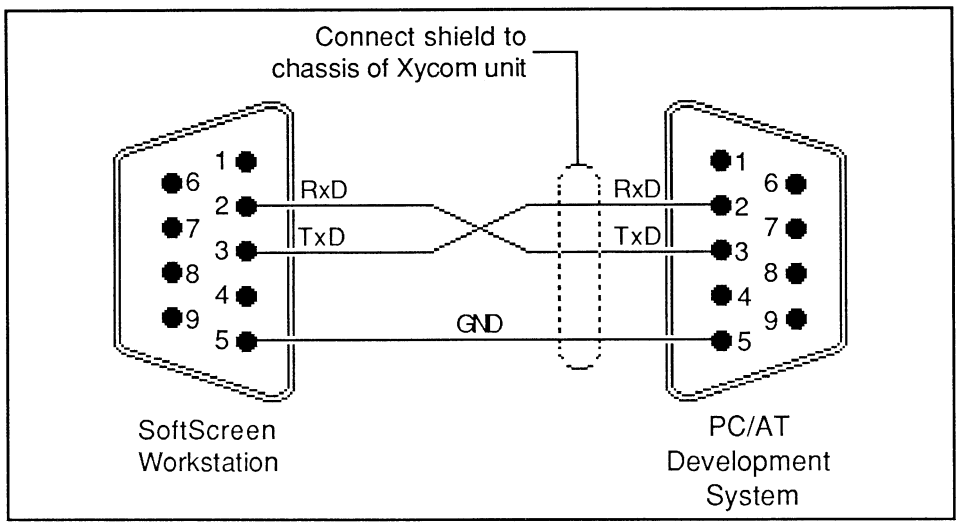

Figure 2-8. PC/AT Development System to 2000-SoftScreen Electrical Interface via RS-232C

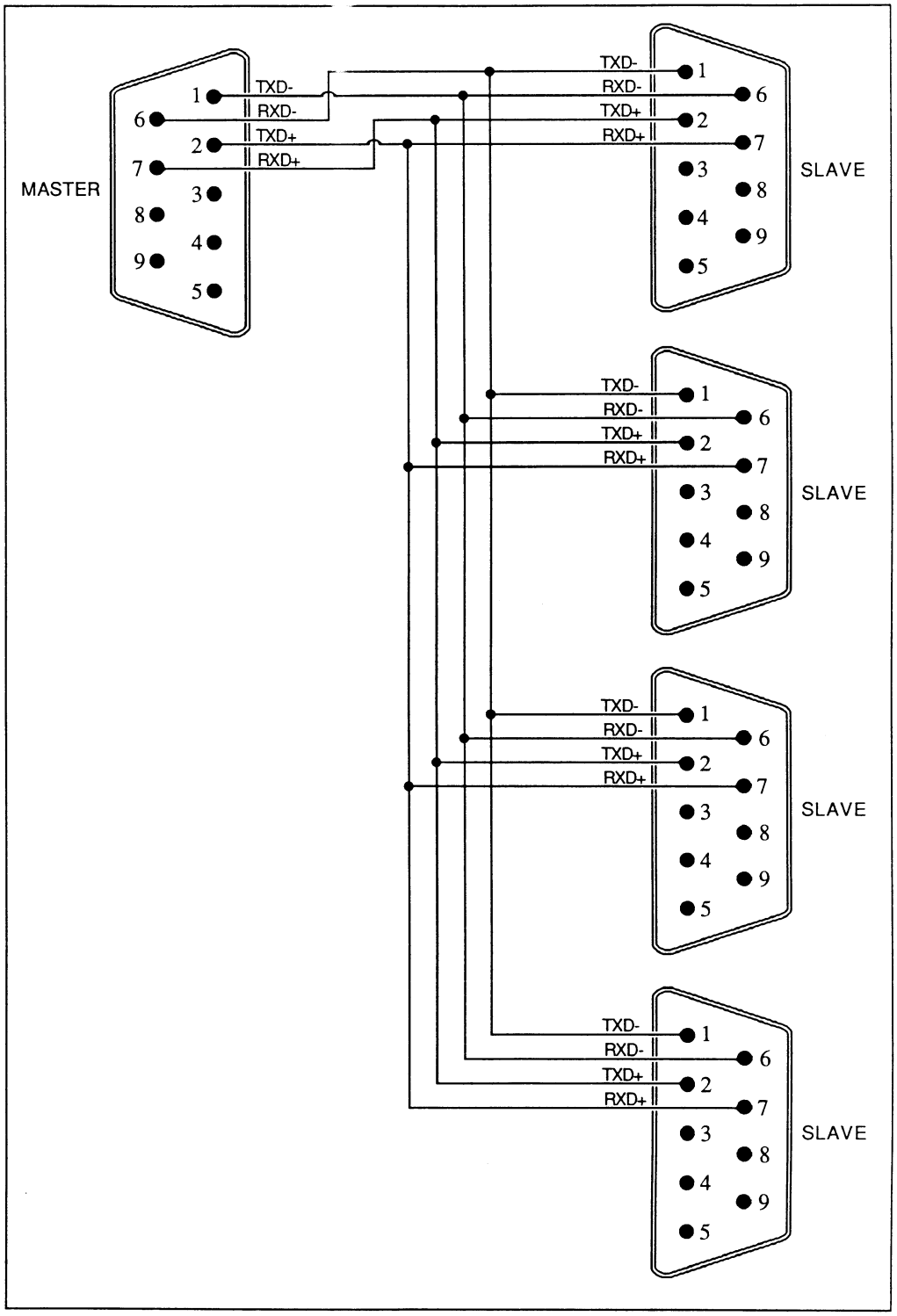

Figure 2-9. PC/AT Development System Multidrop Electrical Interface via RS-485

Up to 255 SoftScreen Workstations can be multidropped from the PC/AT development system. A sample multidrop configuration is shown in Figure 2-10 below.

