Model 493.04 PC-Per-Station
Service and Installation
MTS software is developed using established quality practices in accordance with the requirements detailed in the ISO 9001 standards. Because MTS authored software is delivered in binary format, it is not user accessible. This software will not change over time. Many releases are written to be backwards compatible, creating another form of verification.

The status and validity of MTS’ operating software is also checked during system verification and routine calibration of MTS hardware. These controlled calibration processes compare the final test results after statistical analysis against the predicted response of the calibration standards. With these established methods, MTS assures its customers that MTS products meet MTS' exacting quality standards when initially installed and will continue to perform as intended over time.

<table>
<thead>
<tr>
<th>Manual Part Number</th>
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<tbody>
<tr>
<td>100-103-033 B</td>
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Preface

Safety first!

Before you attempt to use your MTS equipment in your test system, read and understand the Safety manual. Like an automobile, your test system is very useful—but if misused, it is capable of deadly force. You should not be afraid of your test system, but you should always maintain a healthy respect for it.

Improper installation, operation, or maintenance of MTS equipment in your test system can result in hazardous conditions that can cause severe personal injury or death, and damage to your equipment and specimen. Again, read and understand the Safety manual before you continue. It is very important that you remain aware of hazards that apply to your test system.

Other MTS manuals

In addition to this manual, you may receive additional MTS manuals in paper or electronic form.

If you have purchased a test system, it may include an MTS System Documentation CD. This CD contains an electronic copy of all of the MTS manuals that pertain to your test system, including controller manuals, hydraulic and mechanical component manuals, assembly drawings and parts lists, and operation and preventive maintenance manuals.

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Conventions

The following paragraphs describe some of the conventions that are used in your MTS manuals.

**Hazard conventions**

Hazard notices are embedded in this manual and contain safety information that is specific to the task to be performed. Hazard notices immediately precede the step or procedure that may lead to an associated hazard. Read all hazard notices carefully and follow the directions that are given. Three different levels of hazard notices may appear in your manuals. Following are examples of all three levels.

*Note* For general safety information, see the Safety manual included with your system.

**Danger notices**

Danger notices indicate the presence of a hazard which *will* cause severe personal injury, death, or substantial property damage if the danger is ignored. For example:

**DANGER**

*High intensity light and dangerous radiation are emitted by class 3B lasers.*

*Viewing a class 3b laser directly or viewing it using optical instruments will cause immediate and severe injury.*

Avoid eye or skin exposure to the laser beam. Ensure that all power to the laser is off before attempting any maintenance, service, or adjustment procedure.

**Warning notices**

Warning notices indicate the presence of a hazard which *can* cause severe personal injury, death, or substantial property damage if the warning is ignored. For example:

**WARNING**

*Hazardous fumes can accumulate in the test chamber as a result of testing.*

*Breathing hazardous fumes can cause nausea, fainting, or death.*

Ensure the chamber is properly ventilated before you open the chamber door or put your head or hands into the chamber. To do this, ensure the temperature controller is off and allow sufficient time for the ventilation system to completely exchange the atmosphere within the chamber.
Caution notices

Caution notices indicate the presence of a hazard which *will* or *can* cause minor personal injury, cause minor equipment damage, or endanger test integrity if the caution is ignored. For example:

⚠️ CAUTION

This specimen can develop sharp edges as a result of testing.
Handling the specimen with unprotected hands can result in cuts and slivers.
Always wear protective gloves when you handle the specimen.

Other conventions

Other conventions used in your manuals are described below:

Notes
Notes provide additional information about operating your system or highlight easily overlooked items. For example:

*Note*  Resources that are put back on the hardware lists show up at the end of the list.

Special terms
The first occurrence of special terms is shown in italics.

Illustrations
Illustrations appear in this manual to clarify text. It is important for you to be aware that these illustrations are examples only and do not necessarily represent your actual system configuration, test application, or software.

Electronic manual conventions
This manual is available as an electronic document in the Portable Document File (PDF) format. It can be viewed on any computer that has Adobe Acrobat Reader installed.

