

User Manual



**NetTek YBT1
T1 Circuit Tester
070-9964-00**

This document supports firmware version 1.1
and above.

www.tektronix.com

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.



WARNING. To avoid injury, do not connect this product to any source which may be subject to the effects of lightning. See page 1–12 for complete information.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Use only the power cord specified for this product and certified for the country of use.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Replace Batteries Properly. Replace batteries only with the proper type and rating specified.

Recharge Batteries Properly. Recharge batteries for the recommended charge cycle only.

Use Proper AC Adapter. Use only the AC adapter specified for this product.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Wear Eye Protection. Wear eye protection if exposure to high-intensity rays or laser radiation exists.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in an Explosive Atmosphere.

Safety Terms and Symbols

Terms in This Manual. These terms may appear in this manual:



WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.



CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. These symbols may appear on the product:



CAUTION
Refer to Manual

Battery Recycling

This product contains a Lithium-Ion battery, which must be recycled or disposed of properly. For the location of a local battery recycler in the U.S. or Canada, please contact:

RBRC
Rechargeable Battery Recycling Corp.
P.O. Box 141870
Gainesville, Florida 32614

(800) BATTERY
(800) 227-7379
www.rbrc.com



Preface

This manual contains set up and operating instructions for the NetTek YBT1 T1 Circuit Tester.

About This Manual

This manual is divided into four sections: *Getting Started*, *Operating Basics*, *Reference*, and *Appendices*.

The *Getting Started* section explains how to install and start up your T1 Circuit Tester.

The *Operating Basics* section explains how to operate the tester.

The *Reference* section explains how to perform tests.

The *Appendices* contain reference information you might need occasionally, such as specifications or diagnostic procedures.

Online Help Information

The NetTek YBT1 T1 Circuit Tester contains online help to enable you to quickly get explanations on how to operate the tester. The online help is the first place you should look for information.

The NetTek YBT1 is based on the Y350 NetTek Analyzer Platform. You will find important information about configuring and operating the NetTek Analyzer Platform in the Y350 *NetTek Analyzer Platform User Manual*, Tektronix part number 071-0805-XX. Additionally, the analyzer platform supplies its own built-in online help.

Conventions

The statement **Start > Help** is requesting that you open the Start menu and select Help. To do this, tap the **Start** button in the toolbar at the bottom of the desktop window; then tap **Help** in the resulting menu.

Software Version

This manual supports T1 Circuit Testers running software Version 1.1 and above.

To verify your software version, do the following:

1. In the toolbar at the top of the startup screen, select **Tools**.
2. Select **Software Info**.

Contacting Tektronix

Phone	1-800-833-9200*
Address	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com
Sales support	1-800-833-9200, select option 1*
Service support	1-800-833-9200, select option 2*
Technical support	Email: techsupport@tektronix.com 1-800-833-9200, select option 3* 6:00 a.m. – 5:00 p.m. Pacific time

* This phone number is toll free in North America. After office hours, please leave a voice mail message. Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.



Getting Started

Getting Started

This section contains the information you need to set up the NetTek YBT1 T1 Circuit Tester:

- Installing software
- Assembling the product
- Installing the PC card
- Starting the software
- Performing a functional check

Product Description

The NetTek YBT1 T1 Circuit Tester is part of the NetTek BTS Field Tool family: a high-performance, portable, field-ready tester, optimized for rapid trouble shooting and base station performance verification.

The NetTek YBT1 compliments the functionality of the YBT250 NetTek Field Transmitter and Interference Tester module, which operates on the Y350 NetTek Analyzer Platform.

Use the NetTek YBT1 to ensure the proper operation of T1 data lines by verifying synchronization, line framing, bit errors, and other important characteristics. The NetTek YBT1 circuit tester can perform measurements on both in-service and out-of-service networks, in order to support communications industry customer requirements.