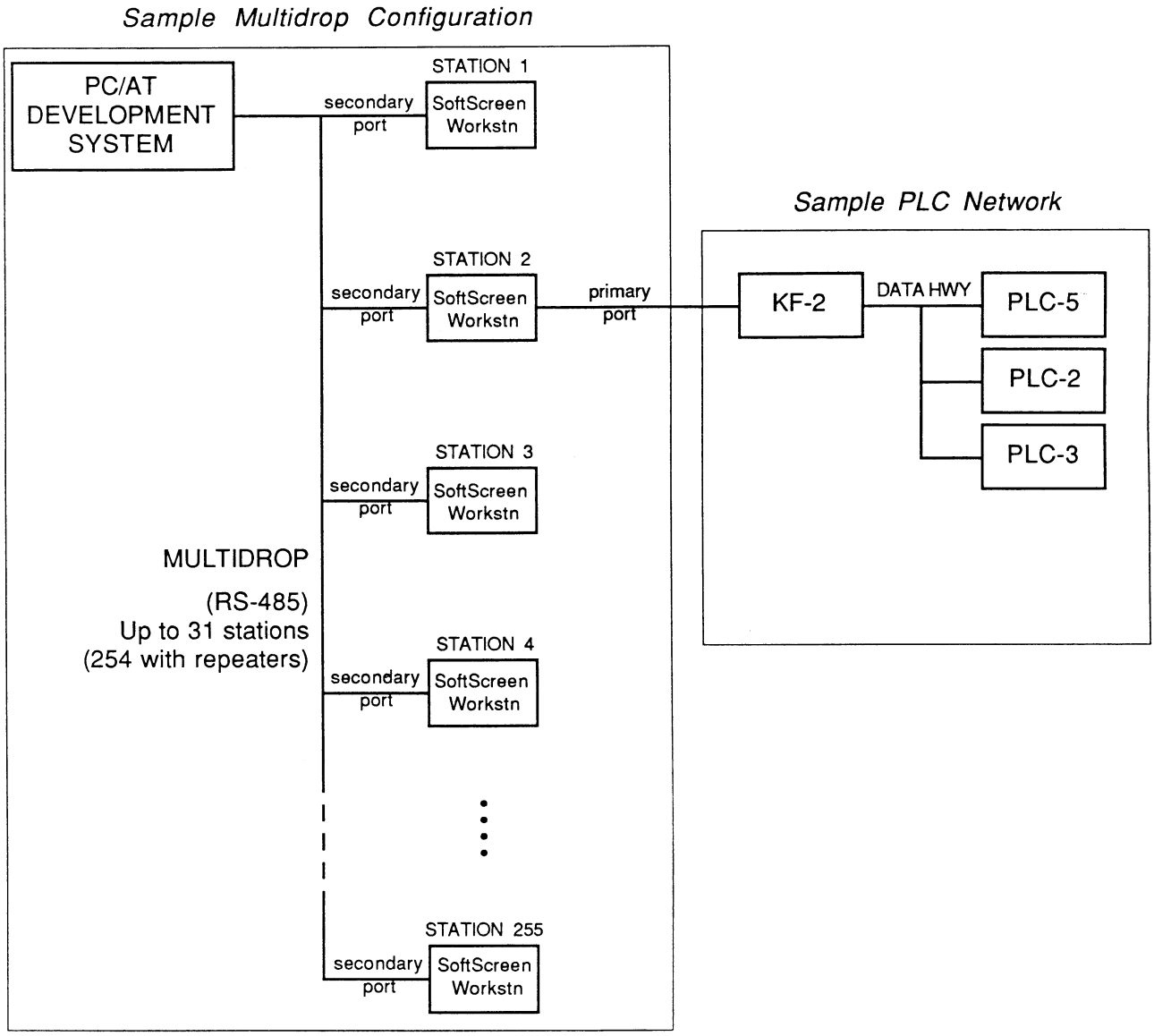

Figure 2-10. Sample Multidrop Configuration

3.1 INTRODUCTION

This chapter discusses the 2000-SoftScreen menu options.

3.2 ACCESSING THE MENUS

The 2000-SoftScreen Workstation can operate in two modes: Operating Mode and Set-Up Mode. In Operating Mode, the workstation can execute SoftScreen applications. In Set-Up Mode, the 2000-SoftScreen displays menus that allow you to change its configuration, run diagnostics tests, and save downloaded SoftScreen applications to EPROM.

At power-up, the 2000 is automatically in Operating Mode. To put the workstation in Set-Up Mode, press the **<CTRL><BREAK>**. With a unit that has keypads, you can also press the extreme top and bottom right keys simultaneously.

In order for the workstation to receive and execute commands from the control system, it must be returned to Operating Mode. To return to Operating Mode from the Main Menu, simply press the <ESC> or <Enter> key once. If you are in any of the secondary menus you will have to press <ESC> or <Enter> once to return to the Main Menu. Then press the key again to go to Operating Mode.

> **NOTE**
> In addition to selecting options from the menus, you can type a command from the Diagnostic Menu: **.CM**. This command must be entered in all capital letters. It clears all memory and resets the engine files.

3.3 MAIN MENU

When the 2000-SoftScreen Workstation enters Set-Up Mode, the Main Menu appears with the following options:

> **NOTE**
> Your specific PLC will be listed on the second line instead of "PLC Direct Connect."

```
-- Xycom 2000 SoftScreen Industrial Terminal --
        -- PLC Direct Connect (XX)  --
                Release X.X

       1)  Configuration

       2)  Diagnostics

       3)  ROM This Application




        <ESC> or <ENTER> to quit
```

Figure 3-1. Main Menu

Selecting any of the option numbers brings up secondary menus with additional options. The following sections provide an overview of each option from the Set-Up Mode Main Menu.

