TechComplete™ Test Productivity Pack

Meter Management Software

Getting Started Guide

JDSU

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◇ JDSU

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About This Guide

Purpose and scope

The purpose of this guide is to help you successfully use the TechComplete™ Test Productivity Pack features and capabilities. This guide includes task-based instructions that describe how to use and obtain support for the Tech-Complete™ Test Productivity Pack.

The TechComplete™ Test Productivity Pack Getting Started Guide is designed to:

– help you properly install the software and license file
– offer useful information about meter synchronization
– introduce the on-line help system, and
– provide warranty information and sources of technical assistance.

The TechComplete™ Test Productivity Pack integrates Field Data Management functions along with functionality for remote DSAM access, meter browser management and reporting.

IMPORTANT NOTE

Any references to FDM-250 are kept for software and license compatibility.

Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the TechComplete™ Test Productivity Pack effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

Technical assistance

If you need assistance or have questions related to the use of this product, call or e-mail JDSU's Cable Technical Assistance Center for customer support.

Table 1 Technical assistance centers

Region	Phone Number	
Americas	866 228 3762 World Wide: 301 353 1550	tac@jdsu.com
Cable TV/ Multimedia Products	America: 800 428 4424 Ext. 8350 World Wide: 317 788 9351 Ext. 8350	catv.support@jdsu.com
Brazil	+11 5503 3825 4617 3839 4617 3729	
Europe, Africa, and Mid-East	+49 (0) 7121 86 1345 (Europe)	hotline.europe@jdsu.com
	+800 882 85822 (European Freephone)	support.uk@jdsu.com
	+49 (0) 6172 59 11 00 (JDSU Germany)	hotline.germany@jdsu.com
	+33 (0) 1 30 81 50 60 (JDSU France)	support.france@jdsu.com
Asia and the Pacific	+852 2892 0990 (Hong Kong)	
	+86 10 6655 5988 (Beijing-China)	

Table 1 Technical assistance centers (Continued)

Region	Phone Number	
Southeast Asia, Australia, and New Zealand	+60 3 2730 6333 (Kuala Lumpur)	
All others	866 228 3762	tac@jdsu.com

During off-hours, you can request assistance by doing one of the following: leave a voice mail message at the Technical Assistance number in your region; e-mail North American Technical Assistance Center, tac@jdsu.com, or European Technical Assistance Center, support.uk@jdsu.com; or submit your question using our online Technical Assistance Request form at www.jdsu.com.

Conventions

This guide uses naming conventions and symbols, as described in the following tables.

Table 2 Typographical conventions

Description	Example
User interface actions appear in this **typeface**.	On the Status bar, click **Start**.
Buttons or switches that you press on a unit appear in this **TYPEFACE**.	Press the **ON** switch.
Code and output messages appear in this `typeface`.	`All results okay`
Text you must type exactly as shown appears in this **`typeface`**.	Type: **`a:\set.exe`** in the dialog box

Table 2 Typographical conventions (Continued)

Description	Example
Variables appear in this ***typeface***.	Type the new ***hostname***.
Book references appear in this ***typeface***.	Refer to ***Newton's Telecom Dictionary***
A vertical bar | means "or": only one option can appear in a single command.	`platform [a|b|e]`
Square brackets [ ] indicate an optional argument.	`login [platform name]`
Slanted brackets < > group required arguments.	`<password>`

Table 3 Keyboard and menu conventions

Description	Example
A plus sign + indicates simultaneous keystrokes.	Press **Ctrl+s**
A comma indicates consecutive key strokes.	Press **Alt+f,s**
A slanted bracket indicates choosing a submenu from menu.	On the menu bar, click **Start > Program Files**.

Table 4 Symbol conventions

This symbol represents a general hazard.

This symbol represents a risk of electrical shock.

NOTE

This symbol represents a Note indicating related information or tip.

Table 5 Safety definitions

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

TechComplete™ Test Productivity Pack Overview

1

This chapter provides a general description of the Tech-Complete™ Test Productivity Pack. Topics discussed in this chapter include the following:

– "About the TechComplete™ Test Productivity Pack" on page 2
– "Features and capabilities" on page 2

About the TechComplete™ Test Productivity Pack

The TechComplete™ Test Productivity Pack provides a seamless integration of the Field Data Management, Remote Meter Access, meter browser management tools, and various reports. The TechComplete™ Test Productivity Pack is compatible with JDSU's DSAM family of test instruments and is designed to help you manage your meter inventory, channel plans, limit plans, and field measurement files with ease and efficiency.

Features and capabilities

Use the TechComplete™ Test Productivity Pack to:

– support up to 2000 (based on license purchased) JDSU Digital Service Activation Meters (DSAMs) (JDSU recommends keeping 1000 meters per server to maintain system performance.)
– track and maintain your DSAM inventory
– remotely access your DSAM inventory
– ensure consistent meter configurations and user practices
– determine when specific DSAMs need calibration or updates
– archive limit plans, channel plans, and measurement files
– import and export plans and measurement files, and
– various reports.

