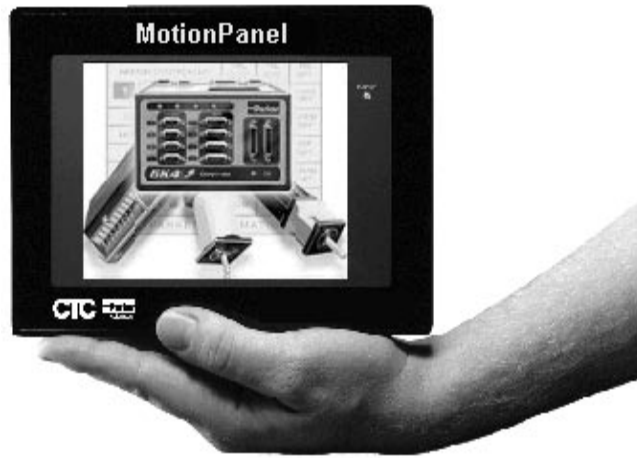


# *MotionPanel*



## User Guide

# ***MotionPanel***

## **User Guide**

***CTC Parker Automation  
50 W. TechneCenter Drive, Milford, Ohio 45150***

***Phone: 513-831-2340  
Technical Support: 513-248-1714***

A3-06166-100

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## Product Warranty Information

CTC Parker Automation provides top quality products through rigid testing and the highest quality control standards. However, should a problem occur with your hardware or with the software protection key, CTC Parker's standard product warranty covers these items for 15 months from the date of shipment from CTC. Exceptions appear below:

- PowerStation backlight bulbs have a 90-day warranty.
- Third-party products, such as bus cards, carry the manufacturer's specified warranty.
- For all displays, image retention (burn-in) is not covered by warranty.
- Software revisions that occur within 60 days after purchase are available, under warranty, upon request. Please review the MachineShop License Agreement for additional software warranty information.

Should you have any questions about your application or need technical assistance, please call CTC Parker's Technical Support department at 513-248-1714, 8:00 a.m. to 5:00 p.m., Eastern Time. You may call this same number after hours for emergency assistance. See *Customer Support Services* on page 9 of this manual for more information about CTC Parker's support products and services.

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# Manual Overview and Support Services

Thank you for purchasing the MotionPanel™ workstation. MotionPanel is an intelligent computer system that allows you to program and monitor high-speed motion controls. Based upon CTC's PowerStation Model P1 workstation, it is factory-configured to communicate via Ethernet with the Compumotor 6K series of controllers. Thus, it takes advantage of the speed of Ethernet communication and the 6K's fast status register.

MotionPanel has a durable, 5.7" touchscreen display, available in monochrome or color. It also has an all-in-one PC board with a parallel port, two serial ports, and an Ethernet port. CTC Parker's MachineShop™ Shell and a complete Interact application, created with Interact's Panel Toolkit Module (PTM), are pre-installed. Please review this manual and the other documentation included with MotionPanel before operating the unit.

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## Using this Manual

This manual is designed to help you set up and use your MotionPanel workstation.

The manual is divided into the following chapters:

**Chapter 1 — Manual Overview and Support Services:**

Presents an overview of this manual, the other documentation and software provided with MotionPanel, and advice about getting started with MotionPanel. This chapter also describes CTC's customer support services.

**Chapter 2 — Getting Started with MotionPanel:**

Describes how to connect MotionPanel to a Compumotor 6K controller and configure your network for Ethernet or serial communication.

**Chapter 3 — MachineShop for MotionPanel:** Gives an overview of the MachineShop for MotionPanel software and explains how to use the FlashBack utility to create a bootable Compact Flash card for MotionPanel.

**Chapter 4 — MotionPanel Screens:** Outlines the structure of MotionPanel's screens and describes each screen.

## MotionPanel Documentation

The MotionPanel documentation set contains the information that you need to configure, install, and use MotionPanel. The documentation set is described below. The MotionPanel and PowerStation Model P1 *User Guides* are contained in PDF files on the MachineShop for MotionPanel Installation CD.

**Release Notes** — Provided whenever there is important information about MotionPanel that does not appear in this manual. Be sure to read any available release notes before installing or operating the unit.

**MotionPanel QuickStart Guide** — Describes how to connect MotionPanel and a Compumotor 6K controller via Ethernet.

**MotionPanel Demonstration CD** — Contains a video demonstration of MotionPanel's main features and how to connect MotionPanel and a Compumotor 6K controller via Ethernet.

**MotionPanel User Guide** — The document you are reading. It provides detailed information about MotionPanel and describes how to use the unit. Please read this manual before operating MotionPanel.

**PowerStation Model P1 User Guide** — Provides complete specifications, installation instructions, and troubleshooting steps for the MotionPanel workstation.

**P1 PowerStation Template** — A full-size template of MotionPanel that you can use to prepare the location where you will install the unit.

## Related Documentation

In addition to the MotionPanel documentation described earlier, you will find the following documentation useful. The software documentation is contained in PDF files on the MachineShop for MotionPanel Installation CD.

### Software Documentation

***MachineShop Installation Booklet*** — Explains how to install MachineShop for MotionPanel software. This manual is shipped with the MachineShop for MotionPanel Installation CD.

***MachineShop Getting Started Guide*** — Tells how to get up and running with MachineShop.

***MachineShop Runtime Guide*** — Provides instructions on how to use the MachineShop Shell to monitor and configure a MotionPanel or other workstation communicating with a MachineShop development system.

**Note** Throughout this manual, all references to “development PC” or “development system” refer to the computer you use to develop applications.

### Electronic Documentation

***MachineShop and Interact Online Help*** — Explains how to perform all operations of MachineShop and Interact. This online help is available within MachineShop and Interact. To access the online help for a specific part of each program, press the F1 key on your keyboard.

***Interact Online Tutorial*** — Gives step-by-step instructions for creating Interact applications using the Panel Toolkit Module (PTM). This online help file is designed to be run on a MachineShop development system.

## Software Components

Each MotionPanel is shipped with the MS-DOS® 6.22 operating system, the MachineShop Shell, and a complete Interact runtime application installed on a Compact Flash (CF) card. The application consists of over 45 pre-configured screens created with Interact's Panel Toolkit Module (PTM).

CTC Parker also provides MachineShop for MotionPanel software on the MachineShop for MotionPanel Installation CD (KA-83233) so that you can customize the Interact application. For information about what is included in this software, see Chapter 3, *MachineShop for MotionPanel*.

## Additional Applications

You can download two additional MotionPanel applications from CTC Parker's web site:

- 640 x 480 Application
- Input Tools Application

To download these applications, go to CTC's Home page at [www.ctcusa.com](http://www.ctcusa.com), and select the MotionPanel page.



## Getting Started

Now that you have opened the MotionPanel package, you can complete the following steps to get started with MotionPanel:

- Unpack the unit
- Connect it to a Compumotor 6K controller
- Configure your specific application parameters in MachineShop for MotionPanel
- Download these settings to the MotionPanel CF card.
- Connect it to a Compumotor 6K controller
- Install the MotionPanel in a permanent location

This section gives some tips on performing these activities. More detailed information is available in the remaining chapters of this manual and the other documentation referred to in this chapter.

## Before You Begin

Before you connect the MotionPanel to a 6K controller or mount the MotionPanel in a permanent location, please complete the following steps:

1. Unpack the MotionPanel, and verify that you have received all the components you ordered.
2. Fill out the product registration card, and return it to CTC Parker. When you register your unit, you will receive a trial membership in CTC Parker's Product Support Program, which provides complimentary telephone technical support, information on product updates, and service bulletins.