Hypertext links
The electronic document has many hypertext links displayed in a blue font. All blue words in the body text, along with all contents entries and index page numbers are hypertext links. When you click a hypertext link, the application jumps to the corresponding topic.
Technical Support

**Start with your manuals**
The manuals supplied by MTS provide most of the information you will need to use and maintain your equipment. If your equipment includes MTS software, you should look for README files for additional product information.

If you cannot find answers to your technical questions from these sources, you can use the internet, telephone, or fax to contact MTS for assistance. You can also fill out the Problem Submittal Form that is available on the MTS web site and in the back of many MTS manuals that are distributed in paper form.

**Technical support numbers**
MTS provides a full range of support services after your system is installed. If you have any questions about a system or product, contact MTS in one of the following ways.

**MTS web site**
www.mts.com

- Problem Submittal Form:
  www.mts.com > Contact MTS > Problem Submittal Form
- Technical Support:
  www.mts.com > Contact MTS > Technical Support

**E-mail:** info@mts.com

**Telephone**
HELPLine 800-328-2255
Weekdays 7:00 A.M. to 6:00 P.M., Central Time

**Fax**
952-937-4515
Please include an MTS contact name if possible.

**Before you contact MTS**
MTS can help you more efficiently if you have the following information available when you contact us for support.

**Know your site number and system number**
The site number contains your company number and identifies your equipment type (material testing, simulation, and so forth). The number is usually written on a label on your MTS equipment before the system leaves MTS. If you do not have or do not know your MTS site number, contact your MTS sales engineer.
Example site number: 571167

When you have more than one MTS system, the system number identifies which system you are calling about. You can find your job number in the papers sent to you when you ordered your system.

Example system number: US1.42460

Know information from prior technical assistance

If you have contacted MTS about this problem before, we can recall your file. You will need to tell us the:

- MTS notification number
- Name of the person who helped you

Identify the problem

Describe the problem you are experiencing and know the answers to the following questions.

- How long has the problem been occurring?
- Can you reproduce the problem?
- Were any hardware or software changes made to the system before the problem started?
- What are the model and serial numbers of the suspect equipment?

Know relevant computer information

If you are experiencing a computer problem, have the following information available.

- Manufacturer's name and model number
- Operating software type and service patch information. Examples:
  - Windows XP Service Pack 1 (SP1)
  - Windows 2000 Service Pack 3 (SP3)
  - Windows NT 4.0 Service Pack 7 (SP7)
- Amount of system memory. Example: 640 MB of RAM.
- Amount of free space on the hard drive in which the application resides. Example: 11.2 GB free space, or 72% free space.
- Current status of hard-drive fragmentation. Example: 3% total fragmentation.
Know relevant software information

For MTS software application problems, have the following information available.

- The software application’s name, version number, build number, and if available, software patch number. This information is displayed briefly when you launch the application, and can typically be found in the “About” selection in the “Help” menu.

  Example: Station Manager, Version 3.3A, Build 1190, Patch 4

- The same information for other MTS software included with your system

- Names of other non-MTS applications that are running on your computer, such as screen savers, keyboard enhancers, print spoolers, and so forth

If you contact MTS by phone

Your call will be registered by a HELPLine agent if you are calling within the United States or Canada. Before connecting you with a technical support specialist, your agent will ask you for your site number, name, company, company address, and the phone number where you can normally be reached.

Identify system type

To assist your HELPLine agent with connecting you to the most qualified technical support specialist available, identify your system as one of the following types:

- Electromechanical materials test system
- Hydromechanical materials test system
- Vehicles test system
- Vehicles component test system
- Aero test system

Be prepared to troubleshoot

Prepare yourself for troubleshooting while on the phone.

- Call from a telephone close to the system so that you can try implementing suggestions made over the phone.
- Have the original operating and application software media available.
- If you are not familiar with all aspects of the equipment operation, have an experienced user nearby to assist you.
Write down relevant information

Prepare yourself in case we need to call you back.

- Remember to ask for the notification number.
- Record the name of the person who helped you.
- Write down any specific instructions to be followed, such as data recording or performance monitoring.

After you call

MTS logs and tracks all calls to ensure that you receive assistance and that action is taken regarding your problem or request. If you have questions about the status of your problem or have additional information to report, please contact MTS again.