3.4 CONFIGURATION MENU

To access the Configuration Menu, press **1** from the Main Menu. The Configuration Menu is shown below:

```
                    -- Configuration Menu --

000 Station Address
1=60 Hz ------------------------------------ 0=50 Hz
00 Year
00 Month
00 Day
00 Hour
00 Minutes
00 Seconds



Use <UP-ARROW>, <DOWN-ARROW>, <LEFT-ARROW>, <RIGHT-ARROW>.
Use values 0 through 9, <ESC> or <ENTER> to quit
```

Figure 3-2. Configuration Menu

The first column of the menu lists the current settings of all the configuration options. The available options and their corresponding settings are listed to the right.

To change a configuration option, move the cursor to the row containing the value to change by pressing the up- and down-arrow keys. When the cursor is properly positioned, press a number to select the desired option. After all changes are made, press <ESC> or <Enter>.

Table 3-1. Configuration Menu Options

Menu Option	Description
60 or 50-Hz Refresh	This option should be set to match the frequency of the AC power source: usually 60 Hz in the United States, and 50 Hz in Europe.
Year, month, day, hour, minute, seconds	Whenever the workstation is powered up after the CMOS RAM has been powered down or the battery removed, the clock/calendar is initialized to 01/01/00, 00:00:00. Data registers #1 - #7 are continuously updated with the current year, month, day, hour, minute, second, and day-of-week, respectively. (The year, month, and day are automatically adjusted for leap years for any date from 1950 to 2050.) These seven registers cannot be altered by a SoftScreen application running in the workstation -- they can only be read.

3.5 DIAGNOSTICS MENU

Selecting option **2** from the Main Menu brings up a Diagnostics Menu for general purpose testing of RAM, ROM, ports, and battery. Figure 3-3 shows the options available from the Diagnostics Menu. When a selected test is completed, status information about the completed test and the Diagnostics Menu will be displayed.

```
                          -- Diagnostics --


     1)  RAM Test
     2)  ROM Checksum
     3)  RS-232 Serial Loopback Test
     4)  RS-485/Multidrop Serial Loopback Test
     5)  Printer Port Test
     6)  Battery Test
     7)  Touch Screen Test









     <ESC> or <ENTER> to quit
```

Figure 3-3. Diagnostics Menu

3.5.1 **RAM Test**

If the RAM test is selected, the workstation checks the CPU RAM (8032 RAM), the CMOS RAM, the display RAM, the attribute RAM, and the character generator RAM. After checking the 8032 RAM the workstation will display one of the following messages:

8032 RAM OK
or
8032 RAM failure

> **CAUTION**
> Turning off power while the CMOS RAM test is in progress will destroy all data in CMOS RAM.

The next test checks the CMOS RAM. After testing, the workstation displays one of these messages:

CMOS RAM OK
CMOS RAM failure Page #nn

The workstation will then test the display RAM, during which a pattern will be flashed on the video display followed by one of these messages:

Display RAM OK
or
Display RAM failure Page #nn

The workstation will then test the attribute RAM, again flashing a pattern on the video display followed by one of these messages:

Attribute RAM OK
or
Attribute RAM failure Page #nn

The workstation will then test the character generator RAM. A pattern will flash on the video display, followed by one of these messages:

Character Generator RAM OK
or
Character Generator RAM failure

3.5.2 **ROM Checksum**

This test "ROM checksum is: nnnn Should be: nnnn" on the status line. The two checksums listed (nnnn) should match.

3.5.3 **RS-232C Serial Loop Back Test**

This test checks the primary and secondary serial ports for the RS-232C configuration. Before these ports are tested, a serial loopback connector must be installed, and jumpers must be set to configure the ports as RS-232C (see section 2.3.2 for jumper settings). The test plugs should be constructed of a DE-9S connector and jumper wires. The configuration of the test plugs is shown in Figure 3-4.

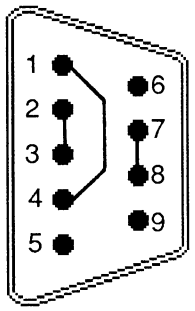

Figure 3-4. Serial Port Test Plugs, RS-232C

If the serial ports are operating correctly, the workstation will display the message:

Prim. port: OK. Sec. port: OK.

If an error is found, the workstation will display one of the following messages:

Time out err.
Data err.
CTS-RTS err.
DTR-DSR err.

3.5.4 **RS-485/Multidrop Serial Loop Back Test**

This test checks the primary and secondary serial ports for the RS-485 configuration. Before these ports are tested, serial loopback connectors must be installed, and jumpers must be set to configure the ports as RS-485 (see section 2.3.2 for jumper settings). The test plugs should be constructed of a DE-9S connector and jumper wires. The configuration of the test plugs is shown in Figure 3-5.

If the serial ports are operating correctly, the workstation will display the message:

Prim. port: OK. Sec. port: OK.

If an error is found, the workstation will display one of the following messages:

RS-485	**Multidrop**
Time out err (RS-485).	Data err (MULTI).
Data err (RS-485).	Time out err (MULTI).

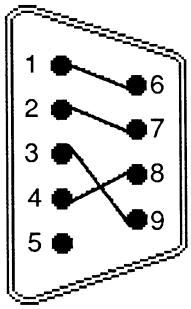

Figure 3-5. Serial Port Test Plugs, RS-485

3.5.5 **Printer Port Test**

To run this test, a printer cable must be attached to the parallel port at the rear of the unit, and the printer must be on-line.