## Testing the Network Connection

Before you mount the MotionPanel in a permanent location, you may want to connect it to a 6K controller and test the network connection. Instructions for connecting MotionPanel to a 6K controller and configuring your network for Ethernet or serial communication are in Chapter 2, *Getting Started with MotionPanel*.

## Installing MotionPanel

For complete installation instructions, see the *PowerStation Model P1 User Guide*, included on the MachineShop for MotionPanel Installation CD.

**Configuring and  
Downloading  
Applications**

Although the Interact runtime screens in MotionPanel are pre-configured, program flow operations and data input functions are application-specific. You will need to configure them using MachineShop for MotionPanel on a development PC, save your settings in PTM, and then download them to the MotionPanel CF card.

For information about how to develop Interact applications and download them, see the *MachineShop Getting Started Guide*, included on the MachineShop for MotionPanel Installation CD.

## Documentation Standards

This manual uses the following documentation standards:

1. Commands, buttons, tabs, menu items, and important terms are shown in **bold**.
2. Text to be entered from the keyboard is shown in Courier font.
3. Keyboard keys are shown in Initial Caps.
4. Indented paragraphs denote one of the following:
  - **Note** — Describes alternative approaches or issues that you should be aware of while using a particular function.
  - **Important** — Contains information that you need to pay particular attention to while reading. Follow this information to save development time and minimize problems.
  - **Warning** — Contains information on safety issues. Follow this information to prevent equipment damage or personal injury.

### ISO Symbols



This symbol is the International Standards Organization (ISO) symbol for Caution (ISO 3864 No. B.3.1). This symbol denotes information that could affect operation of the PowerStation if the information is not properly followed.



This symbol is the ISO symbol for Caution—risk of electrical shock (ISO 3864 No B.3.6). This symbol denotes information that could cause personal injury from electrical shock or damage to equipment if the information is not properly followed.

## Customer Support Services

CTC Parker welcomes your thoughts and suggestions on our products and services. You can contact CTC Parker by telephone, email, or fax. You can also visit CTC Parker on the World Wide Web to learn the latest about our hardware, software, and customer support services.

- Telephone: 513-831-2340
- Fax: 513-831-5042
- E-mail: sales@ctcusa.com or support@ctcusa.com
- World Wide Web: <http://www.ctcusa.com>

CTC Parker recognizes that every customer and every application has different support needs, so CTC offers a variety of support services designed to meet these needs. CTC offers three types of customer support services: Customer Technical Support, Technical Support Products, and the Product Support Program.

## Technical Support

The Technical Support department welcomes any question that might arise as you develop or run your applications. We offer complimentary support for any customer, whether you are an end user, original equipment manufacturer (OEM), system integrator, or distributor.

If you have a question about the MotionPanel, be sure to:

- Check any release notes shipped with the system.
- Consult the documentation and other printed materials shipped with your system.

If you have a problem with MotionPanel, please consult Chapter 5, “Maintaining and Troubleshooting the P1 PowerStation,” in the *PowerStation Model P1 User Guide*. This guide is included on the MachineShop for MotionPanel Installation CD.

If you cannot find a solution using the above resources, contact our Technical Support department at 513-248-1714, 8:00 a.m. to 5:00 p.m., Eastern Time. You can call this same number after hours for emergency assistance.

**Note** If you have a problem with your Compumotor 6K controller, consult your Parker Electromechanical Territory Manager (ETM).

**Training and New  
Business  
Development**

Our Training and New Business Development department provides service in two areas: training and consulting. CTC Parker offers training on all our products, either at CTC Parker in our state-of-the-art training center or at your site. You can learn how to write custom interfaces, develop specialized applications, and implement your complete operator interface application. You can contact the Training Coordinator by phone at 1-800-233-3329 or by email at [training@ctcusa.com](mailto:training@ctcusa.com).

CTC Parker offers consulting services through our Professional Consulting Services (PCS) group. Our PCS group can build your application from the ground up by writing custom communications drivers or by designing special modules to perform functions unique to your application. Our team of specialists is flexible, so they can create a project development schedule that meets your needs. You can contact the PCS Coordinator by phone at 1-800-233-3329 or by email at [pcs@ctcusa.com](mailto:pcs@ctcusa.com).

**Product Support  
Program**

The Product Support Program (PSP) is designed to keep you up-to-date with the current versions of CTC Parker software. The PSP consists of a renewable, one-year membership that provides you with free upgrades, utilities, automatic notification of software updates, and other valuable tools for MachineShop, Interact, and MachineLogic. Single-user, site, and corporate licenses are available. The PSP is an easy, cost-effective way to automatically receive the most recent CTC Parker software and associated utilities. You can contact the PSP Coordinator by phone at 1-800-233-3329 or by email at [psp@ctcusa.com](mailto:psp@ctcusa.com).

# Getting Started with MotionPanel

MotionPanel can communicate with any Compumotor 6K controller via Ethernet or serial connection. The system is factory-configured to communicate via Ethernet. But whether you use Ethernet or serial communications, you can connect MotionPanel with one or more 6K controllers and have your network ready to run in just a few steps.

This chapter lists the Compumotor controllers that MotionPanel supports. It then explains how to connect MotionPanel and a 6K controller and configure your network for Ethernet or serial communication.

**Note** For information about MotionPanel's specifications, see the *PowerStation Model P1 User Guide*, included on the MachineShop for MotionPanel Installation CD.

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## Controller Compatibility

MotionPanel is factory-configured to communicate with any Compumotor 6K controller via Ethernet or serial connection. The Compumotor 6K series includes the following:

- 6K2
- 6K4
- 6K6
- 6K8

MotionPanel also can communicate with any of the following Compumotor devices by serial connection only. You may need to modify some panels when using serial connections.

- Zeta 610N
- Apexd 615N
- OEM 6200
- OEM 6250
- GV6K (future development)
- GT6K (future development)

## Setting up a 6K Network

You can enable your MotionPanel to communicate with a Compumotor 6K controller via Ethernet or serial connection. This section explains how to create both types of connections.

**Important** You may want to connect the MotionPanel to a 6K controller and test the network connection before installing the MotionPanel in its permanent location. For information about how to install MotionPanel, see the *PowerStation Model P1 User Guide*, included on the MachineShop for MotionPanel Installation CD.

## Setting up Ethernet Communication

To set up Ethernet communication between MotionPanel and a 6K controller, you will connect the MotionPanel and the controller by crossover cable (shipped with MotionPanel) and then enable the controller's Ethernet port.

**To connect the MotionPanel and a 6K controller via Ethernet, complete the following steps:**

1. Connect one end of your Ethernet cable to the MotionPanel, as shown in Figure 2-1.



**Figure 2-1: Connecting an Ethernet Cable to Motion-Panel**

2. Connect the other end of the cable to the controller, as shown in Figure 2-2.



**Figure 2-2: Connecting an Ethernet Cable to the Controller**



3. Connect power (24 VDC) to the MotionPanel and the controller, as shown in Figure 2-3.



**Figure 2-3: Connecting Power to MotionPanel and the Controller**

Compumotor 6K controllers are factory-configured to communicate through their serial ports. To get them to communicate with MotionPanel via Ethernet, you must enable the controller's Ethernet port. To do this, you must have the following software installed:

- Compumotor 6K controller operating system v. 5.1.3 or higher (in the controller)
- Motion Planner v. 2.70 or higher (in your development PC)

**Note** Motion Planner is shipped with Compumotor 6K controllers.

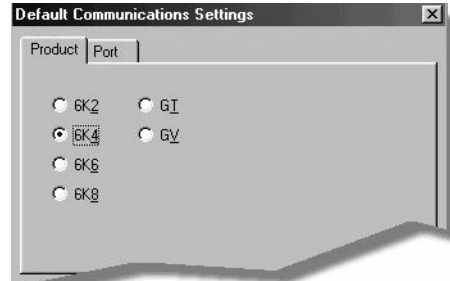
**To enable the Ethernet port on a 6K controller, complete the following steps:**

1. Using a serial cable, connect your development PC to the COM2 port on the 6K controller.
2. Start the development PC.
3. Launch Motion Planner on the development PC.