Server Installation

2

This chapter describes the TechComplete™ Test Productivity Pack server installation. The topics discussed in this chapter are as follows:

Minimum System Server Requirements

Refer to Appendix A "System Requirements" on page 31.

Server Software Installation Preparation

━━━━━ **NOTE**

When installing a TechComplete™ Test Productivity
Pack Server software version **upgrade** from a previous
version of the TechComplete™ Test Productivity Pack,
you **do not** need to uninstall your existing version of
TechComplete™ Test Productivity Pack or obtain a dif-
ferent license file.

TechComplete™ Test Productivity Pack software is
comprised of **Server** components and a **Client** compo-
nent. The components are installed when you install Tech-
Complete™ Test Productivity Pack Server.

The Server software runs in the background to enable
DSAM synchronization. The TechComplete™ Test
Productivity Pack **user** interacts with the **Client** software.

━━━━━ **NOTE**

Only the Client component is installed when you install
TechComplete™ Test Productivity Pack Client

Before installing the FDM Server, shut down all other PC
applications and be sure you have obtained a TechCom-
plete™ Test Productivity Pack license file (**FDM-250.lic**)
from JDSU.

NOTE

The TechComplete™ Test Productivity Pack license file should only be installed with the Server software. A TechComplete™ Test Productivity Pack license file is not required for the Client software installation, though client licenses are specified in the server's license file.

If you need to obtain a TechComplete™ Test Productivity Pack license file from JDSU, contact the JDSU Customer Interaction Center (CIC) at:

– 1-866-228-3762 - United States
– 1-317-614-8311 - Worldwide
– E-mail the CIC for the Americas at licensingkey@jdsu.com

Server Software Installation

Carefully review the following steps before you begin.

Disk Installation **1** Insert **TechComplete™ Test Productivity Pack CD** into the appropriate drive on your PC.

NOTE

You must have administrative privileges on installation PC.

2 Open **Windows Explorer** and (in the left pane) click your **CD drive**.

3 In right pane of Windows Explorer, double-click **TPP_<version>_Server_Client_Install.exe** to begin the software installation sequence.

Table 6 Software Installation Sequence (New Software Installations only)

Dialog Box Displayed	Choose Appropriate Action
Introduction	– Review content. – Click **Cancel** to exit the installation. – Click **Next** to proceed.
Confirm 2 GB of System Memory	– Click **Cancel** to exit the installation. – Click **OK** to proceed.
License Agreement	– Review content. Accept or decline the agreement. – Click **Cancel** to exit the installation – Click **Previous** to return to the Introduction – Click **Next** to proceed.
Choose Install Folder	– Click **Choose** to browse to an alternate location from which to operate TechComplete™ Test Productivity Pack. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation – Click **Previous** to return to the License Agreement – Click **Next** to proceed.

Table 6 Software Installation Sequence (New Software
Installations only) (Continued)

Dialog Box Displayed	Choose Appropriate Action
Additional Components	– Click the **MySQL** version check box to install the component MySQL.
	NOTE: It is required that MySQL version 5.0.18 or later is installed on the TechComplete™ Test Productivity Pack server or TechComplete™ Test Productivity Pack will not function properly.
	– Click the **Apache Tomcat** version check box to install the component Apache Tomcat.
	NOTE: It is required that Apache Tomcat version 5.5.15 is installed on the TechComplete™ Test Productivity Pack server or TechComplete™ Test Productivity Pack will not function properly.
	– Click the **Meter Browser Management** check box to install the component Meter Browser Management.
	– Click the **TechComplete Test Reporting System** check box to install the component TechComplete Test Reporting System.
	– Click the **TechComplete Certification Management Reporting System** check box to install the component TechComplete Certification Management Reporting System.
	NOTE: Only install **TechComplete Certification Management Reporting System** if you purchased "Home Certification" meter options.
	– Click **Cancel** to exit the installation
	– Click **Previous** to return to the Choose Install Folder
	– Click **Next** to proceed.

Table 6 Software Installation Sequence (New Software Installations only) (Continued)

Dialog Box Displayed	Choose Appropriate Action

Choose Billing System	If the TechComplete Certification Management Reporting System check box was selected in the Additional Components dialog box, refer to the following steps:
	 – Select appropriate **Billing System**:
	   – DST Innovis
	   – ICOMS
	   – CSG
	   – Custom
	 – Click **Cancel** to exit the installation
	 – Click **Previous** to return to the Additional Components
	 – Click **Next** to proceed.

Choose MySQL Install Folder	If the MySQL version check box was selected in the Additional Components dialog box, refer to the following steps: – Click **Choose** to browse to an alternate location to install MySQL. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation – Click **Previous** to return to the Additional Components – Click **Next** to proceed.