Problem Submittal Form in MTS manuals

In addition to the Problem Submittal Form on the MTS web site, there is also a paper version of this form (postage paid) in the back of many MTS manuals. Use this form to forward problems you are experiencing with your MTS equipment, whether it be software, hardware, manuals, or service. This form includes check boxes that allow you to select when you expect us to respond to your input. We guarantee a timely response—your feedback is important to us.
**PC-Per-Station Kit**

**Introduction**

The Model 493.04 PC-Per-Station Kit allows you to use up to four PCs with one controller.

Multiple computers linked to a single controller provide the following advantages:

- Increased convenience for a multiple users controlling multiple stations
- Decreased downtime since multiple users may simultaneously run different tests (at individual stations) through a single controller

**Background**

Your controller includes one PC from which you can control up to four independent stations.

To operate just one station requires you to work with several controller software windows on your PC monitor.

For example, to run a single-station test, users typically display the Station Manager™ Scope, Station Manager Control Panel, and the MultiPurpose TestWare® Panel. These windows can take up most of the available display area. To control a second, third, or fourth station at the same time requires you to manage even more windows.

The Model 493.04 PC-Per-Station Kit allows you to use up to four PCs with one controller—in effect, you may use one “PC-Per-Station.” This new ability to have a separate computer and monitor for each station simplifies window management and station operation.

*Note*  
After you install this kit, you can still control multiple stations from any individual PC if desired.
Kit Details

**Kit variations**

The Model 493.04 PC-Per-Station Kit has three variations:

- **2-PC Kit (P/N 525315-01)**
  Includes: (2) hubs, (2) Network adapters, (4) 25' cables

- **3-PC Kit (P/N 525315-02)**
  Includes: (2) hubs, (3) Network adapters, (6) 25' cables

- **4-PC Kit (P/N 525315-03)**
  Includes: (2) hubs, (4) Network adapters, (8) 25' cables

**Note**  
These kits do not include PCs.

**PC requirements**

For current PC requirements, see the “README” file in your current system controller software folder.

**Note**  
PC-Per-Station Kit installation requires you to install additional network adapters in your computers. Since analysis of the individual PC is needed to establish the I/O addresses and IRQ settings, this document does not provide detailed information for network adapter installation.
Kit Installation

Overview
You will use the components in these kits to create two private networks: a controller-dedicated network and a general-data network.

The controller-dedicated network enables your control console electronics to be shared between all of the PCs.

The general-data network enables system software components to be shared between the designated master PC (server) and the designated dependent PCs (clients).

Installation considerations
To install the PC-Per-Station Kit, you must install additional network adapters in your test computers. This document does not provide detailed information for network adapter installation. The installation procedure for a typical computer (supplied with a test system) is provided as an example.

What you will need to install this kit
In addition to the parts in the kit, you will need the following:

- Additional PCs
- Controller software installation CD
- Windows Installation CD

Note Kit installation requires an advanced understanding of computer hardware and network topologies. See “Ethernet/communication board settings” on page 17.
Installing the Hardware

Overview
The following diagrams illustrate a typical system with a FlexTest Controller, both with and without the PC-Per-Station Kit installed. Your hardware may vary slightly from that displayed here.

Typical FlexTest Controller (One PC)

FlexTest Controller with PC-Per-Station Kit Installed (2-PC Kit shown)

Note To install the 3-PC Kit or 4-PC Kit, install network adapters in the additional PCs and connect to the general-data and controller-dedicated network hubs as shown for the “Additional PC.”

1) Not included with kit.
Install the Network Adapters

Ethernet/communication board settings

Since analysis of the individual PC is needed for establishing I/O addresses and IRQ settings, this document does not provide detailed information about the addition of communication/ethernet ports or boards (network adapters).

Objective

The objectives of network adapter installation are to:

- Install the network adapter
- Get the computer to recognize the network adapter hardware
- Configure the Windows operating system to recognize the network adapter
- Configure the adapter to operate within the network protocol

Procedure

This procedure covers a typical network adapter installation into a personal desktop computer.

1. Remove power from the PC.
2. Remove the chassis cover from the PC and install the network adapter.

   Refer to the documentation that accompanies your network adapter for hardware installation instructions.