**Note** For information on how to use Motion Planner, see the *6K series Command Reference*.

The Default Communications Settings dialog box will appear.

4. On the **Product** tab, select the 6K controller that you will use, as shown in Figure 2-4.



**Figure 2-4: Selecting the 6K Controller**

**Note** The default port setting for the development PC is **COM1**. If you wish, you can confirm this by selecting the **Port** tab.

5. Click **OK** to save your default communication settings.

The Motion Planner window will appear.

6. In the Motion Planner window, select the **Terminal1** tab.

The Terminal1 emulator screen will appear, as shown in Figure 2-5.

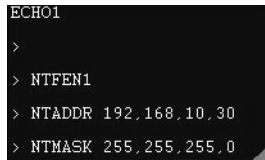


**Figure 2-5: Terminal1 Emulator Screen**

*If you are connecting MotionPanel to just one controller, complete step 7, and then go to step 10. If you are connecting MotionPanel to more than one controller, go to step 8 now.*

7. Type the following commands in the Terminal1 screen, as shown in Figure 2-6. Press **Enter** after each command.

```
NTFEN1
NTADDR 192,168,10,30
NTMASK 255,255,255,0
```

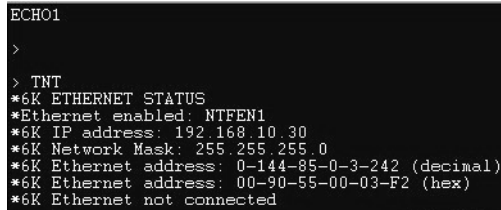


```
ECHO1
>
> NTFEN1
> NTADDR 192.168.10.30
> NTMASK 255.255.255.0
```

**Figure 2-6: NTFEN1 Commands**

8. Type **TNT** in the Terminal1 screen, as shown in Figure 2-7, and then press **Enter**.

The following information will appear on the screen.

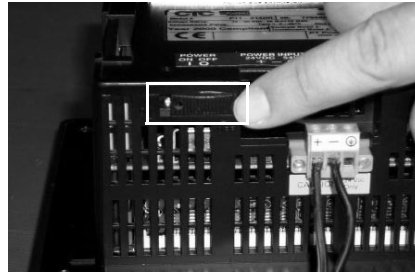


```
ECHO1
>
> TNT
*6K ETHERNET STATUS
*Ethernet enabled: NTFEN1
*6K IP address: 192.168.10.30
*6K Network Mask: 255.255.255.0
*6K Ethernet address: 0-144-85-0-3-242 (decimal)
*6K Ethernet address: 00-90-55-00-03-F2 (hex)
*6K Ethernet not connected
```

**Figure 2-7: Controller Ethernet Address**

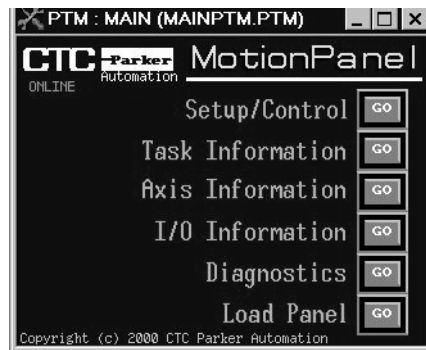
9. Below this information, type **NTFEN2**.
10. At the bottom of the Terminal1 screen, type **Reset**, and then press **Enter**.

11. Turn on the MotionPanel, as shown in Figure 2-8.



**Figure 2-8: Turning On MotionPanel**

The MotionPanel Main Menu will appear, as shown in Figure 2-9.



**Figure 2-9: MotionPanel Main Menu**

You can now run the MotionPanel Interact application.

## Ethernet settings in MotionPanel

Ethernet settings in MotionPanel are factory-configured. You can verify them in the MachineShop Shell.

**To verify MotionPanel's Ethernet settings, complete the following steps:**

1. Connect a keyboard to the MotionPanel.
2. From the Shell Main Menu, select **Settings**.

The Settings submenu will appear, as shown in Figure 2-10.

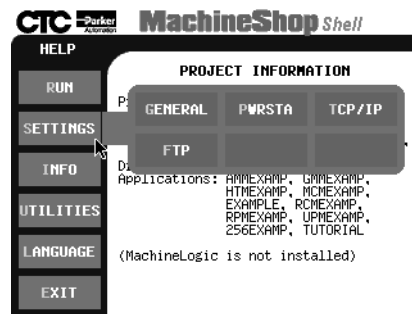


Figure 2-10: MachineShop Settings Submenu

3. On the Settings submenu, select **TCP/IP**.

The TCP/IP Setup menu will appear, as shown in Figure 2-11.

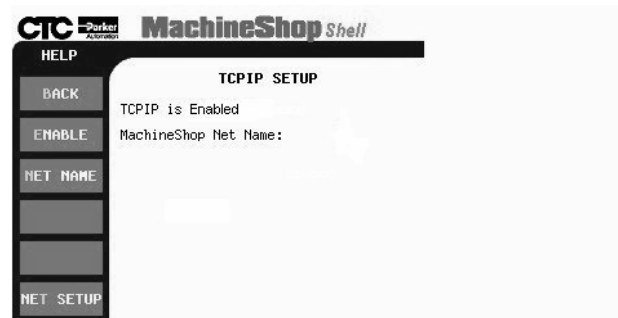


Figure 2-11: TCP/IP Setup Menu

4. On the TCP/IP Setup menu, select **NET SETUP**.

The TCP/IP Network Setup menu will appear, as shown in Figure 2-12.



**Figure 2-12: TCP/IP Network Setup Menu**

5. On the Network Setup menu, select **NET 1**.

The NET 1 submenu will appear, as shown in Figure 2-13.



**Figure 2-13: NET 2 Submenu**

6. Select the button for each of the settings listed in the left column below, and verify that the settings match those shown in the right column.

**Note** You must select the **IFACE TYPE** setting first in order to activate the other setup buttons.

<b>IFACE TYPE</b>	<b>:</b>	<b>NE2000</b>
<b>IP ADDRESS</b>	<b>:</b>	<b>192.168.10.29</b>
<b>IP MASK</b>	<b>:</b>	<b>255.255.255.0</b>
<b>PORT ADDRESS</b>	<b>:</b>	<b>280</b>
<b>IRQ</b>	<b>:</b>	<b>10</b>
<b>DOWNLOAD ONLY</b>	<b>:</b>	<b>OFF</b>

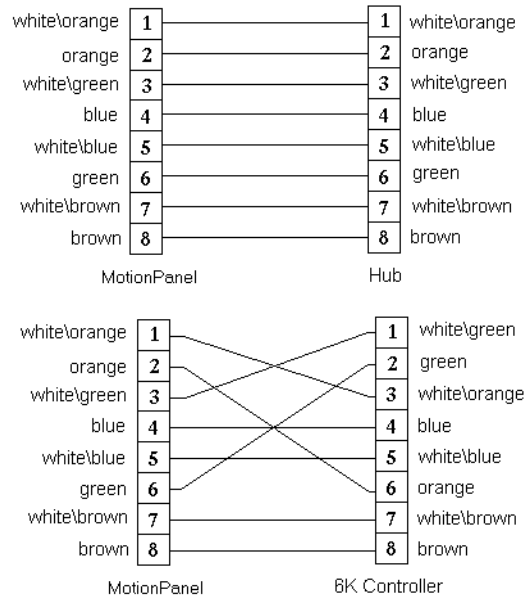
After you have entered each setting, select **NET 1** to return to the NET 1 submenu, and select another button to verify a setting.