Table 6 Software Installation Sequence (New Software
Installations only) (Continued)

Dialog Box Displayed	Choose Appropriate Action
Choose Apache Tomcat Install Folder	If the Apache Tomcat version check box was selected in the Additional Components dialog box, refer to the following steps: – Click **Choose** to browse to an alternate location to install Apache Tomcat. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation – Click **Previous** to return to the Additional Components, – Click **Next** to proceed.
Apache Tomcat Folder	If you deselected the Apache Tomcat check box in the Additional Components dialog box and selected any of the Web applications, refer to the following steps: – Click **Choose** to browse to the location of the installed Apache Tomcat. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation – Click **Previous** to return to the Additional Components – Click **Next** to proceed.
License File	– Click **Checkbox** if you have received your FDM license file.

Table 6 Software Installation Sequence (New Software
Installations only) (Continued)

Dialog Box Displayed	Choose Appropriate Action
License File	– Click **Choose** to browse to an alternate location from which to choose your license file. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation. – Click **Previous** to return to the License Agreement. – Click **Next** to proceed.
Web and Secure Sync™ Settings: Specify Ports and Address	Set the ports needed for web client access & Sync™ meter synchronization. – Click **Cancel** to exit the installation – Click **Previous** to return to the Additional Components – Click **Next** to proceed.
Pre-Installation Summary	– Review content to confirm desired installation setup. – Click **Cancel** to exit the installation – Click **Previous** to return to Web and Secure Sync™ Settings: Specify Ports and Address. – Click **Install** to proceed.
Install Complete	Review content / Click **Done**.

NOTE

When the TechComplete™ Test Productivity Pack
Server software is installed on a PC the TechComplete™ Test Productivity Pack Client is automatically
installed on the same PC.

After successful installation, the TechComplete™ Test Productivity Pack Client icon will appear on your PC desktop. The Client and Server menu items will also be available in the Start Menu Programs folder.

License Installation

To install the license file, if not done during the installer

1 Ensure you install license file BEFORE you start your TechComplete™ Test Productivity Pack Server.

IMPORTANT NOTE

You **must** install a valid JDSU license file (FDM-250.lic) to successfully complete the software installation.

2 Simply **copy** the license file you have obtained from JDSU into the installation folder typically entitled **Program Files\Acterna FDM-250\cfg**. Do not rename the license file.

IMPORTANT NOTE

For the TechComplete™ Test Productivity Pack software to function properly, the TechComplete™ Test Productivity Pack server must have a valid TechComplete™ Test Productivity Pack license file that matches the Media Access Controller (MAC) address of the Network Interface Card (NIC). To obtain a valid license file, contact the JDSU Customer Information Center (CIC) at 1-866-228-3762, and provide them with the NIC's MAC address.

NOTE

The MAC address is defined as the Ethernet adapter Physical Address. This can be found by typing `ipconfig/all` from the DOS Command Prompt.

Starting the TechComplete™ Test Productivity Pack Server

The TechComplete™ Test Productivity Pack Server starts automatically during the installation if a valid license file is selected during the installation.

If you added your license file after the installation program ran, then you will need to start the server now.

To start the TechComplete™ Test Productivity Pack Server

1   Click the **Start** button.

2   Point to **All Programs** and **JDSU Test Productivity Pack**.

3   Click **Start Test Productivity Pack Services**.

NOTE

The TechComplete™ Test Productivity Pack Server runs in the background as a windows service. The Server **MUST** run in the background at all times for the TechComplete™ Test Productivity Pack Client software to function properly and to allow meters to synchronize with TechComplete™ Test Productivity Pack.

Launching Client Administrator Application

To launch the Client administrator application

1   Double-click desktop Client icon to launch the Client logon window.

The Client application displays the user Logon window.

NOTE

The Initial **Logon name:** is "**administrator**" and the password is "**fdm250**". (password is case sensitive)

Server Socket Ports

The TechComplete™ Test Productivity Pack Server uses the following socket ports by default:

– Port 21 and other various ports used for FTP communication with the DSAM meters
– Port 1099 and other various ports used for RMI communication with TechComplete™ Test Productivity Pack Clients
– Port 3306 used for MySQL communication with the TechComplete™ Test Productivity Pack database
– Ports 80, 443, 8443 used by Apache Tomcat service
– Port 111 and other various ports used for RPC communication with DSAM Remote Access

▬▬▬▬ **NOTE**

If these ports are used by any other application, the Server launch will fail and your DSAM meters will be unable to synchronize with TechComplete™ Test Productivity Pack.

FTP Servers commonly use Port 21. If you have a FTP Server already running on your PC, theTechComplete™ Test Productivity Pack Server launch will fail and exhibit the following message in the log file located in the log folder:

```
FDM Server: Startup sequence in prog-
ress...
Do not start FDM Client until server
has completed startup.
FTP service error - abort server
startup
```

If you get this message, shutdown your FTP Server and restart your TechComplete™ Test Productivity Pack Server.