The test pattern that is sent to the printer should be the same as the message that appears on-screen. If the printer port is operating correctly, the workstation will display the message:

Printer Port test passed.

If an error is found, the workstation will display the message:

Printer Error: <ESC> to Abort, Any other key to continue

3.5.6 **Battery Test**

This test checks the current condition of the battery. If the battery is functioning properly, the screen will display the message:

Battery Test passed.

If an error is found, the screen will display the message:

Battery Test Failed.

3.5.7 **Touch Screen Test**

When this test is run on workstations with a touch screen, an 8 x 10 grid appears on the screen, dividing the screen into the 80 touch screen zones. When a touch screen zone is pressed, a block character should be displayed in that zone. When a zone is released, an R should be displayed in that zone.

3.6 **ROM THIS APPLICATION MENU**

Selecting option **3** from the Main Menu brings up the ROM This Application Menu. This menu option allows you to copy SoftScreen applications, which were downloaded to the 2000-Workstation, to a 128 Kbyte EPROM chip or chips via the 2000-SoftScreen secondary serial port. When you select this option, screen prompts instruct you what to do.

First you must connect an EPROM programmer to your 2000-SoftScreen Workstation (according to its manufacturer's instructions).

The line settings used for this operation are listed below. Make sure your EPROM programmer is set accordingly:

9600 baud
No parity
8 data bits
1 stop bit

Next, place the EPROM chip to be programmed in the EPROM programmer, and press any key when you are ready to transfer data. A series of dots (...) appears on the screen during the transfer, and disappears when the transfer is complete.

If no handshaking is desired, the RTS signal must be connected to the CTS signal on the 2000-SoftScreen Workstation. If you want to use handshaking, connect the CTS signal from the 2000-SoftScreen Workstation to the EPROM programmer's handshaking signal (DTR or RTS).

After the EPROM has been programmed, install it on the 2000 controller board as described below:

1. Remove and set aside the 10 screws that secure the back/bottom panel to the unit.

2. The controller board is located on the bottom panel. To gain full access to the board, disconnect the video cable from P2. If you have a 2005, also disconnect the cables from P1, P4, or P5.

3. Install the EPROM just programmed into socket U25.

4. Position jumper J8 (if present) to B for EPROM.

5. Position jumper J10 to B to select 32 Kbyte RAM.

6. Connect all cables removed in step 2.

7. Secure the bottom/side panel by replacing the screws that were removed in step 1.

8. Remove the cover plate from the back panel of the 2000 by loosening the two screws.

9. Position switch 3 to ON (or closed) to select EPROM.

10. Replace the cover plate by attaching the two screws that were removed in step 8.

3.7 OBJECT CONFIGURATION

Objects are either static or dynamic. Dynamic objects change appearance as tied to an expression value. Static objects remain the same shape in which they were created.

On the development software, however, all objects look static. On the engine, dynamic objects appear in the size determined by the expression value entered at the development system.

On the engine, rectangles grow proportionately to the minimum and maximum values. A bar will expand left, right, up, or down, as specified in the development system. The object will never be displayed larger than the maximum value or smaller than the minimum value, regardless of the values read.

3.7.1 State Configuration

The 2000-SoftScreen engine evaluates states entered in the Object Configuration Menus in the development system software as true or false. The expressions are evaluated top to bottom (1 to 6, or 1 to 8, depending on the number of states available). The expressions are assessed as shown in Table 3-2 below.

Table 3-2. State Configuration Expression Evaluation

Condition	Assessment	Result on Engine
Conditional statement is true.	TRUE	Changes specified in development system under States occur.
Value is non-zero.		
Conditional statement is false.	FALSE	Object and text are displayed in the color created in the development system.
Value is zero.		

3.8 ALARM SUMMARY

All alarms contained in an application are continuously scanned, even when they are not displayed on the current screen. This allows an alarm message to be displayed on the current screen if any alarm in the entire application occurs. The displayed message contains the object tag name in which the alarm occurred, the alarm value, the date, and time.

If alarm acknowledge was disabled in the SoftScreen development system, the alarm will appear on the screen for the time specified in System Configuration. (The user at the engine can override the specified time by pressing Home to cancel the alarm message.) If alarm acknowledge was enabled, the alarm message appears until Home is pressed on the 2000-SoftScreen Workstation keypad.

All alarms are recorded in an alarm summary, which can list up to 100 alarms. (To make room for alarms over 100, the oldest acknowledged alarm is deleted. If there is no acknowledged alarm, the oldest is deleted.) The alarms are listed chronologically, with the oldest alarm appearing first. The alarm summary contains the following information: object name, alarm condition (high, low, or out of alarm), alarm value, date, time, and status. For an acknowledge-enabled alarm, the status message will either be the date and time of acknowledgement or the message that an acknowledgement is still required. For an alarm with acknowledge disabled, the status message is blank. A sample alarm summary is shown below:

Object Name	**Alarm Type**	**Value**	**Time**	**Date**	**Status**
Object 1	HIGH alarm	345.00	13:30:20	11/15/91	ack 13:31:15 11/15/90
Object 1	out of HIGH alarm		13:35:20	11/15/91	
Object 7	LOW alarm	2.00	13:37:20	11/15/91	waiting for Ack

NOTE

The screen name of the alarm summary is AlarmSum. It is not user-configurable. For it to display on the engine, it must be tied to a function key or touch button in the development system. No other screens can be named AlarmSum.

The keys for the alarm summary are shown below:

Table 3-3. Alarm Summary Keys

Key	Function
Page Up	Scrolls backward through fields.
Page Down	Scrolls forward through fields.
Home	Acknowledges an alarm.
<ESC>	Exits the alarm summary.
<DEL>	Deletes an alarm that is not waiting to be acknowledged.
F10	Prints alarm summary.
Touch Screen Buttons	(If present) can perform all the functions above.