**Important** You can change MotionPanel's Ethernet settings, but be very careful when doing so. A typo or punctuation error will set the wrong parameter.

7. When you have finished verifying Ethernet settings, select **Back** to return to the TCP/IP Setup Menu and **Back** again to return to the Shell Main Menu.

## Cable diagrams

If you must construct an Ethernet cable for your 6K network, refer to the diagrams in Figure 2-14 .



**Figure 2-14: Ethernet Cable Diagrams**

## Setting up Serial Communication

To set up serial communication between MotionPanel and a 6K controller, you must complete the following steps:

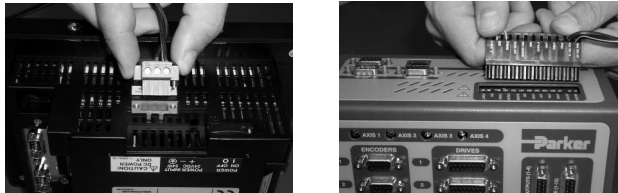
- Connect MotionPanel and the controller by serial cable
- Configure MotionPanel to use one of its serial ports to communicate with the controller
- Configure the controller to use one of its serial ports to communicate with MotionPanel
- Configure the CMOT driver for serial communication



### Connecting MotionPanel and a 6K controller

To connect MotionPanel and a 6K controller via serial cable, complete the following steps:

1. Connect power (24 VDC) to the MotionPanel and the controller, as shown in Figure 2-15.



**Figure 2-15: Connecting Power to MotionPanel and the Controller**

2. Connect one end of your serial cable to the COM1 port on the MotionPanel.
3. Connect the other end of the serial cable to the COM1 port on the controller.

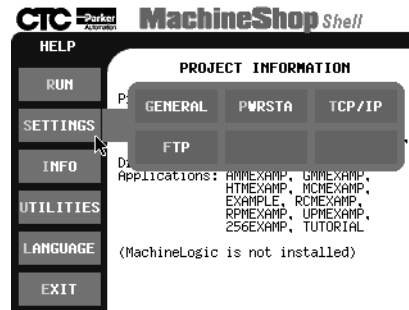
MotionPanel is factory-configured to communicate with a 6K controller via Ethernet. To use a serial connection between these devices, you must configure the MotionPanel to communicate through one of its serial ports.

### Configuring MotionPanel to use a serial port

To configure MotionPanel to use a serial port, complete the following steps:

1. Connect a keyboard to the MotionPanel.
2. From the Shell Main Menu, select **Settings**.

The Settings submenu will appear, as shown in Figure 2-16 on page 23.



**Figure 2-16: MachineShop Settings Submenu**

3. On the Settings submenu, select **TCP/IP**.

The TCP/IP Setup menu will appear, as shown in Figure 2-17.



**Figure 2-17: TCP/IP Setup Menu**

4. On the TCP/IP Setup menu, select **NET SETUP**.

The TCP/IP Network Setup menu will appear, as shown in Figure 2-18 on page 24.



Figure 2-18: TCP/IP Network Setup Menu

5. On the Network Setup menu, select **NET 2**.

The NET 2 submenu will appear, as shown in Figure 2-19.

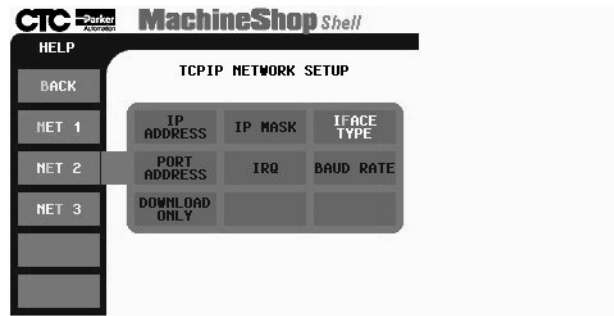


Figure 2-19: NET 2 Submenu

6. Select the button for each of the settings listed in the left column below, and enter the settings listed in the right column.

**Note** You must enter the **IFACE TYPE** setting first in order to activate the other setup buttons.

```

IFACE TYPE      : Serial
IP ADDRESS      : 10.0.0.2
IP MASK         : 255.255.255.0
PORT ADDRESS    : 3F8
IRQ             : 4
DOWNLOAD ONLY   : ON

```

After you have entered each setting, select **NET 2** to return to the NET 2 submenu, and select another button to enter a new setting.

7. When you have finished entering the network settings, select **Back** to return to the TCP/IP Setup Menu and **Back** again to return to the Shell Main Menu.
8. You can now run the MotionPanel Interact application.

**Note** For further information about MachineShop Shell settings, see the *MachineShop Shell Runtime Guide*.

Compumotor 6K controllers are factory-configured to communicate via serial communication. If you have previously configured your 6K controller for Ethernet communication, you will have to re-configure it to use one of its serial ports.

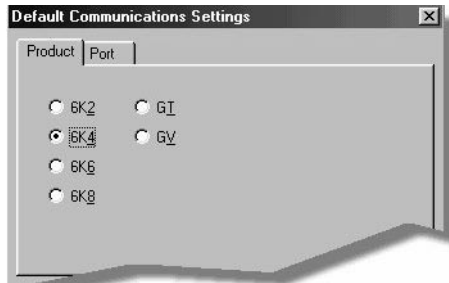
**To configure the 6K controller to use a serial port, complete the following steps:**

1. Using a serial cable, connect your development PC to the COM2 port on the 6K controller.
2. Start the development PC.
3. Launch Motion Planner on the development PC.

**Note** For information on how to use Motion Planner, see the *Compumotor 6K series Command Reference*.

The Default Communications Settings dialog box will appear.

4. On the **Product** tab, select the 6K controller that you will use, as shown in Figure 2-20 on page 26.



**Figure 2-20: Selecting the 6K Controller**

**Note** The default port setting for the development PC is **COM1**. If you wish, you can confirm this by selecting the **Port** tab.

5. Click **OK** to save your default communication settings.

The Motion Planner window will appear.

6. In the Motion Planner window, select the **Terminal1** tab.

The Terminal1 emulator screen will appear, as shown in Figure 2-21.



**Figure 2-21: Terminal1 Emulator Screen**

7. Type the following commands in the Terminal1 screen, as shown in Figure 2-22 on page 27. Press **Enter** after each command.

```
NTFENO
NTADDR 192,168,10,30
NTMASK 255,255,255,0
```

```
ECHO1
>
> NTFENO
> NTADDR 192,168,10,30
> NTMASK 255,255,255,0
```

Figure 2-22: NTFENO Commands

### Configuring the CMOT driver for serial communication

To configure the CMOT driver for serial communication, complete the following steps:

1. On your development PC, launch MachineShop for MotionPanel from the shortcut on your Windows desktop.

The MachineShop Welcome screen will appear.