Web Servers commonly use Port 80, 443, or 8443. If you have a Web Server already running on your PC, the TechComplete™ Test Productivity Pack Server launch will fail and exhibit the following messages in the latest catalina log file located in the Tomcat 5.5 log folder:

java.net.BindException: Address already in use: JVM_Bind:80

LifecycleException: Protocol handler initialization failed: java.net.BindException: Address already in use: JVM_Bind:80

If you get these messages, stop and disable your Web Server's service and restart your TechComplete™ Test Productivity Pack Server.

> **NOTE**
>
> JDSU recommends that your server is protected by a firewall and antivirus software that is kept up to date with security patches. It is recommended that your firewall denies all internet port access except to port 21 or 443. Other ports should only be available to the server and to other computers on the customer's internal company network.

Changing the RMI port   To change the RMI port, the configuration of the server and each client must be changed.

1 At the server, edit the **configuration.properties** file in the FDM-250 cfg folder (typically "\Program Files\Acterna FDM-250\cfg").

2 Add (or edit) a line that reads "**RMI_port = 1099**", replacing 1099 with the port number you wish to use.

3 At each client (including the server), edit the **config.cfg** file in each user's setting folder (typically "C:\Documents and Settings\user_name\jdsu\tpp").

4 Add (or edit) a line that reads "**RMI_port = 1099**", replacing 1099 with the port number you wish to use.

Changing the MySQL port

> **IMPORTANT NOTE**
>
> If the MySQL port number is changed it must match the port number used by MySQL. See the MySQL Reference Manual for more information.

To change the MySQL port, one configuration file on the server must be changed.

1 Edit the **configuration.properties** file in the FDM-250 cfg folder (typically "\Program Files\Acterna FDM-250\cfg").

2   Add (or edit) a line that reads "**MySQL_port = 3306**", replacing 3306 with the port number you wish to use.

Changing the Apache Tomcat port   If you chose your desired port valves during the Secure Sync™ Settings page of you TPP Server's installation, then TPP should be setup properly.

To change the ports, either

1   Re-run the **installer** and choose **different ports**.

OR

2   Follow the instructions in the **App_Note_TPP_Web_Changing_Ports_and_IP_Hostname.pdf** document located on your TPP installation CD.

Importing a FDM-100 Database

FDM-100 data cannot be imported in to a TPP 4.4 or later installation. Please see the TPP Getting Started Guide for the version of TPP that matches your FDM-100 version for import details.

Client Installation

3

This chapter describes the TechComplete™ Test Productivity Pack client installation. The topics discussed in this chapter are as follows:

– "Minimum System Client Requirements" on page 18
– "Client Software Installation Preparation" on page 18
– "Client Software Installation" on page 18

Minimum System Client Requirements

Refer to .

Client Software Installation Preparation

━━━━ **NOTE**

When installing a TechComplete™ Test Productivity Pack software version **upgrade**, you **do not** need to uninstall your existing version of TechComplete™ Test Productivity Pack.

TechComplete™ Test Productivity Pack software is comprised of a **Server** component and a **Client** component. Only the Client component is installed when you install TechComplete™ Test Productivity Pack Client. The TechComplete™ Test Productivity Pack **user** interacts with the **Client** software.

Client Software Installation

Carefully review the following steps <u>before</u> you begin.

Disk **1** Insert **TechComplete™ Test Productivity Pack CD**
Installation into the appropriate drive on your PC.

2 Open **Windows Explorer** and (in the left pane) click your **CD drive**.

3 In right pane of Windows Explorer, double-click **TPP_<version>_Client_install.exe** to begin the software installation sequence.

Table 7 Software Installation Sequence

Dialog Box Displayed	Choose Appropriate Action
Introduction	– Review content / Click **Next** to proceed. – Click **Cancel** to exit the installation.
License Agreement	– Review content. Accept or decline the agreement. – Click **Cancel** to exit the installation – Click **Previous** to return to the Introduction – Click **Next** to proceed.
Choose Install Folder	– Click **Choose** to browse to an alternate location from which to operate TechComplete™ Test Productivity Pack. – Click **Restore Default Folder** to return installation location to the default folder. – Click **Cancel** to exit the installation – Click **Previous** to return to the License Agreement – Click **Next** to proceed.
Pre-Installation Summary	– Review content to confirm desired installation setup. – Click **Cancel** to exit the installation – Click **Previous** to return to Choose MySQL Install Folder – Click **Install** to proceed.
Install Complete	Review content / Click **Done**.

After successful installation, the TechComplete™ Test Productivity Pack Client icon will appear on your PC desktop. The Client menu items will also be available in the Start Menu Programs folder.

Getting Started

4

This chapter describes the functionality of the instrument. Topics discussed in this chapter are as follows:

– "Accessing the TechComplete™ Test Productivity Pack" on page 22
– "Accessing the Meter Browser Management software" on page 22
– "Accessing the TechComplete™ Test Productivity Pack Web Application" on page 23

Accessing the TechComplete™ Test Productivity Pack

To launch the Client Application

1 Double-click desktop Client icon to Launch the Client Application.

The Client application is displayed on your monitor.