Other than this, the alarm summary cannot be modified. On the screen, alarms are listed in regular text. The selected alarm appears in high intensity.

3.9 DATA ENTRY

On the SoftScreen engine, data entry points appear as pound signs (#'s), with one # per place. The keys needed for data entry are shown below:

Table 3-4. Data Point Entry Keys

Key	Function
Home	Positions the cursor at the first character of the first data entry field to enter new information. Press <Enter> to activate the information. To move to the next entry, press Home.
<Enter>	Accepts information typed in a field and makes the cursor disappear from the screen.
Page up	Scrolls backward through several data entry points.
Page down	Scrolls forward through several data entry points.

If a value above the maximum or below the minimum (as defined in the Object Configuration at the development system) is entered, the maximum or minimum number will be used. The numbers entered in place of the #'s at the 2000-SoftScreen engine data entry points will be displayed as the numbers entered until the screen is redrawn. When the screen is redrawn the #'s will reappear, even though the value entered has already been sent.

3.10 PASSWORDS

In some instances, the end user at the 2000-SoftScreen Workstation is prompted to enter a password before being able to access an application or enter information. This password is set in the SoftScreen offline development system and transferred when downloaded to the engine. The password is set in the development software in the Application-Load-Configuration-Edit-Password and Application-Load-Screen-Edit-Control-Security Menus. For more information on setting passwords, see the SoftScreen PC/AT Development System Manual.

3.11 DATA REGISTERS

Data registers are 32-bit memory locations in the SoftScreen Workstation engine which are used for communication between a device and the workstation. Both the SoftScreen Workstation and the PLC device can read/write to most data registers. The registers are placed in battery-backed CMOS memory, so that the information is retained, even after you turn your SoftScreen Workstation off. Registers can hold values or mathematical calculations. There are 100 registers as shown below:

Table 3-5. Data Registers

Register	Representation	Register	Representation
#1	Year	#7	Day of week
#2	Month	#8	Primary port error codes (read only)
#3	Day	#9 - #11	Reserved - Not user configurable
#4	Hour	#12	Printer errors
#5	Minute	#13 - #19	Reserved - Not user configurable
#6	Second	#20 - #100	General purpose registers

4.1 PREVENTIVE MAINTENANCE

The 2000-SoftScreen Workstation was designed to withstand the harsh environment of the factory floor. Routine maintenance can help keep your SoftScreen Workstation in good operating condition. Preventive maintenance consists of several basic procedures and checks that will greatly reduce the chances of system malfunction. Preventive maintenance should be scheduled along with the regular equipment maintenance to minimize SoftScreen Workstation down time.

Some preventive measures are listed below.

- **Remove dust and dirt from PC components**. If dust builds up on heat sinks and circuitry, an obstruction of heat dissipation could cause the unit to malfunction. If dust reaches the electronic boards, a short circuit could occur.

- **Check the connections to I/O modules**, especially in environments where shock could loosen the connections. Check to see that all plugs, sockets, terminal strips, and module connections are solid.

- **Remove unnecessary articles, like drawings or manuals, from the unit**. They could obstruct air flow which creates hot spots, which cause the system to malfunction.

- **Do not move noise generating equipment too near the SoftScreen Workstation**.

4.2 REPLACING THE BACKUP BATTERY

The backup battery is located under the round slotted cap in the center of the upper back panel of the unit. To remove it, turn the cap with a screwdriver counter-clockwise, as shown in Figure 4-1. Pry the cap off and remove the battery. Replace with a new battery. Due to an internal capacitor, the battery can be removed for up to 10 minutes without losing data. If the unit is off prior to battery exchange, turn it on for 10 seconds and then back off to recharge the internal capacitor.

The typical battery life is 10 years at 25° C; worst case is three years at the non-operating storage temperature of 65° C. For routine maintenance, replace the battery every three years in order to guarantee date integrity of screen programs stored in battery-backed CMOS RAM.

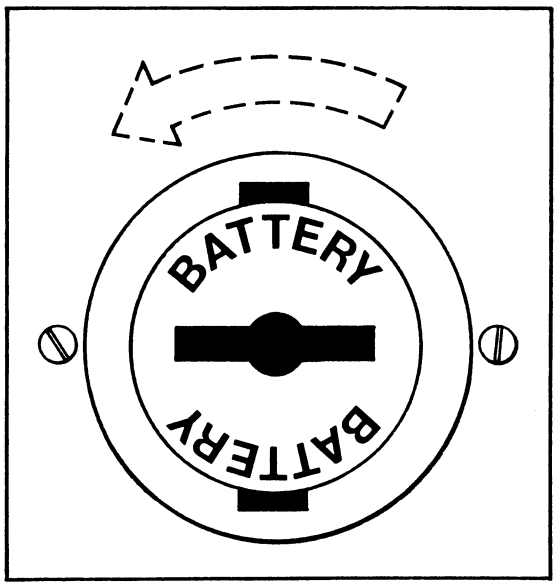

Figure 4-1. Removing the Battery Cap

4.3 PRODUCT REPAIR PROGRAM / RETURNING A UNIT TO XYCOM

Xycom's Product Repair Service 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 RMA department for information on your particular turnaround time.

4.3.1 Preparing the Unit for Shipment

1. Obtain an RMA number for your unit by calling your local Product Repair Department or Xycom Repair Center. Have the following information ready:

   - Company name and shipping and billing address
   - 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

   You will then receive your RMA number. **This number must appear on the outside of the shipping container and on the purchase order.**

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 a heavy-duty box.

5. Mark the RMA number on the outside of the box as well as on your purchase order.

6. Send the unit to your local Xycom repair center.

4.3.2 Customer Repair Request Form

A Customer Repair Request Form must be completed and returned to Xycom with any unit you return. The form is found on the following page.