3. Replace the chassis cover and return power to the PC.
4. Install the software drivers required by your network adapter.

   Refer to the documentation that accompanies your network adapter for software installation instructions specific to the Windows operating system you are using.
Install the Hubs

**Note**  
Read and understand the Safety manual that accompanies your system before installing network hubs.

This procedure covers the installation of the network hubs. You will install two network hubs, one to accommodate the controller-dedicated network (between the console and the PCs) and the other to accommodate the general-data network (between the master and dependent PCs).

### Install the controller-dedicated network hub

1. Connect the appropriate processor module to the Uplink/Normal (MDI/MDIX) port of the controller-dedicated network hub with the existing “crossover” cable.

   See “Installing the Hardware” on page 16 for diagrams of a typical installation.

   The Uplink/Normal (MDI/MDIX) port is a special port that allows connection to another hub.

   The Uplink/Normal (MDI/MDIX) port LED should illuminate when the connection has been established. If the light does not illuminate, press the Uplink/Normal (MDI/MDIX) port button located on the back of the hub to ensure that the connection is enabled.

2. Affix the supplied label “Controller-Dedicated Network” to the controller-dedicated network hub.

3. Connect the controller-dedicated network hub to the built-in Ethernet network adapters in the PCs.

### Install the general-data network hub

1. Connect the general-data network hub to the Ethernet network adapters in the PCs.

2. Affix the supplied label “General Data Network” to the general data network hub.
Setting Up the Networks

**Overview**  Once you have installed the kit hardware, you need to assign the new network adapter cards to appropriate protocols, as shown below.

![Network Diagram](image)

**Note**  The TCP/IP protocol must be bound (enabled) to the controller-dedicated network adapters. All other protocols must be disabled.

You will assign the controller network adapters to the TCP/IP protocol, and the general-data network adapters to any protocol that supports a shared disk and long file names.

When you’ve bound the new adapter cards, you will enter appropriate IP numbers for the network adapters in the controller network.
Assign Protocols to the Network Adapters

**Note**  Protocol assignment procedures will differ according to the Windows operating system you are using. Refer to your operating system manual for specific procedures.

1. Apply power to all components.
2. Display the appropriate network dialog box on one of the PCs.
3. Select the assignments for the network adapters in the controller-dedicated network. See “Setting Up the Networks” on page 19 for more information

**Note**  If the network adapter card is connected to a controller-dedicated network hub, enable TCP/IP protocol only.

4. Select the assignments for the network adapters in the general-data network.

**Note**  Interfacing with a lab/corporate network requires special considerations. Contact your network administrator for additional information.

**Important**  For new assignments to take effect, you may need to reboot the respective dependent PC.

5. Repeat steps 2–4 on all PCs.
Enter IP Addresses for the Controller Network

**Note** Procedures for entering controller network IP addresses will differ according to the Windows operating system you are using. Refer to your operating system manual for specific procedures.

**Set up master PC**

1. Select one of the PCs to be the master PC.

   You may select any of the PCs to be the master PC. You will install your controller’s software applications from the installation CD to the master PC, which becomes the network server for your controller software. You will install controller client software on dependent PCs, which become network clients.

   **Note** Make sure everyone using your system controller can identify the master PC. You must apply power to the master PC to use controller software applications on the dependent PCs.

2. Enter the IP Address for the built-in network adapter on the master PC.

   A. Select the appropriate built-in network adapter from the adapter list.

   B. In the **IP address** box, type 148.150.203.190

   C. In the **subnet** box, type 255.255.255.0

3. Affix the supplied label “Master PC” to the monitor.

   **Important** For a new IP address to take effect, you may need to reboot the respective dependent PC.
Set up dependent PCs

1. Enter IP Addresses for the built-in network adapters on the dependent PCs.

   One-by-one, display the IP Address dialogs for each dependent PC and enter IP addresses as follows:

<table>
<thead>
<tr>
<th>DEPENDENT PC</th>
<th>IP ADDRESS</th>
<th>SUBNET MASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>148.150.203.189</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>B</td>
<td>148.150.203.188</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>C</td>
<td>148.150.203.187</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>

   **Note** The alpha designations (A, B, C) of the dependent PCs are arbitrary. You may assign any of the listed IP addresses to any of the dependent PCs as long as each dependent PC has a unique IP address.