Accessing the Meter Browser Management software

Meter browser management can be accessed directly using a web browser. To do this you should point your internet TechComplete™ Test Productivity Pack explorer browser to the server that the Meter Browser Manager was installed on.

The DSAM's WFA Browser option can also be used to access the Meter Browser Manager by configuring it's WFA browser to point to the same page using the software.

– http://SERVER-IP/ActernaIAS

SERVER-IP should be replaced by the actual IP address of your server for example:

– http://172.16.16.100/ActernaIAS

The Meter Browser Management default **Login name:** is "**admin**" and the password is "**admin**". (password is case sensitive)

Accessing the TechComplete™ Test Productivity Pack Web Application

The TechComplete™ Test Productivity Pack Web Application can be accessed directly using a web browser. To do this you should point your web browser to the server that the TechComplete™ Test Productivity Pack was installed on.

– http://SERVER-IP/ActernaTPP

SERVER-IP should be replaced by the actual IP address of your server for example:

– http://172.16.16.100/ActernaTPP

Connecting Meters for Synchronization

5

This chapter describes the functionality of the instrument. Topics discussed in this chapter are as follows:

Choosing a Meter Setup (DSAM firmware versions 2.0 and later)

JDSU's DSAM meters have their own **Ethernet** and **RF** settings that allow them to be uniquely identified on the network. There are **two synchronization connection options** for your DSAM meters -- Ethernet connection to a LAN or RF connection to a LAN.

Option 1) Ethernet Connection to a LAN with a Domain Host Controller

– Your TechComplete™ Test Productivity Pack Server must have a static IP address.

– The DSAM can obtain a dynamic IP address from the DHCP Server or have a static IP address.

– On the meter, enter the DSAM IP address under Configure>General>Ethernet Network. Choose "DHCP" for a dynamic IP address or "Let me specify below" for a static address.

– If "DHCP" is selected, no further DSAM IP configuration is required. If "Let me specify below" is selected, enter the correct static IP address and subnet mask in the space provided. (See your System Administrator, if necessary, to obtain these.)

– Under Configure>Access>PC Connection, enter the TechComplete™ Test Productivity Pack Server's IP address and select Ethernet as your preferred connection. (Host Name is available for entry for users with firmware v 3.6 and later)

Option 2) RF Connection to a LAN with a Domain Host Controller

– Your TechComplete™ Test Productivity Pack Server must have a static IP address.

– The DSAM can obtain a dynamic IP address from the DHCP Server or have a static IP address.

– On the meter, enter the DSAM IP address under Configure>General>RF Network. Choose "DHCP" for a dynamic IP address or "Let me specify below" for a static address.

– If "DHCP" is selected, no further DSAM IP configuration is required. If "Let me specify below" is selected, enter the correct static IP address and subnet mask in the space provided. (See your System Administrator, if necessary, to obtain these.)

– Under Configure>Access>PC Connection, enter the TechComplete™ Test Productivity Pack Server's IP address and select RF as your preferred connection (Host Name is available for entry for users with firmware v 3.6 and later).

Help System

6

This chapter describes how to use the TechComplete™ Test Productivity Pack Help System. The topics discussed in this chapter are as follows:

Application Notes

Most TPP functionality is available for review in application notes on the install CD and via the TPP Web application.

Using the TechComplete™ Test Productivity Pack Help System

Each page of your TechComplete™ Test Productivity Pack software is supported by a Help Text View and a Help Graphic View. These views explain how each page functions and show page components with helpful annotations.

Accessing the Help System

From any TechComplete™ Test Productivity Pack location, there are four ways to access the Help system:

– Press the F1 function key on your keyboard
– Press Alt-H on your keyboard
– Click the Help icon on the Navigation Toolbar, or
– Click the Help option on the Menu Bar.

System Requirements

A

This appendix describes the TechComplete™ Test Productivity Pack requirements. Topics discussed in this appendix are as follows:

System Server Requirements

Table 8 Minimum System Server Requirements

Parameter	Specification
Operating System	Windows 32 bit versions of XP Professional, 2003 Server (Standard or Enterprise), VISTA Enterprise, 2008 Server (Standard or Enterprise) or 7 Professional with the latest service packs and security updates. **Note:** TPP does not support the 32 bit compatibility mode of 64 bit Windows versions.
RAM	2 GB
Available Hard Drive Space	1 GB
Hard Drive Speed	For faster performance recommend a 7200 RPM SATA hard drive (3 MB/Sec) or faster
Connectivity	100BaseT Fast Ethernet
Screen Resolution	1024 x 768 or higher
IP Assignments	Static IP address
Web Browser	Internet Explorer V6, V7 or V8

Table 9 Suggested Moderate Server Specifications

Parameter	Specification
Operating System	Windows 2008 Server (Standard or Enterprise). **Note:** Windows 2008 supports more synchronization sockets per second than 2003.
Processor	2 GHz
RAM	4 GB

Table 9 Suggested Moderate Server Specifications

Parameter	Specification
Hard Drive	SSD (Solid State Drive) from Intel
Available Hard Drive Space	10 GB + 100 MB per DSAM for 4 years of DSAM data
Screen Resolution	1280x1024

For the TechComplete™ Test Productivity Pack Server to successfully synchronize with DSAM meters, your PC must have:

– at least one NIC/Ethernet card; the primary NIC is used for RMI(Thick Client) and FTP(Sync) communication; all NIC cards are used for HTTP(Web and Secure Sync) communication,

– a valid license file (FDM-250.lic) from JDS Uniphase Corporation, and

– a static IP address (For TechComplete™ Test Productivity Pack software to function properly, the host must have a static IP address. If the host PC is configured to seek a dynamic IP address from a DHCP Server, TechComplete™ Test Productivity Pack synchronization with DSAM meters will fail.)