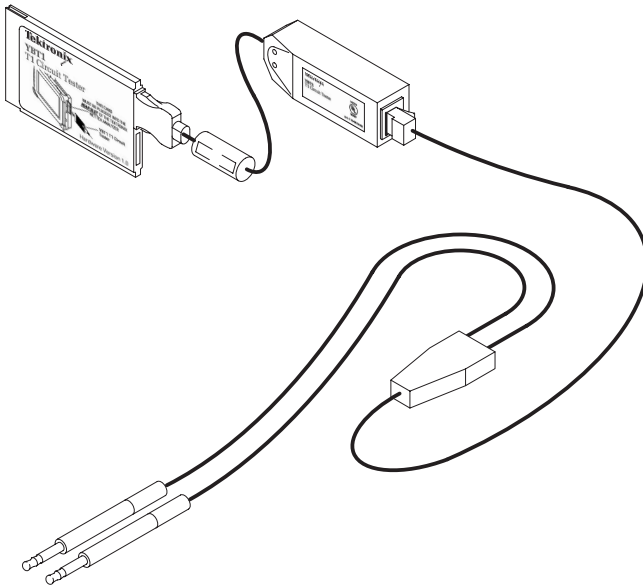


Figure 1-1: The NetTek YBT1 T1 Circuit Tester

Product Features

The NetTek YBT1 T1 Circuit Tester features include the following;

- Standards and technology compliance: T1.402, T1.403, G.703
- Line coding compatibility: AMI, B8ZS
- Frame format compatibility: D4 Superframe and ESF
- Connection configurations: single-port monitor, bridge, terminate, receive-to-transmit loopback
- Transmission timing: internal or recovered
- DS0 Drop: visual display of ones density
- Error insertion: single bit error, single bipolar violation (BPV), single frame error, single cyclic redundancy check (CRC) error


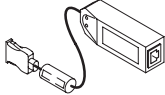
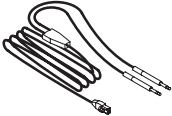


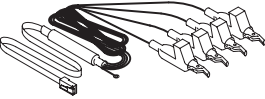
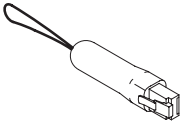

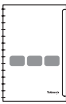
- Error detection: bit errors, bit-error rate, frame errors, bipolar violations, cyclic redundancy check errors, errored seconds
- Alarm reporting: carrier loss, frame loss, pattern synchronization loss, AIS/Blue, RAI/Yellow, excessive zeros, ones density failure
- Status indicators: T1 pulses, frame synchronization, BERT (Bit Error Rate Test) pattern synchronization, B8ZS line coding
- Counters: BERT pattern errors, bipolar violations, frame errors, CRC errors
- Bit Error Rate Test patterns: QRSS, All Zeros, All Ones, 1-in-7, 2-in-8, 3-in-24, T1-1 (Min/Max), T1-2 (Trip Test), T1-3 (54-Octet), T1-4 (120 Octet), T1-5 (53 Octet), T1-6 (55 Octet)
- User-definable transmit levels
- Line impedance: monitoring (100 Ω), terminating (100 Ω), bridging (1 k Ω)
- Automated testing: frame mode detection, line coding detection, CRC-6 error sensing, timed test, BER-pattern sequence

Components and Accessories

Table 1–1 contains general information on YBT1 T1 Circuit Tester components and accessories.

For a complete list of standard and optional accessories, see *Appendix B*, beginning on page B–1.

Table 1-1: Components and accessories

	<p>YBT1 PC Card. Acts as the product platform and provides a T1 digital interface to the Y350 NetTek Analyzer Platform. See page B-1 for replacement information.</p>
	<p>T1 Line Interface. Adapts the PC card interface to RJ48 test cables. See page B-1 for replacement information.</p>
	<p>RJ48-to-Bantam Y Cable. Provides a RJ48-compatible connection between the T1 Line Interface and a DSX patch panel. See page B-1 for replacement information.</p>
	<p>RJ48-to-RJ48 Straight-Wired Cable. Provides a RJ48-compatible connection between the T1 Line Interface and base station equipment. See the list of optional accessories on page B-2 for ordering information.</p>
	<p>RJ48-to-RJ48 Cross-Wired Cable. Provides a RJ48-compatible connection between the T1 Line Interface and the base station NIU (Network Interface Unit). See the list of optional accessories on page B-2 for ordering information.</p>
	<p>RJ48-to-Alligator Clip Cable. Provides a connection between the T1 Line Interface and the internal wiring of base station equipment. See the list of optional accessories on page B-2 for ordering information.</p>
	<p>RJ48 Loopback Plug. Connects the NetTek YBT1 receive input to the NetTek YBT1 transmit output when plugged into the T1 Line Interface. Required to run the diagnostic self tests. See page B-1 for replacement information.</p>
	<p>Installation Software CD-ROM. Installs NetTek YBT1 software on the Y350 NetTek Analyzer Platforms from a desktop computer. See page B-1 for replacement information.</p>
	<p>User Manual. Provides set up and basic operating information. (The CD-ROM is packaged inside the user manual.) See page B-1 for replacement information.</p>