2. Affix one of the supplied labels “Dependent PC” to the monitor of each dependent PC.

   **Important** For a new IP address to take effect, you may need to reboot the respective dependent PC.
Enter IP Addresses for the General Data Network

**Note**  Procedures for entering general data network IP addresses will differ according to the Windows operating system you are using. Refer to your operating system manual for specific procedures.

### Master PC
Enter the IP Address for the network adapter on the master PC.

A. Select the appropriate installed network adapter from the adapter list.

B. In the **IP address** and **subnet mask** boxes:

   **If you plan to connect your master and dependent PCs to a corporate network**, ask your network administrator for appropriate IP addresses and subnet mask.

   **If you are not on a corporate network**, MTS recommends that you enter a “private” IP addresses here, such as 10.0.0.1. In the **subnet mask** box, type 255.255.255.0

### Dependent PCs
Enter IP Addresses for the installed network adapters on the dependent PCs.

**If you plan to connect your master and dependent PCs to a corporate network**, ask your network administrator for appropriate IP addresses and subnet mask.

**If you are not on a corporate network**, display the IP Address dialogs for each dependent PC and enter the following recommended “private” IP addresses and subnet mask as follows:

<table>
<thead>
<tr>
<th>DEPENDENT PC</th>
<th>IP ADDRESS</th>
<th>SUBNET MASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10.0.0.2</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>B</td>
<td>10.0.0.3</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>C</td>
<td>10.0.0.4</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>

**Note**  The alpha designations (A, B, C) of the dependent PCs are arbitrary. You may assign any of the listed IP addresses to any of the dependent PCs as long as each dependent PC has a unique IP address.

**Important**  For a new IP address to take effect, you may need to reboot the respective dependent PC.
Installing the Software

Assumptions

Simple TCP/IP services, TCP/IP protocol, routing, and Real-time logon accounts have been configured and are known to be fully functional.

All of the PCs in the PC-Per-Station network should have the same Windows operating system installed.

Install System Software on the master PC

Note Before you begin, ensure the Master PC has an IP address of 148.150.203.190 on the controller-dedicated network. If not, refer to “Setting Up the Networks” on page 19.

1. Install the system software from the distribution CD on the master PC.

Refer to the Software Installation Instructions in the “READ ME” file on the distribution CD. As you perform the installation, make sure you select the PC-Per-Station option.

The computer on which you install system software is designated the master PC.

2. From the master PC, share the MTS Model 793.00 System Software directory, e.g., “C:\ftiim”.

Note Ensure permissions are set to “Full Control.”

3. Record the computer name in which you have created the share.

Install System Client Software on the Dependent PC(s)

Note If system controller software has been previously installed on the selected dependent PC, contact MTS for installation instructions.

Important Do not install system controller software on dependent PCs from the system software distribution CD. Client software must be installed using files located on the master PC.

To install system client software on a dependent PC that has never run this software, perform the following:

1. Map an unused drive letter on the dependent PC to the share on the master PC.
Installing the Software

*Important* If the drive letter is not specified, the system software will not work.

A. Open Windows Explorer.

B. On the **Tools** menu, select **Map Network Drive**.

C. Select the name of the master PC shared directory from the displayed list.

D. Ensure that the **Reconnect at Logon** box is checked on the Map Network Drive window.

2. Locate and open the **Client** folder on the master PC from the dependent PC.

3. Run the dependent setup program.

   Locate and double-click the dependent setup program, **setup.exe**, to install system controller software on your dependent PC.

   The installation dialogs will appear similar to those displayed when you installed system controller software on the master PC from the distribution CD. There is one difference—you will not be prompted for options or key entries (dependent PCs automatically acquire the same options as the master PC).

4. Repeat steps 1 - 3 on the remaining dependent PCs.
When using this feature you should be aware of the following:

- The master PC and the controller console must be turned on before the dependent computers can run a test or a simulation.
- You can run in the simulation mode on one computer without affecting any other computer on the network.
- Do not run a simulation and a real session on a single computer.