2. Select **Open an Existing MachineShop Project**, as shown in Figure 2-23.



Figure 2-23: Opening a MachineShop Project

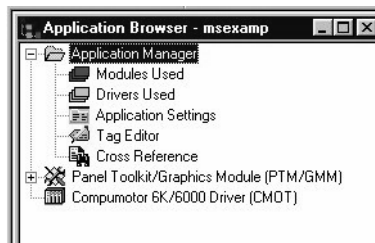
3. Select the MotionPanel Interact application: **MOTPANEL**.

4. Select the Interact icon in the middle of the Machine-Shop toolbar, as shown in Figure 2-24.



**Figure 2-24: Interact Icon**

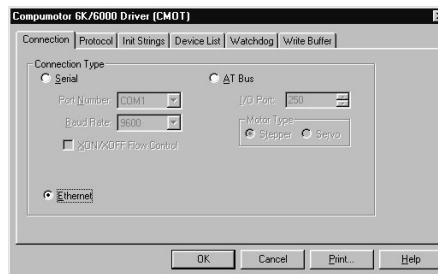
Interact will open the MotionPanel application, and the Application browser will appear, as shown in Figure 2-25.



**Figure 2-25: Interact Application Browser**

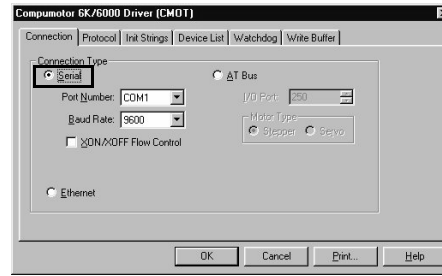
5. Select the Compumotor 6K/6000 Driver (CMOT), as shown in Figure 2-25.

The CMOT driver dialog box will appear, as shown in Figure 2-26. Note that the **Ethernet** connection is selected on the Connection tab.



**Figure 2-26: CMOT Driver Ethernet Connection**

6. On the Connection tab, select the Serial connection, as shown in Figure 2-27 on page 29.



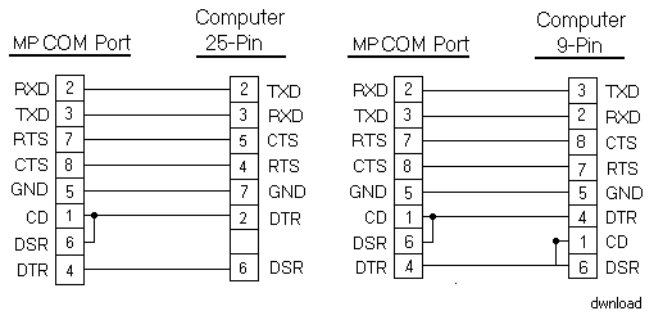
**Figure 2-27: CMOT Driver Serial Connection**

Click **OK** to accept your new setting, and Exit Interact.

You can now run the MotionPanel application.

### Cable diagrams

If you must create a serial cable to connect to the Motion-Panel, refer to the diagrams in Figure 2-28.



**Figure 2-28: Serial Cable Diagrams**





# MachineShop for MotionPanel

The MotionPanel workstation comes with a copy of MachineShop for MotionPanel software, distributed on the MachineShop for MotionPanel Installation CD (KA-83233). When installed on a development PC, MachineShop for MotionPanel will allow you to customize the Interact application that is factory-installed on MotionPanel's Compact Flash (CF) card. This chapter identifies the components of MachineShop for MotionPanel and explains how you can use the FlashBack utility to restore MotionPanel's operating software to a CF card.

## Chapter Contents

---

<i>Introducing MachineShop for MotionPanel</i>	32
<i>Using the FlashBack Utility</i>	35

## Introducing MachineShop for MotionPanel

You can customize your Interact application screens using a specially designed version of CTC's MachineShop HMI software called MachineShop for MotionPanel.

**Important** Although the Interact runtime screens on MotionPanel's CF card are pre-configured, program flow operations and data input functions are application-specific. You will need to configure them using MachineShop for MotionPanel on a development PC, save your settings in Interact PTM, and then download the settings to the CF card. For information about how to develop Interact applications and download them, see the *MachineShop Getting Started Guide*, included on the MachineShop for MotionPanel Installation CD.

MachineShop for MotionPanel includes the Interact Application Manager (APM) and Panel Tool Kit Module (PTM), and the Compumotor 6K/6000 (CMOT) Device Driver.

## Installing MachineShop for MotionPanel

MachineShop for MotionPanel is distributed on the MachineShop for MotionPanel Installation CD (KA-83233), which includes all of the software and documentation you will need to use MotionPanel.

### To install MachineShop for MotionPanel, complete the following steps:

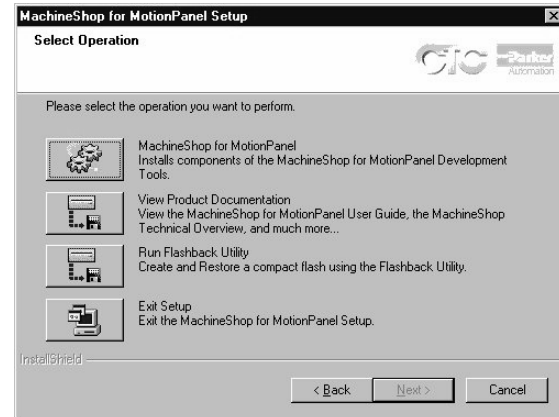
1. Insert the MachineShop for MotionPanel Installation CD into the CD-ROM drive of your development PC.  
If automatic installation is enabled on your system, installation will begin, and the Setup Welcome dialog box will appear. Go to step 4.  
If automatic installation is disabled, complete steps 2-3.
2. On the Windows taskbar, click **Start**, and then click **Run**.  
The Run dialog box will appear.

3. In the Run dialog box, next to the word “Open,” type **D:\Setup.EXE**, and click **OK**. (If necessary, substitute your CD-ROM drive letter for **D**.)

The Setup Welcome dialog box will appear.

4. Select **Next**.

The Select Operation dialog box will appear.



**Figure 3-1: MachineShop Select Operation**

5. Select the **MachineShop for MotionPanel** button, and follow the installation wizard to install the program.

**Important** When asked, be sure to select a **Typical** installation.

A Typical installation will install the following items:

- MachineShop Setup program
- MachineShop Toolbar
- Interact components (Licensed APM, PTM, CMOT Device Driver, fonts)
- MotionPanel MSP project
- Internet Explorer v. 5 (IE5)\*
- TCP/IP\*
- Dialup Adapter\*

- FlashBack Utility
- Adobe Acrobat Reader
- Documentation

Documentation includes online help for MachineShop and Interact; the Interact Online Tutorial; and PDF files for the *MotionPanel User Guide*, *PowerStation Model P1 User Guide*, *MachineShop Getting Started Guide*, and the *MachineShop Runtime Guide*. Adobe Acrobat Reader, installed with MachineShop for MotionPanel, enables you to read these files.

**\*Note** The starred (\*) networking components will be installed if they are not already on your computer. You may be asked to configure these components as they are installed. Configuration instructions are in the *MachineShop Installation Booklet*, shipped with the MachineShop for MotionPanel CD.

Setup also will automatically add the Compumotor Motion Planner suite component to the MachineShop toolbar if you install Motion Planner on your development PC before running the setup program. Motion Planner will appear as a tab on the toolbar.