Installing NetTek YBT1 Software

If you purchased your Y350 NetTek Analyzer Platform and NetTek YBT1 directly from Tektronix, the T1 Circuit Tester software is already installed and ready to operate.

NetTek YBT1 Field Tool Software Purchased Separately

If you purchased NetTek BTS Field Tools previously and are adding the NetTek YBT1 T1 Circuit Tester, follow the procedure on page D-1 to install the NetTek YBT1 software on the Y350 NetTek Analyzer Platform.

Software Upgrades

To upgrade or reinstall NetTek YBT1 software on the Y350 NetTek Analyzer Platform, follow the procedure on page D-1.

Assembling the PC Card and Line Interface

1. Connect the PC card to the T1 Line Interface. See Figure 1-2.
2. Connect the RJ48 cables suited to your test to the line interface.

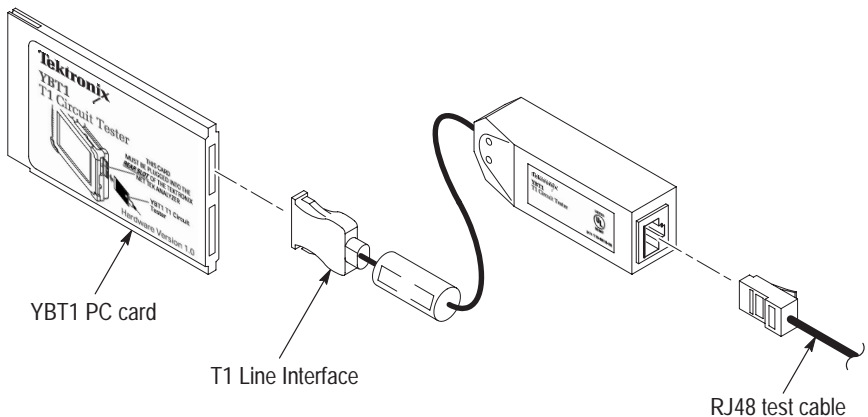


Figure 1-2: Assembling the NetTek YBT1

Installing the PC Card

Use the following procedure to install the NetTek YBT1 PC card in the Y350 NetTek Analyzer Platform.



CAUTION. *To meet the electromagnetic emissions standards specified for this product, install the NetTek YBT1 PC card in the rear slot of the NetTek Analyzer Platform as shown in Figure 1–3. In addition, do not install any other PC card while using the NetTek YBT1 card.*

1. Place the NetTek Analyzer Platform on a flat surface with the touch-screen display facing towards you.
2. Open the PC card access door on the right side of the analyzer. See Figure 1–3.
3. Slide the PC card into the rear PCMCIA slot as shown in Figure 1–3. Make sure the Tektronix side of the label faces toward the display.
4. Press in firmly to seat the PC card connector.
5. To release the card later, press the button at the top of the card slot.