Operating systems and hardware platform requirements change over time. Please contact your JDSU representative for further information on the latest system requirements.

System Client Requirements

Table 10 Minimum System Client Requirements

Parameter	Specification
Operating System	Windows 32 bit versions of XP (Home or Professional), 2003 Server (Standard or Enterprise), VISTA Enterprise, 2008 Server (Standard or Enterprise), or 7 Professional with the latest service packs and security updates **Note:** TPP does not support the 32 bit compatibility mode of 64 bit Windows versions.
RAM	1 GB
Available Hard Drive Space	1 GB
Web Browser	Internet Explorer V6, V7 or V8
Connectivity	100BaseT Fast Ethernet
Screen Resolution	1024 x 768 or higher

Table 11 Suggested System Client Specifications

Parameter	Specification
RAM	2 GB
Connectivity	100BaseT Fast Ethernet
Available Hard Drive Space	2 GB
Screen Resolution	1280 x 1024

Operating systems and hardware platform requirements change over time. Please contact your JDSU representative for further information on the latest system requirements.

Server Socket Ports

Refer to "Server Socket Ports" on page 13.

Customer Services

B

This chapter describes the customer services available through JDSU. Topics discussed in this chapter include the following:

About our services

JDSU offers an unmatched portfolio of services to deploy, support and innovate purchased equipment through its Customer Care and Global Services and Solutions organizations. Customer Care is standard with every product sale and consists of business hour technical assistance, in-warranty repair, calibration, and upgrade services. Global Services and Solutions provides professional services to optimize product capabilities and maximize efficiencies, including field engineering and deployment, technical training, product support, consulting and custom software development. Together these organizations supply the services necessary successfully utilize purchased equipment.

Customer care

Customer Care is accompanied with the sale of every JDSU product. Customer Care services include:

– Needs Analysis on Products and Services
– Comprehensive Product and Service Literature
– Pre-Sales Consulting
– Technical Assistance (Business Hour)
– Instrument Repair (Under Warranty Repair and Calibration Services)
– Immediate Return Authorizations

Contact a Customer Care representative through your local distributor or by accessing www.jdsu.com for information on upgrades, calibration, warranty policies or any of Global Services and Solutions offerings. Representatives also provide assistance with product repairs and returns.

Technical assistance (business hour) Expert business hour technical support, including help with product configuration, circuit qualification, and complete network trouble sectionalization is provided with your product (see"Technical assistance" on page ix). For around-the-clock support, 7x24 technical assistance may be purchased through Global Services and Solutions FleetCare program (see "Product support" on page 45).

Instrument repair Our service centers provide repair, calibration and upgrade services for under warranty equipment. JDSU understands the impact of equipment down time on operations and is staffed to ensure a quick turnaround. Available services include the following:

Product Repair — All equipment returned for service is tested to the same rigorous standards as newly manufactured equipment. This ensures products meet all published specifications, including any applicable product updates.

Calibration — JDSU's calibration methods are ISO 9001 approved and based on NIST standards.

Factory Upgrades — Any unit returned for a hardware feature enhancement will also receive applicable product updates and will be thoroughly tested, ensuring peak performance of the complete feature set.

Additional repair, calibration and upgrade services are available for purchase through Global Services and Solutions (see "Product support" on page 45).

Equipment return instructions Please contact your local Customer Care location via telephone or web site for Return or Reference Authorization to accompany your equipment. For each piece of equipment returned for repair, attach a tag that includes the following information:

– Owner's name, address, and telephone number.

– The serial number, product type, and model.

– Warranty status. (If you are unsure of the warranty status of your instrument, contact JDSU Customer Care.)

– A detailed description of the problem or service requested.

– The name and telephone number of the person to contact regarding questions about the repair.

– The return authorization (RA) number (US customers), or reference number (European Customers).

If possible, return the equipment using the original shipping container and material. If the original container is not available, the unit should be carefully packed so that it will not be damaged in transit; when needed, appropriate packing materials can be obtained by contacting JDSU Customer Care. JDSU is not liable for any damage that may occur during shipping. The customer should clearly mark the JDSU-issued RA or reference number on the outside of the package and ship it prepaid and insured to JDSU.