## Using the FlashBack Utility

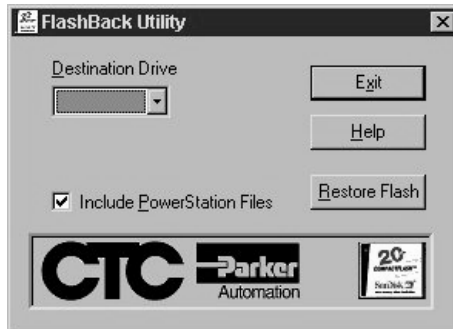
MotionPanel uses a Compact Flash card as its startup drive. This card contains the MS-DOS 6.22 operating system, the MachineShop Shell, and all of MotionPanel's pre-configured application screens. If any of these files is deleted or becomes corrupted, and you wish to replace it, or if you want to create a new, bootable CF card, you can do so easily by using the FlashBack utility. FlashBack restores all of MotionPanel's operating software to a CF card in one, simple operation. To do this, you will open FlashBack from the MachineShop for MotionPanel Installation CD (KA-83233) and use the instructions in the FlashBack online help to reformat the CF card.

### To reformat a CF card for MotionPanel, complete the following steps:

1. Insert the MachineShop for MotionPanel Installation CD into the CD-ROM drive of your development PC.  
  
If automatic installation is enabled on your system, installation will begin, and the Setup Welcome dialog box will appear. Go to step 4.  
  
If automatic installation is disabled, complete steps 2-3.
2. On the Windows taskbar, click **Start**, and then click **Run**.  
  
The Run dialog box will appear.
3. In the Run dialog box, next to the word "Open," type **D:\Setup.EXE**, and click **OK**. (If necessary, substitute your CD-ROM drive letter for **D**.)  
  
The Setup Welcome dialog box will appear.
4. Select **Next**.  
  
The Select Operation dialog box will appear, as shown in Figure 3-1 on page 33.

5. Select the **Run Flashback Utility** button.

The FlashBack Utility dialog box will appear as shown in Figure 3-2.



**Figure 3-2: FlashBack Utility Dialog Box**

6. Click the **Help** button to find complete, online instructions for operating the FlashBack utility.

**Note** If you wish, you can copy **FlashUtil.exe** to a directory of your choosing on your hard drive and run the utility from there.

## MotionPanel Screens

MotionPanel is a runtime system. The MachineShop Shell and a complete Interact application, created with Interact's Panel Toolkit Module (PTM), are factory-installed on a Compact Flash (CF) card shipped with all MotionPanel workstations. The application consists of over 45 Interact runtime screens. During runtime, you can control and monitor system parameters by navigating through these screens.

This chapter describes the MotionPanel screens and their functions.

### Chapter Contents

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<i>Screen Topology</i>	38
<i>Screen Descriptions</i>	40



## Screen Topology

Table 4-1, below and on page 39, illustrates the overall structure of the Interact runtime screens in MotionPanel. Subsequent sections describe the individual screens and their functions.

<b>Main Menu</b>		
	<b>Setup/Control</b>	
		Driveen
		Homlimstat
		Jogax1
		Jogax2
		Program
		Paucon
		Kill
		Comstat
	<b>Task Information</b>	
		Systat
		Prgstate
		Tasker
		Transcmd
	<b>Axis Information</b>	
		Motpar
		Motpar2
		Motaxis
		Servost
		Cotrlmod
		Advmot
		Advmot2
		Follsta
		Advfolst
	<b>I/O Information</b>	
		Onbdlim
		Onbdout
		Trigin
		Brickmenu

Main Menu		
	<b>I/O Information</b> (continued)	
		Brick I/O Status
		Expanio
	<b>Diagnostics</b>	
		Terminal
		Entry
		Drvstat
	<b>Load Panel</b>	A list of all of the preconfigured screens that can be used to call up a screen
	<b>Additional Screens</b>	
		Exit
		Tlarge

Table 4-1: Screen Topology

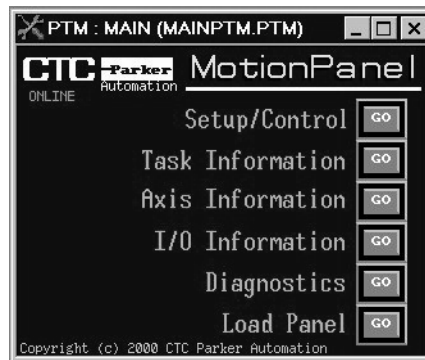
## Screen Descriptions

This section provides brief descriptions of each of the Interact runtime screens used by MotionPanel. The Compumotor 6K/6000 (CMOT) Device Driver commands supported by each screen appear in parentheses after each description. For detailed definitions of these commands, see the *Compumotor 6K Series Command Reference*.

**Important** Most of the pre-configured screens in MotionPanel are designed for system monitoring and troubleshooting during runtime. However, program flow operations and data input functions are application-specific. You will have to configure them using MachineShop for MotionPanel on a development PC, save your settings in Interact PTM, and then download the settings to the MotionPanel CF card. For information about how to develop Interact applications and download them, see the *MachineShop Getting Started Guide*, included on the MachineShop for MotionPanel Installation CD.

### Main Menu

The MotionPanel Main Menu is shown in Figure 4-1. From it, you have access to each of the six categories of screens in MotionPanel.



**Figure 4-1: MotionPanel Main Menu**

- **Setup/Control** — These screens enable you to set up or download programs and conduct terminal operations.

- **Task Information** — These screens display important task and error information
- **Axis Information** — These screens provide current information about motion parameters.
- **I/O Information** — These screens provide current expansion I/O information.
- **Diagnostics** — These screens provide diagnostic information about 6K controller operations.
- **Load Panel** — If you select this button, a list of all of MotionPanel's preconfigured screens will appear. Select any screen that you want to display.

An **Online/Offline** notation in the upper left portion of the Main Menu shows whether Ethernet is online or offline.

### Navigation Buttons

At the bottom of most other MotionPanel screens, you will find four buttons that will help you navigate through the screens. These buttons are shown in Figure 4-2.



**Figure 4-2: Navigation Buttons**

- **Back** — Brings up the previous screen in the category (see *Screen Topology* on page 38).
- **Main** — Returns you to the MotionPanel Main Menu.
- **Help** — Brings up a detailed explanation of the current screen.
- **Forward** — Brings up the next screen in the category (see *Screen Topology* on page 38).

In the last screen of each category, the **Forward** button is replaced by a button that will return you to the first screen in the category. That button is shown in Figure 4-3.



**Figure 4-3: First Screen Button**

To move to another category of screens, select **Main**. You will return to the Main Menu.

### Setup/Control

These screens enable you to set up or download programs and conduct terminal operations. They also provide information about communication between Interact and the CMOT driver and enable you to enable or disable drives.

### Driveen

This screen allows you to enable or disable each drive. It also reports the status (type) of the drive: **Stepper** or **Servo (+/-10V)**. (DRIVE)

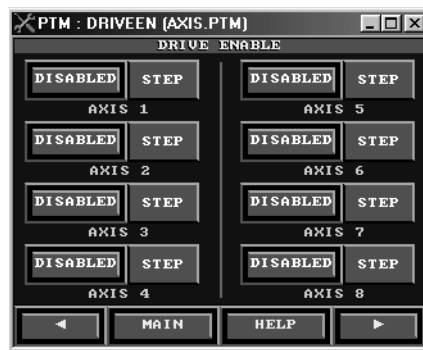


Figure 4-4: Driveen

### Homlimstat

This screen provides Home limit status information. It also allows you to test Home by selecting a negative or a positive Home. (TAS 5, 15, 16)



Figure 4-5: Homlimstat

### Jogax1

This screen provides jogging capabilities for Axes 1 through 4.