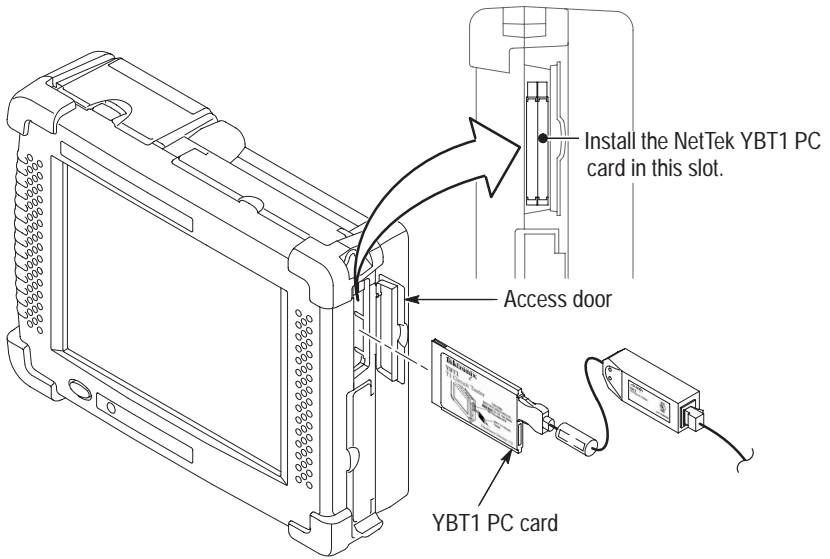


Figure 1-3: Installing the PC card

Securing the Cables

To prevent damage to the PC card and line interface connections by overextending the cables, you may want to secure the line interface to the side of the Y350 NetTek Analyzer Platform with the included Velcro strips. See Figure 1–4.

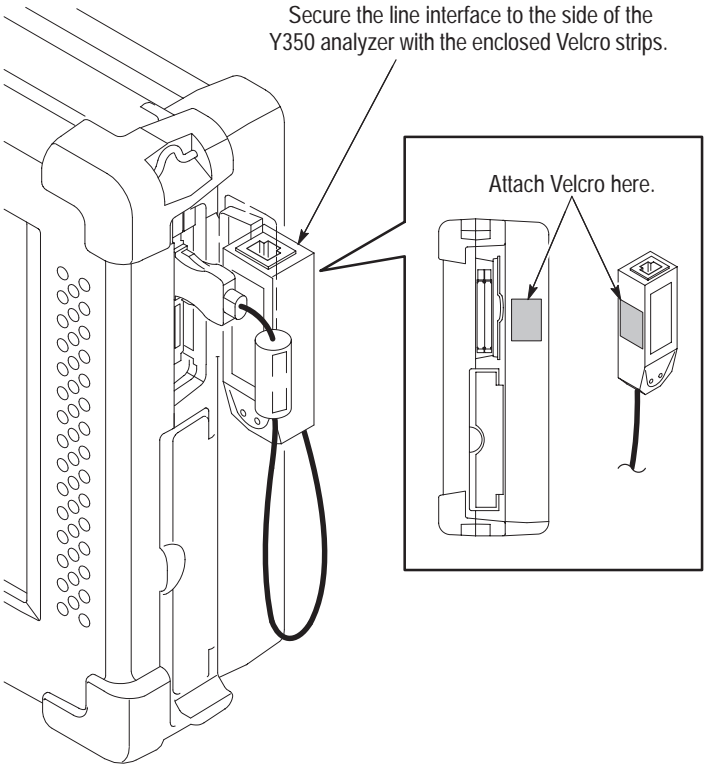


Figure 1–4: Attaching the line interface to the Y350 NetTek Analyzer Platform

Powering on the Tester

Press the large blue oval button in the lower-left corner of the Y350 NetTek Analyzer Platform. The power status indicator illuminates immediately. Allow approximately one minute for the analyzer platform to complete the power-on sequence.

Starting the NetTek YBT1 Software

You have the following options to start up the NetTek YBT1 measurement software:

- Double-tap the **YBT1** application icon on the NetTek Analyzer Platform desktop if present. The shortcut icon must be previously user created or set up at the factory.
- Select **Start > Programs > NetTek > YBT1** in the taskbar.
- Depending on the configuration of your NetTek Analyzer Platform, the T1 Circuit Tester software may start up automatically at power on.

Performing a Functional Check

Following installation and start up of the NetTek YBT1 software, perform the following procedure to verify that the T1 Circuit Tester is functioning properly.

1. Insert the RJ48 Loopback Plug into the T1 Line Interface as shown in Figure 1–5.
2. Perform the diagnostic tests on page C–1.