Warranty information The warranties described herein shall apply to all commercially available JDSU products. Any additional or different warranties shall apply only if agreed to by JDSU in writing. These warranties are not transferable without the express written consent of JDSU.

Software Warranty — JDSU warrants that Software Products licensed to Customer shall, under normal use and service, and for a period of ninety (90) days from the date of shipment of the Software to Licensee (the "Warranty Period"), perform in all material respects in accordance with the published specifications for such Software as established by JDSU. However, JDSU does not warrant that the Software

will operate uninterrupted or error free, operate in the combination with other software, meet Customer's requirements, or that its use will be uninterrupted.

JDSU's obligation and Customer's sole and exclusive remedy under this Software Warranty is limited to, at JDSU's option, either (i) correcting the material errors reported to JDSU in writing by Customer during the Warranty Period and which JDSU is able to reproduce, (ii) replacing such defective Software, provided that JDSU received written notice of such defect within the Warranty Period, or (iii) provided that JDSU received written notice of such defect within the Warranty Period, terminating the License and, upon return to JDSU of the Software, Documentation and all other materials provided by JDSU under the applicable License, providing Customer with a refund of all charges paid with respect thereto. JDSU shall have no warranty obligations hereunder if (a) the Software is altered or modified or is merged with other software by Customer or any third party or (b) all or any part of the Software is installed on any computer equipment other than the Designated Server or used with any operating system for which the Software is not designed.

Services Warranty — JDSU warrants that the Services provided by JDSU, if any, shall be performed promptly, diligently and in a professional manner in accordance with the commercial standards of the industry. JDSU shall not, however, be responsible for any delays that are not due to JDSU's fault or negligence or that could not have reasonably been foreseen or provided against.

WARRANTY DISCLAIMER — FOR HARDWARE, SOFTWARE, AND/OR SERVICES FURNISHED BY JDSU, THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTEES AND CONDITIONS, EXPRESS OR IMPLIED. JDSU SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, ON ANY HARDWARE, SOFTWARE, DOCU-

MENTATION OR SERVICES INCLUDING BUT NOT
LIMITED TO WARRANTIES RELATING TO QUALITY,
PERFORMANCE, NONINFRINGEMENT, MERCHANT-
ABILITY OR FITNESS FOR A PARTICULAR PURPOSE,
AS WELL AS THOSE ARISING FROM ANY COURSE OF
DEALING, USAGE OR TRADE PRACTICE. UNDER NO
CIRCUMSTANCES WILL JDSU BE LIABLE FOR ANY
INDIRECT OR CONSEQUENTIAL DAMAGES RELATED
TO BREACH OF THIS WARRANTY.

Global services and solutions

Global Services and Solutions markets a broad portfolio of
services to enable customers to aggressively build their
competitive advantage within the markets they serve.
Global Services and Solutions innovative offerings
respond to our customers' dynamic needs:

– System deployment and field engineering services
– Technical training
– Product support
– Consulting
– Custom software development
– Integrated service programs

Additional information can also be found on our web site
under Services.

System deployment and field engineering JDSU offers a range of support services for our centralized
test systems, designed around the needs of the
customer's network. Field engineering and deployment
services provide a variety of options for implementing the
test system into the network.

Deployment — Thorough deployment process covers the
initial site survey through hardware and software installa-
tion, allowing rapid integration of systems product into
customers' environment without the use of their own

resources. Deployment includes survey, configuration, installation of hardware and software, site planning, cabling, acceptance testing, staging, certification and system documentation.

Basic Service for Systems — In today's fast-paced world of communications, network operators are deploying increasingly complex communications test and management systems. JDSU's Basic Service for Systems is designed to provide the system experts, support and methodologies to facilitate the integration of systems products into customers' environments. Basic Service for Systems encompasses system deployment, training, software upgrades, technical assistance and repair. This service is subject to availability, please visit www.jdsu.com or contact Customer Care for additional information.

Training JDSU delivers training in instructor-led or alternative learning formats that are flexible, convenient, and timely. Our training solutions portfolio consists of network-specific test and management tools for optical transport, cable, access, data, and wireless environments.

Instructor-led **Public courses (JDSU sites)**
training: Public courses help participants quickly acquire fundamental skills or broaden their communications knowledge with advanced instruction. Our courses deliver the ideal mix of theory and practice.

On-site training (Customer site)

JDSU provides practical, customized instruction at the customer's designated site. Whether your goal is to shorten turn-up times or increase operation-wide efficiency, on-site training can be a cost-effective way to train from one to 10 participants. Prior to training, the instructor contacts the customer to ensure the course content is aligned with the organization's training needs. We conduct

step-by-step reviews of current technologies and products to help both new and experienced technicians translate theory into practical, hands-on expertise.

When scheduling an on-site course, please note that JDSU requires a minimum commitment of two consecutive days of training. Courses that are only one day in duration may either be paired with another course for a minimum total of two training days, or presented on two consecutive days to different groups of participants.