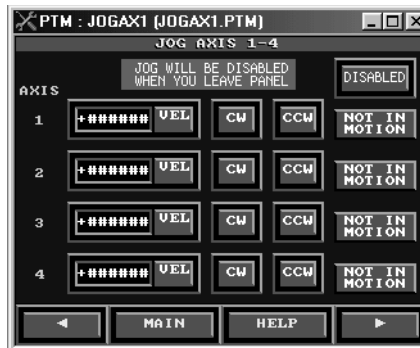


Figure 4-6: Jogax1

## Jogax2

This screen provides jogging capabilities for Axes 5 through 8.

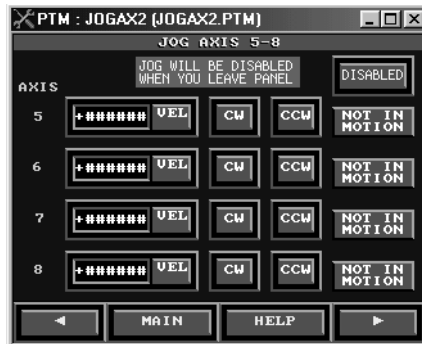


Figure 4-7: Jogax2

## Program

This screen enables you to download programs (\*.prg) from MotionPanel. Also available on this screen are options to reset the 6K controller and kill any program before downloading.



Figure 4-8: Program

## Paucon

You can pause (or continue) each task shown in this screen by selecting the appropriate button. The Supervisory Task button enables you to pause or continue all tasks at once.



Figure 4-9: Paucon

## Kill

You can use this screen to kill each individual task, the supervisory task, or all tasks simultaneously.



Figure 4-10: Kill



## Comstatus

This screen shows the status of communication between Interact and the CMOT driver: **Online** or **Offline**. It also displays error information concerning communication between Interact and the driver.



Figure 4-11: Comstatus

## Task Information

These screens display important task and error information.

## Systat

This screen displays the most important system status information. (TSS bits 1, 3, 8, 30)

	System Ready	Program Executing	Compiled Memory Full	Trace Mode
TASK 0	NO	NO	NO	NO
TASK 1	NO	NO	NO	NO
TASK 2	NO	NO	NO	NO
TASK 3	NO	NO	NO	NO
TASK 4	NO	NO	NO	NO
TASK 5	NO	NO	NO	NO
TASK 6	NO	NO	NO	NO
TASK 7	NO	NO	NO	NO
TASK 8	NO	NO	NO	NO
TASK 9	NO	NO	NO	NO
TASK 10	NO	NO	NO	NO

Figure 4-12: Systat

## Pgrstate

This screen displays the most important program status bits. (TSS bits 12, 13, 14, and 15)

The screenshot shows a window titled "PTM : PRGSTATE (PRGSTATE.PTM)". The main content is a table with the following structure:

	PROGRAM STATE			
	Pause Active	Wait Active	Monitoring Interrupt	Break Point Active
TASK 0	NO	NO	NO	NO
TASK 1	NO	NO	NO	NO
TASK 2	NO	NO	NO	NO
TASK 3	NO	NO	NO	NO
TASK 4	NO	NO	NO	NO
TASK 5	NO	NO	NO	NO
TASK 6	NO	NO	NO	NO
TASK 7	NO	NO	NO	NO
TASK 8	NO	NO	NO	NO
TASK 9	NO	NO	NO	NO
TASK 10	NO	NO	NO	NO

At the bottom of the window are four buttons: a left arrow, "MAIN", "HELP", and a right arrow.

Figure 4-13: Pgrstate

## Tasker

This screen provides formatted error status information related to multi-tasking. (TER bits 6, 7, 8, 16)

The screenshot shows a window titled "PTM : TASKER (TASKER.PTM)". The main content is a table with the following structure:

	TASK ERROR STATUS			
	Kill	User Fault	Stop	Command Error
TASK 0	NO	NO	NO	NO
TASK 1	NO	NO	NO	NO
TASK 2	NO	NO	NO	NO
TASK 3	NO	NO	NO	NO
TASK 4	NO	NO	NO	NO
TASK 5	NO	NO	NO	NO
TASK 6	NO	NO	NO	NO
TASK 7	NO	NO	NO	NO
TASK 8	NO	NO	NO	NO
TASK 9	NO	NO	NO	NO
TASK 10	NO	NO	NO	NO

At the bottom of the window are four buttons: a left arrow, "MAIN", "HELP", and a right arrow.

Figure 4-14: Tasker

### Transcmd

This screen reports the program execution status of each task. (TEX)

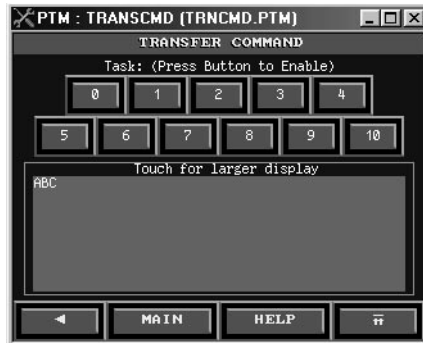


Figure 4-15: Transcmd

### Axis Information

These screens provide current information about motion parameters for axes.

### Motpar

This screen displays the motion parameters shown. (TPC, TPE)

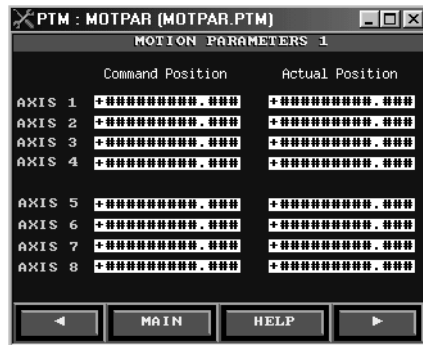


Figure 4-16: Motpar

## Motpar2

This screen displays the motion parameters shown. (TPER, TVEL, TVELA)

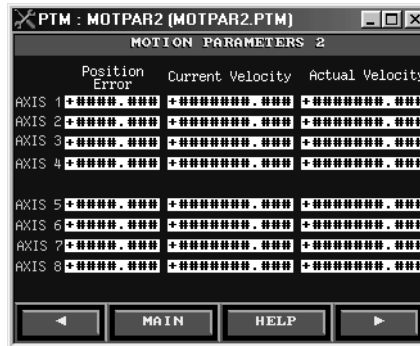


Figure 4-17: Motpar2

## Motaxis

This screen displays the motion axis status bits for each axis. (TAS 1, 2, 3, 4)

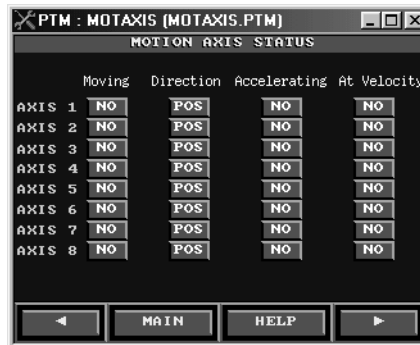


Figure 4-18: Motaxis

## Servost

This screen provides the servo-related status bits for each axis. (TAS 23, 24, 25)

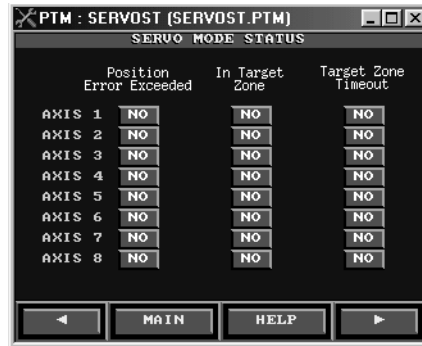


Figure 4-19: Servost

## Cotrlmod

This screen groups the controller mode status bits for each axis. (TAS 6, 7, 8, 9)