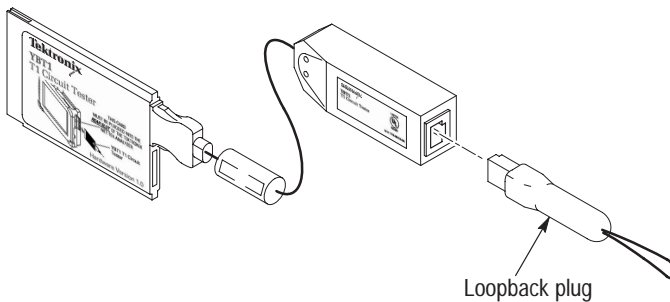


Figure 1–5: Inserting the Loopback Plug into the T1 Line Interface

Powering Off the Tester

The NetTek YBT1 has separate, interrelated, standby and power off functions.

Suspend Mode

Use Suspend mode to place the NetTek YBT1 in a suspended (standby or sleep) state. This is the typical power down mode that allows the NetTek YBT1 software to remain in volatile memory. If the NetTek YBT1 remains in Suspend mode for an extended time (approximately two hours), it will automatically enter Shutdown mode.

To suspend NetTek YBT1 operations, choose one of the following methods:

- Press the front-panel power switch.
- Select **Start > Shutdown**. In the Shut Down dialog box, select **Suspend**.

To cancel Suspend mode and wake up the NetTek YBT1, press the front-panel power switch. The NetTek YBT1 will return to the operating state that existed before suspend mode was evoked.

Shutdown

To completely power down the NetTek YBT1, do the following:

1. Select **Start > Shutdown**.
2. In the Shut Down dialog box, select **Shutdown**.

The next time you press the front-panel power switch, the NetTek YBT1 will cycle through the complete power up process taking approximately two to three minutes to power up.

Restart (Software Reset)

To reset the NetTek YBT1 software:

1. Select **Start > Shutdown**.
2. In the Shut Down dialog box, select **Restart**.

The display blanks for approximately five seconds. The NetTek YBT1 software will reload and start up.

Understanding the Power Switch

Depending on the current state of the NetTek YBT1, pressing the front-panel power switch performs one of the following functions:

- If the NetTek YBT1 is shut down: powers on the instrument.
- If the NetTek YBT1 is operating: initiates Suspend mode.
- If the NetTek YBT1 is in Suspend mode: cancels Suspend mode and activates the NetTek YBT1.

- If the NetTek YBT1 is in PowerSaver mode (touch-screen display off): activates the display.

Preventing Personal Injury from the Effects of Lightning



WARNING. To prevent personal injury from the effects of lightning, exercise the following precautions when using this product.

Before connecting this product to any source

- Be sure there is no lightning in your vicinity.
- Check your local weather forecast for the possibility of thunderstorms or lightning.
- If weather conditions could allow thunderstorms or lightning to develop, be sure to visually check the sky and weather conditions in your area frequently.
- If you hear thunder or see lightning, do not connect this product to any source that may be exposed to the effects of lightning.
- Use your own good judgement and common sense. You must protect yourself from the effects of lightning.
- You must assume that hazardous voltages will be present on exposed surfaces of this product if it is connected to a source exposed to lightning. The insulation of this product will not protect you from these hazardous voltages.

Do not connect this product to any source that might be subject to the effects of lightning

If thunderstorms or lightning are in your vicinity:

- When weather conditions that could lead to lightning activity exist in your area, ***you could be at risk of a lightning strike*** before the cloud is close enough for you to hear thunder or see lightning.

- When lightning strikes a structure or facility, current travels through the rebar, concrete, pipes, cables, vent stacks, and electrical system.
- Lightning can induce electric and magnetic fields into structures and portions of wiring. The length of a conductor affected by the magnetic field of a lightning strike may exceed two miles.

Be alert and aware of the effects of lightning

- When lightning strikes a conductor, which in turn introduces current into an area some distance from the ground strike point, ***equipment can be damaged and personnel injured*** if they become an indirect path in the completion of the ground circuit.
- Conductors such as the braided shields of cables or unshielded wire, will have significant transient currents flowing in them in regions exposed to the electric field effect of lightning.
- Induced voltages may cause breakdown of insulation in wiring at connectors and in electrical components, or breakdown of air.