NOTE
This chapter applies only to the 2005 and 2050/2060 Workstations.

CAUTION
Firmware revision 2.1 or greater is needed to support the 2005 keypads. Firmware revisions lower than 2.1 may cause the keypad to function improperly.

5.1 INTRODUCTION

The 2005 and 2050/2060 Workstations have the same functions and features as the 2000-SoftScreen Workstation, but also has front panel keypads.

This chapter describes the layout of the front panel keypads and identifies the PF key/touch zone designations for each workstation.

5.2 PF KEYS/TOUCH ZONES

Each workstation has PF keys that are located to right of the screen. Whenever a PF key is pressed, the terminal acts as if a touch zone has been pressed. When the SoftScreen application is run, pressing the appropriate PF key activates the configured function for a corresponding touch zone. This occurs whether or not a touch screen is present.

For example, touch zone 30 might be configured to print a report. If you press PF3, touch zone 30 is activated, causing the report to print. If you have a touch screen, pressing zone 30 also causes the report to print.

If you do not want the touch zone to appear on the screen, it may be configured with a foreground and background that match the screen base color. Graphic objects may be placed over the touch zone without effecting the touch zone configuration.

If the touch screen is not present, then the touch screen DIP switch does not have to be enabled.

5.3 2005 WORKSTATION FRONT PANEL KEYPADS

The 2005 has 20 functions keys (located beneath the screen) and a 34-key keypad (located to the right of the screen).

The PF1 through PF6 keys correspond to touch zones 10, 20, 30, 40, 50, and 60 (the top six touch zones on the right edge of the screen). On the 2005, the PF keys do not line up exactly with the touch zones. The 2005 front panel is shown in Figure 5-1 below.

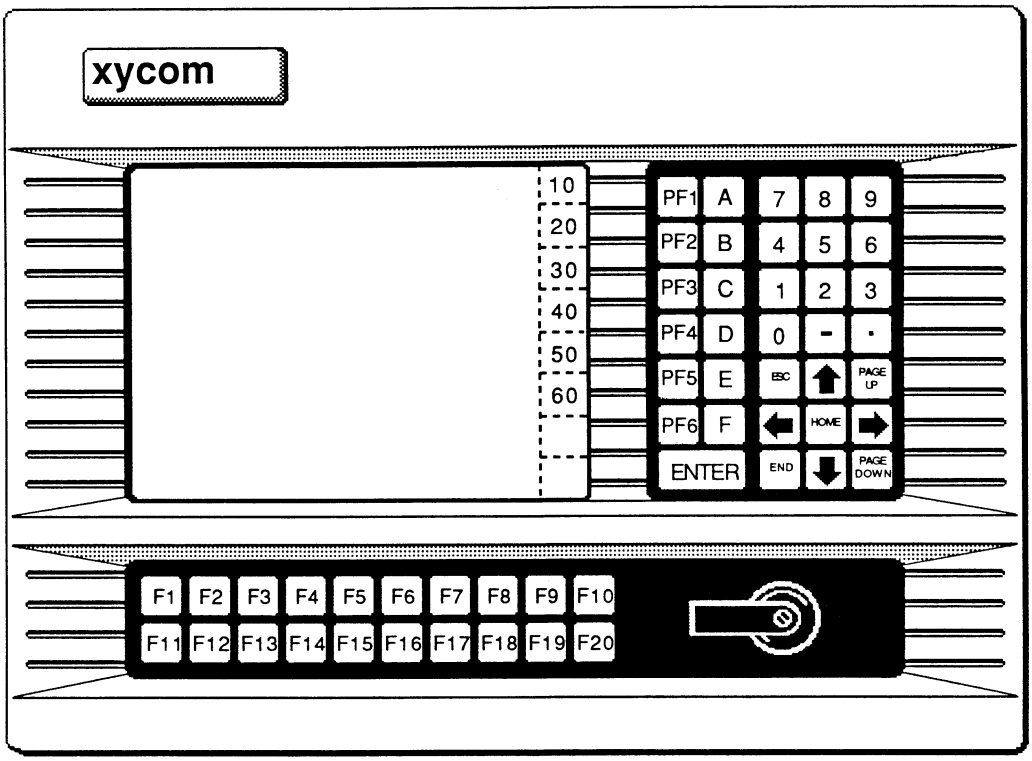

Figure 5-1. 2005 Front Panel

NOTE
The 2005 Workstation does not have a touch screen.

5.4 2050/2060 WORKSTATION FRONT PANEL KEYPADS

The 2050/2060 front panel has 20 function keys (located beneath the screen) and a 37-key keypad (located to the right of the screen).

The PF1 through PF 8 keys correspond to touch zones 10, 20, 30, 40, 50, 60, 70, and 80 (touch zones on the right edge of the screen). On the 2050/2060 Workstations, the PF keys line up with the touch zones. The 2050/2060 front panel is shown below.