Alternative learning: **Courseware licensing program and train-the-trainer**

Recommended for customers with internal training departments, JDSU's Courseware Licensing Program is a fast, affordable alternative that allows our customers to train their own staff using JDSU's courseware. Each course provides comprehensive instructor and participant materials to ensure consistent content delivery for the length of the agreement. A critical part of Courseware Licensing is the Train-the-Trainer program, which prepares the organization's own instructors to deliver JDSU training courses. Courseware Licensing is sold in increments of one, two, or three years.

Computer-based training (CBT)

By blending learning with technology, JDSU's CBT program provides our customers with a cost-effective way to learn technology fundamentals and product applications. Topics include ATM, Frame Relay, ISDN, LAN Basics, Fiber Optics, and more. CBTs are designed to complement both public and on-site training; they can serve to prepare students for classroom JDSU courses or be used after instructor-led training to reinforce learning. In addition to our pre-packaged CBTs, JDSU custom-develops CBTs to meet your organization's training needs.

To enroll in a course or for more information on the variety of JDSU training programs available, call 1-800-638-2049 or visit www.jdsu.com and complete the Training Requirement Form.

Product support To continue repair, maintenance and upgrades after a product's warranty expires, JDSU offers a variety of product support plans.

FleetCare — Designed for customers with ten or more JDSU products, FleetCare extends each product's initial factory warranty to include repair parts, labor and one-way shipping. FleetCare allows customers to upgrade the base package with a variety of options, including Calibration Plans, Calibration Plan with Manager, Loaners, 7x24 Technical Assistance and Software Enhancement Agreements.

Software Enhancement Agreements — In response to new developments in technology, JDSU continually upgrades and revises the software that drives many of its products. Software Enhancement Agreements automatically ships the latest software revisions, releases and upgrades to ensure products are operating at the most technologically advanced level.

Product Maintenance Agreements — Yearly repair and calibration maintenance agreements simplify billing and help ensure equipment is always operating at optimum levels. Product maintenance agreements can be used to extend a current warranty or provide protection for out-of-warranty units.

Repair Pricing Options — For out-of-warranty repairs, JDSU offers two additional pricing options: time and material pricing and flat rate pricing. Under time and material pricing, customers are billed for the actual cost of the repair, making this a cost-effective method for minor

repairs. Under flat rate pricing, customers pay a fixed service charge to repair unit failures (excluding damage or abuse).

Consulting services To quickly improve our customer's efficiency and productivity, JDSU offers personalized consulting programs designed to meet specific client needs. Our consulting staff will work as part of your team, providing a valuable blend of subject matter proficiency, an in-depth test and measurement systems perspective, and trusted telecommunications industry vision.

Methods and Procedure Development — JDSU's Methods and Procedure Development services include consulting with your staff and assessing your network plant's current test and turn-up procedures. After evaluating the skill level of your workforce in specific technologies and procedures, a JDSU team of experts identifies potential areas of improvement and makes appropriate recommendations in a formal implementation plan. Depending on your staff's level of expertise, test procedures can be written to any level of detail, from general methods and procedures to detailed "button-by-button" test and network equipment-specific procedures. In addition, JDSU's experts offer hands-on training for your field technicians and can resolve specific problems at the central office. JDSU develops test plans and procedures for Service Providers, End-users and Manufacturers of Network Equipment.

Test Automation — With JDSU's Test Automation Development, a team of experts can develop customized automated and remote testing solutions so that you can keep your network functioning at peak levels. After consulting with you, the JDSU team can determine which of JDSU's test and analysis equipment and automation platforms can best streamline your testing processes, data analysis, and test result storage methods. The consulting team can develop and integrate automated testing applications on customers' currently installed computer platforms that

match existing methods and procedures. A JDSU team of consultants can assist customers throughout every stage of the development and implementation of automated and remote testing solutions. Services range from developing automated scripts to integrating customized software applications to developing drivers to automated manufacturing tests.

On-site Test and Measurement Service — JDSU On-site Test and Measurement Service provides testing expertise to expedite the implementation, turn-up, and provisioning of network services. Applying their knowledge to your specific network requirements, JDSU's network consultants can quickly verify transmission systems' implementation, assess a fiber plant's suitability for advanced services, future-proof your system. Because incomplete testing often results in crippling losses of revenue, carriers and providers must operate their networks with a very low margin of error. Difficulties in ensuring network performance are further compounded when technicians must employ unfamiliar yet critical test and measurement processes. But with JDSU's dedicated, highly skilled team of professionals providing communications test and measurement solutions, your staff can concentrate on performing value-added services that will maximize your profitability.

Integrated service programs

Service Dollars (North America only) — To deliver the highest level of support with your product purchase, JDSU offers Service Dollars. Services Dollars can be purchased at anytime, for each JDSU instrument. If purchased at the same time as your product, Service Dollars are discounted 20 percent. This is a significant savings, as Service Dollars can be used towards the purchase of any of Global Services and Solutions offerings. Service Dollars are also flexible in the fact that they can be purchased at anytime and then used later towards the specific service that best fits your support needs.

JDSU