Operating Basics

Operating Basics

This section contains the basic information you need to operate the NetTek YBT1 T1 Circuit Tester:

- Identifying the front-panel controls
- Navigating the desktop
- Entering text with the soft keyboard
- Getting help
- Understanding the test windows

Overview

The NetTek YBT1 is a member of the Tektronix NetTek Series of modular instruments based on the NetTek Analyzer Platform. A NetTek Series instrument consists of a hardware module, application software, and the Y350 NetTek Analyzer Platform. NetTek Series instruments, such as the NetTek YBT1, can be purchased with or without a NetTek Analyzer Platform.

The NetTek Analyzer Platform is a specialized Windows CE-based computer. The platform provides the power source and display for NetTek Series instruments. A hardware module for each NetTek Series instrument provides the circuitry and the associated software provides the instrument interface and analysis capability.

The NetTek YBT1 is equipped with a touch-screen display and stylus. Use the stylus as you would the mouse on your desktop computer. You can select an object by tapping it, move it by dragging it, or activating it by double-tapping it.



CAUTION. Only use soft objects, such as plastic or your finger, to tap the touch-screen display. Do not use metal or other abrasive materials as they will damage the display surface.

Identifying Front-Panel Controls and Indicators

The front-panel controls power the NetTek Analyzer Platform on and off, reset the analyzer, and indicate operating status.

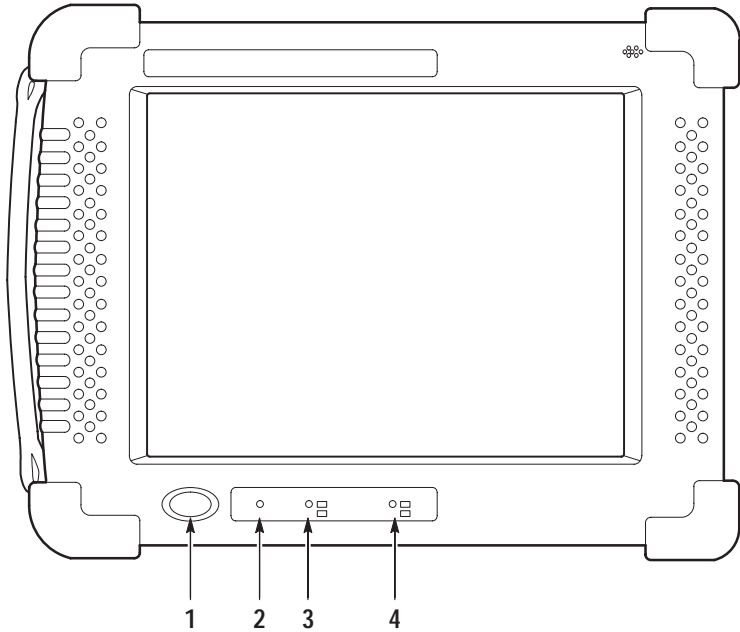


Figure 2-1: NetTek Analyzer Platform front-panel controls and indicators

1. **Power/Suspend Switch.** Push on; push off. See pages 1–9 and 1–10 for additional information.
2. **Reset Switch.** Push to perform a hardware reset if the tester locks-up. Programs and other data loaded into volatile memory since startup will be lost.

3. **Status Indicator.** Green indicates power on. Amber indicates display off PowerSaver mode.
4. **Batteries Indicator.** Green indicates the instrument is connected to an external power source and charging an installed battery. Red indicates a low battery.

Navigating the Desktop

The NetTek Analyzer Platform desktop is your primary workspace. Use the desktop to configure hardware and software, adjust settings, establish communications, and access application software.