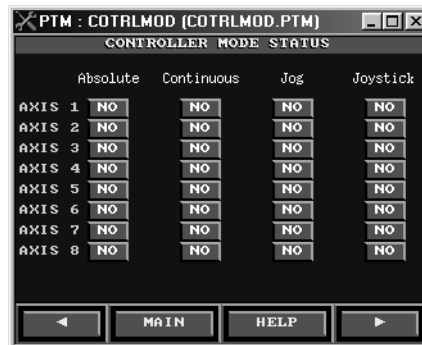


Figure 4-20: Cotrlmod

### Advmot

This screen functionally groups the most important following parameters for each axis. (TPMAS, TVMAS)

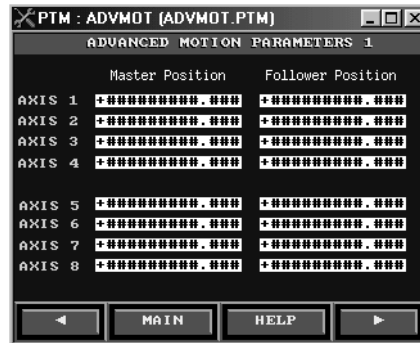


Figure 4-21: Advmot

### Advmot2

This screen also groups important following parameters. (TPSLV, TNMCY)

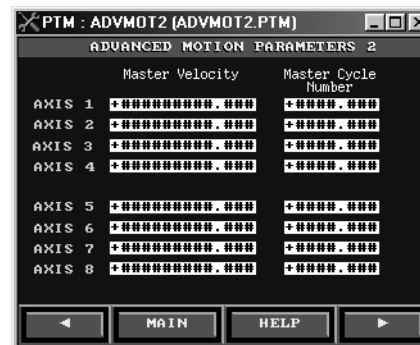


Figure 4-22: Advmot2

## Follsta

This screen allows you to monitor the most important following status commands for each axis. (TFS, 4, 5, 6)

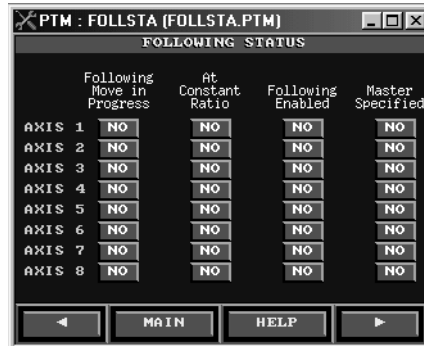


Figure 4-23: Follsta

## Advfolst

This screen enables you to monitor advanced following status information for each axis. (TFS 9, 10, 13, 24)

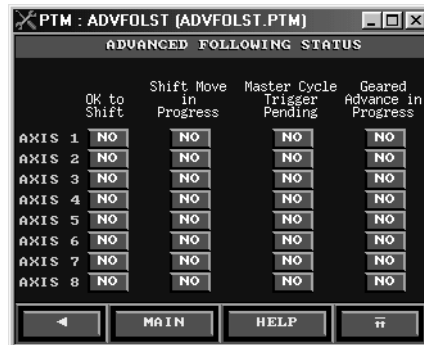


Figure 4-24: Advfolst

**I/O Information** These screens provide current I/O information for users.

### Onbdlim

This screen provides the current status of Home limit, the positive end of travel limit, and the negative end of travel limit for each axis. (TLIM)

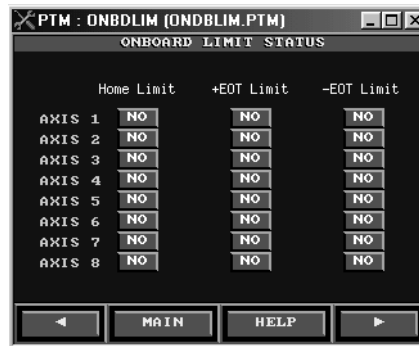


Figure 4-25: Onbdlim

### Onbdout

This screen provides the current status of onboard outputs. There are four outputs for 6K2 and 6K4 controllers, and eight outputs for 6K6 controllers.

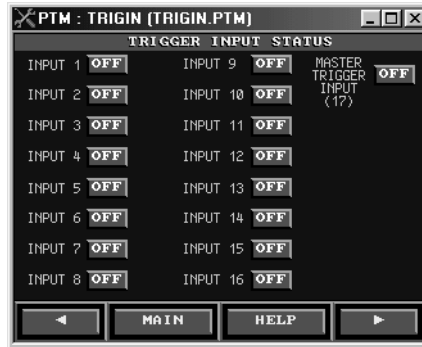


Figure 4-26: Onbdout



## Trigin

This screen provides onboard trigger input status. (TIN)



**Figure 4-27: Trigin**

## Brickmenu

This screen summarizes information about the I/O bricks connected to the controller. Up to eight bricks can be connected to each 6K controller. Four expansion configurations (sims) can be included in each brick: analog input, analog output, discrete input, and discrete output. Select any of the eight buttons in this screen to generate an I/O Status screen for that brick (see *Brick I/O Status*, below).



**Figure 4-28: BrickMenu**

## Brick I/O Status

This group of eight screens provides specific information about the sims in each I/O brick.

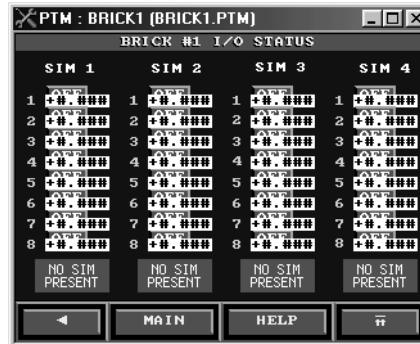


Figure 4-29: Brick I/O Status

## Expanio

This screen enables you to view expansion I/O information available when you take advantage of the module or external I/O capabilities of a 6K controller. Select any of the eight buttons in the screen to display the specific I/O information.



Figure 4-30: Expanio

**Diagnostics** These screens provide diagnostic information about 6K controller operations.

### Terminal

This screen allows you to use buttons to execute Compu-motor terminal commands.



Figure 4-31: Terminal

### Entry

The Entry screen allows you to enter any terminal support command. An internal keyboard will appear if you request the ASCII import option.

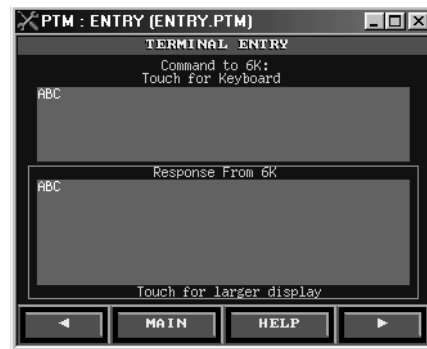


Figure 4-32: Entry

## Drvstat

This screen displays the drive status of each axis. (TAS 13, 14, 15, and TASX .5)



Figure 4-33: Drvstat

## Load Panel

If you select the **Load Panel** button on the Main Menu, MotionPanel will display a list of all of its preconfigured screens. Use the arrow buttons on the right to scroll up and down through the list. Select any screen, and then select the **Accept** button to call up that screen.



Figure 4-34: Load Panel

**Additional Screens    Exit**

From this screen you can exit Interact and return to the MachineShop Shell.



**Figure 4-35: Exit**

**Tlarge**

This screen provides a “blow-up” of displays that read back information from the 6K controller.



**Figure 4-36: Tlarge**

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