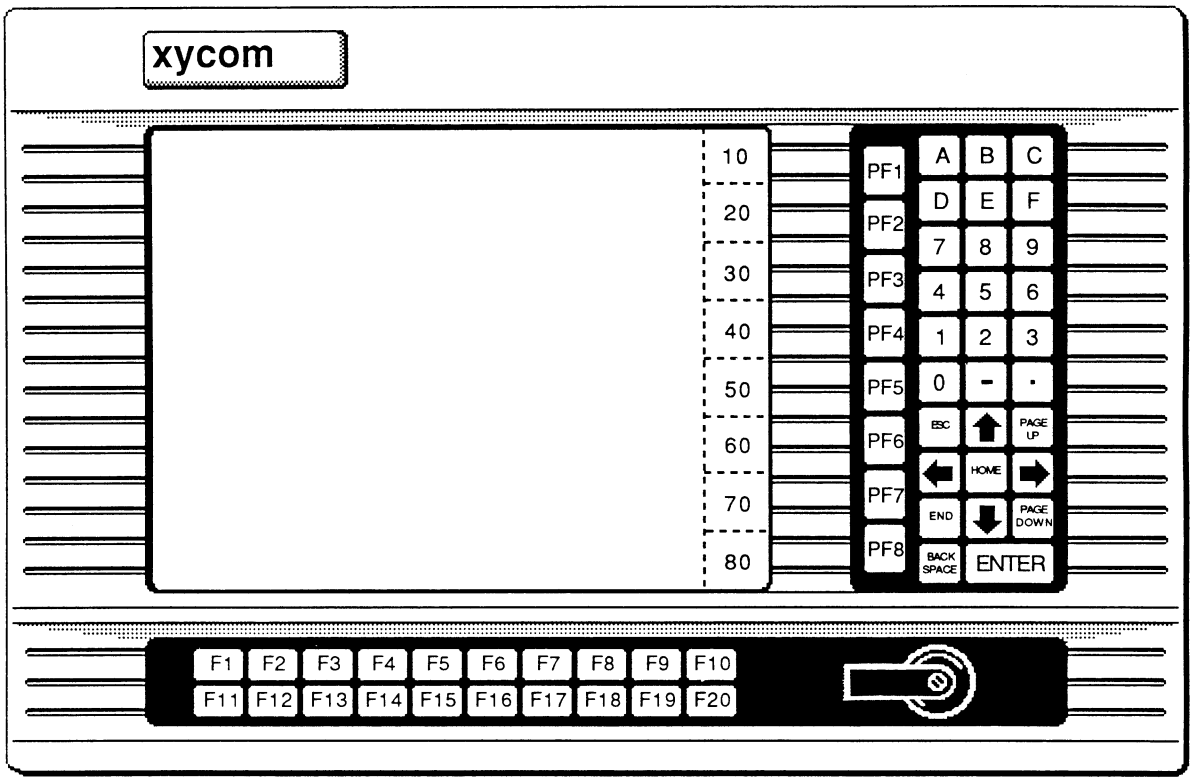

Figure 5-2. 2050/2060 Front Panel

5.5 RELEGENDING THE KEYPADS

The function keys are relegendable. Due to the construction of the 2005, however, accessing the keys involves several steps. For information on accessing or changing the keys, consult Xycom.

A.1 SPECIFICATIONS

Table A-1. 2000-SoftScreen Workstation Hardware Specifications

Characteristic	Specification
Mechanical	
Dimensions	
Height	11" (279 mm)
Width	13" (330 mm)
Depth	11" (279 mm)
Weight	15 lbs. (6.8 kg)
Mounting	Panel or optional 19" rack mount using adapter.
CRT	9" amber 25 rows x 80 standard characters
Serial Ports (2)	RS-232C or RS-485, optically isolated
Parallel Port	Centronics compatible
Memory	128 Kbytes battery-backed screen RAM
Electrical	
Power Supply	90-250 VAC @ 47-63 Hz
Power Consumption	.32 A @ 90 VAC
Battery	3.6 V, 1.8 Amp. hours
Battery Life	10 years @ 25°C, typical 3 years @ 65°C, min.

Table A-2. 2000-SoftScreen Workstation Environmental Specifications

Characteristic	Specification
Temperature Operating Non-operating	 0° to 50°C (32° to 122°F) -40° to 65°C (-40° to 140°F)
Relative Humidity	5 - 90% RH, non-condensing
Shock Operating Non-operating	 15 g peak acceleration (11 msec duration) 30 g peak acceleration (11 msec duration)
Vibration Operating Non-operating	 .006" peak-to-peak displacement 1 g (maximum) acceleration .015 " peak-to-peak displacement 2.5 g (maximum) acceleration

A.2 CONNECTOR PINOUTS

A.2.1 Matrix Parallel Keyboard Port

Two Xycom matrix-type keyboards can be used with the 2000: a QWERTY-type sealed membrane keyboard and an ABC-type 58-key sealed membrane keypad. Both have 20 function keys. These keyboards connect to the special 26-pin male parallel connector on the 2000 back panel. The pinouts for the matrix parallel keyboard port are shown in Table A-3.

Table A-3. Parallel Input/Output Port Pinouts

Pin	Signal	Pin	Signal
*1	STROBE	10	ACK
*2	DATA0	11	BUSY
*3	DATA1	12	Not Connected
*4	DATA2	13	Not Connected
*5	DATA3	14	Not Connected
*6	DATA4	15	Not connected
*7	DATA5	16	Reset
*8	DATA6	17	Not Connected
*9	DATA7	*18-25	GND

* Used for input mode

If you use a matrix parallel keyboard other than Xycom's, Table A-4 shows you how the keys are mapped out, and tells you which pins numbers are used to generate them.

Table A-4. Parallel Keyboard Matrix

*Key Name		PIN Number	*Key Name		PIN Number
	Shift Key Enabled			Shift Key Enabled	
F1		2 & 11	Esc		6 & 11
F2		2 & 9	1	!	6 & 9
F3		2 & 9	2	@	6 & 7
F4		2 & 13	3	#	6 & 13
F5		2 & 15	4	$	6 & 5
F6		2 & 19	5	%	2 & 5
F7		2 & 17	6	^	6 & 3
F8		2 & 1	7	&	2 & 3
F9		2 & 21	8	*	6 & 15
F10		16 & 13	9	(	6 & 19
F11		4 & 11	0	)	6 & 17
F12		4 & 9	-	-	6 & 1
F13		4 & 7	+	=	6 & 21
F14		4 & 13	|	\	16 & 1
F15		4 & 15	Ins		16 & 21
F16		4 & 19	Home		16 & 7
F17		4 &17	Pg Up		16 & 17
F18		4 & 1	Pg Dn		16 & 19
F19		4 & 21	End		16 & 9
F20		4 & 15	Del		16 & 11
Back Space		8 & 11	Tab		10 & 11
Ctrl		14 & 11	Alt		14 & 9

* The second column lists the value of the key with the Shift key enabled.

Table A-4. Parallel Keyboard Matrix (*continued*)

*Key Name		PIN Number	*Key Name		PIN Number
	Shift Key Enabled			Shift Key Enabled	
A		10 & 9	U		4 & 3
B		14 & 5	V		12 & 5
C		12 & 13	W		8 & 7
D		10 & 13	X		12 & 7
E		8 & 13	Y		8 & 3
F		10 & 5	Z		12 & 9
G		16 & 5	{	[	8 & 1
H		10 & 3	}	]	8 & 21
I		8 & 15	:	;	10 & 17
J		16 & 3	"	'	10 & 1
K		10 & 15	,	<	12 & 15
L		10 & 19	.	>	12 & 19
M		14 & 3	?	/	12 & 17
N		12 & 3	ENTER		12 & 21
O		8 & 19	RIGHT		14 & 13
P		8 & 17	LEFT		14 & 19
Q		8 & 9	TOP		14 & 17
R		8 & 5	BOTTOM		14 & 15
S		10 & 7	`	~	10 & 21
T		4 & 5	PrtSc		14 & 21
Left Shift		12 & 11	Right Shift		12 & 1
SPACE		14 & 7	Caps Lock		14 & 1

* The second column lists the value of the key with the Shift key enabled.

A.2.2 **Parallel Input/Output Port**

A 25-pin D-type female parallel port is available on the back panel of the 2000 as a Centronics compatible output port. This port may also be used as an input port (see Section 2.12.3.2). Pinouts for this port are given in Table A-5.

Table A-5. Parallel Input/Output Port Pinouts

Pin	Signal	Pin	Signal
*1	STROBE	10	ACK
*2	DATA0	11	BUSY
*3	DATA1	12	Not Connected
*4	DATA2	13	Not Connected
*5	DATA3	14	Not Connected
*6	DATA4	15	Not Connected
*7	DATA5	16	Reset
*8	DATA6	17	Not Connected
*9	DATA7	*18-25	GND

* Used for input mode.

A.2.3 **Keyboard Port**

A standard 5-pin keyboard connector is available on the back panel of the 2000. See Figure 2-1 for location of this connector. Pinouts for this connector are listed in Table A-6.

Table A-6. Keyboard Connector Pinouts

PIN	SIGNAL
1	Clock
2	Data
3	Not Connected
4	GND (SG)
5	+5 VDC
6	GND (FG)

A.3 **JUMPERS**

Certain jumpers must be set to configure the serial ports as RS-232C or RS-485.

Table A-7. Primary Serial Port Jumper Settings

Jumper	RS-485	RS-232*
J13	A	B
J14	A	B
J15	A	B
J16	A	B
J17	A	B
J18	A	B
J19	A	B
J20	A	B

* shipping configuration

Table A-8. Secondary Serial Port Jumper Settings

Jumper	RS-485/ Multidrop	RS-232*	RS-485
J1	A	B	B
J2	A	B	A
J3	A	B	A
J4	A	B	A
J5	A	B	A
J6	A	B	A
J7	A	B	A
J8	A	B	A

* shipping configuration

When configured for RS-485, the inputs CTS and RXD may be terminated. Each signal for each port is independently terminated by a pair of jumpers. Installing the jumpers as indicated below will terminate a specific signal.

Secondary Serial Port	**Primary Serial Port**
RXD: J11, J12 IN	RXD: J23, J24 IN
CTS: J9, J10 IN	CTS: J21, J22 IN

All of these jumpers are OUT when shipped.

A.4 SWITCHES

Table A-9. Switch Settings

Switch	Function	Settings
1	Keyboard Type	ON = XT keyboard OFF* = AT keyboard
3	SoftScreen Program Location	ON = programs in EPROM OFF* = programs in RAM
2, 4, 5, 6, 7 & 8	Reserved	Should remain in OFF* position

* shipping configuration

A.5 ERROR MESSAGES

The table below shows the error messages that may appear on the 2000-SoftScreen Workstation:

Table A-10. Error Messages

Message	Meaning
HIGH alarm	The process has exceeded the maximum value and is in high alarm.
LOW alarm	The process has dropped below the minimum value and is in low alarm.
Out of HIGH alarm	The value has dropped to an acceptable level.
Out of LOW alarm	The value has increased to an acceptable level.
Printer is offline	The printer is offline and cannot print until set online.
Printer is back online	The printer has been set online and printing can occur.
Communication error	A communication error occurred on the primary port.
Communication restored	The primary port is now communicating properly.
Recipe not performed	A recipe could not be performed because the user requested too many recipe writes to be sent to the PLC. To correct this, wait a few seconds for any previously requested recipes to be sent to the PLC, and issue the recipe request again.

NOTE

The alarm message will appear at the bottom center of the screen. It will be displayed the amount of time specified in the SoftScreen development software under Configuration-Target. If an alarm must be acknowledged (which is set up in the software in an object's configuration form under Application-Load-Screen-Edit-Display or in an alarm object's configuration form under Application-Load-Screen-Edit-Control-Alarm-Create), the message will appear until you press Home.

NOTE

This appendix is reserved for your PLC direct connect information, which you should have received separately. Please remove this page and insert your specific PLC information in its place.

Numerical

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P *(continued)*

Q

R

S

T

T (*continued*)

W

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