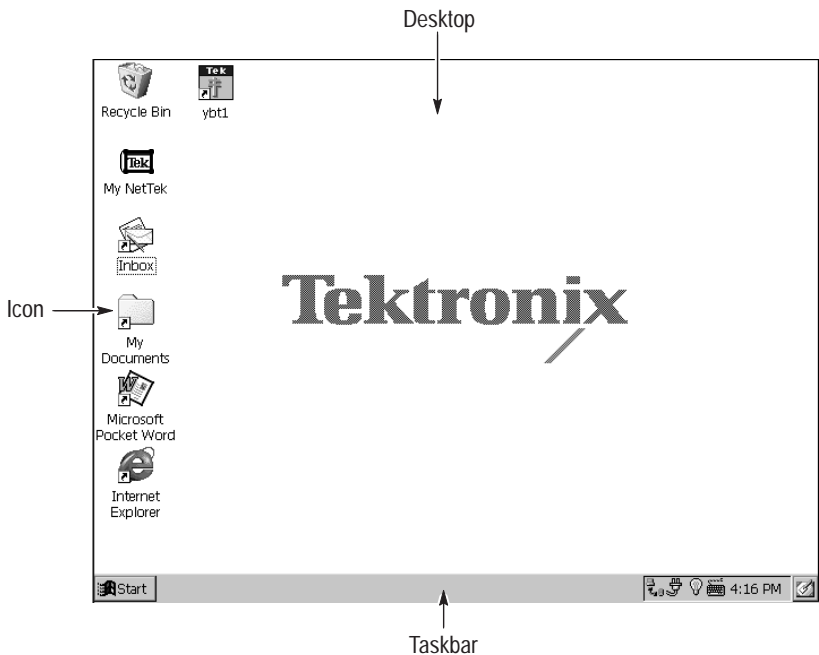


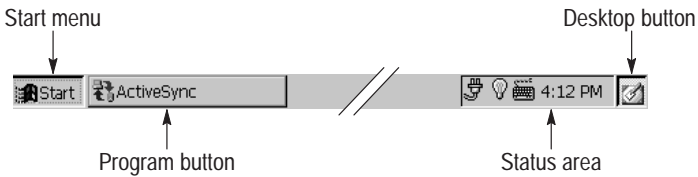
Figure 2–2: The NetTek Analyzer Platform desktop

Icons

Double-tap desktop icons to open folders or to start programs.

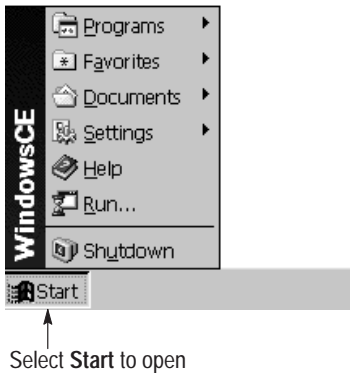
Taskbar

The Taskbar contains the Start menu, buttons to identify the programs you are running, a status area, and a desktop icon.



Start Menu. Use the Start menu to load and run instrument modules and other programs, access settings, open documents, and obtain help. Select (tap) **Start** to open the menu; then select the entry you want.

For detailed information on Start menu selections, see the *Y350 NetTek Analyzer Platform User Manual*.









Desktop Button. Tap the desktop icon to minimize all running programs and display the desktop.

Program Buttons. To hide a program that is running, select its taskbar button. To restore the program, select the button again.

Status Area. Icons and buttons appearing in this area indicate status, activate features, or open settings windows. Double-tap the icons for further information.

Table 2–1 explains the function of some common status icons. For a complete list and explanation of all status area icons, refer to the NetTek Analyzer Platform online help. Select **Start > Help**. In the Help window select **Windows CE Basics**; then select **Understanding Taskbar Icons**.

Table 2–1: Status area icons

Tap icon	To	Details
	Double-tap to open the Power Management utility.	The analyzer is operating on external AC power.
	Double-tap to open the Power Management utility.	The analyzer is charging batteries.
	Double-tap to open the Power Management utility.	The analyzer is operating on battery power. Also indicates charge level.
	Double-tap to open the Backlight utility.	Adjust the backlight brightness.
	Single-tap to open the Input Panel soft keyboard.	Single-tap to close the keyboard.
	Double-tap to open the Date/Time utility.	Set the date and time.

Entering Text

Use the NetTek Analyzer Platform soft keyboard to type characters into text boxes or address fields without using an external keyboard.

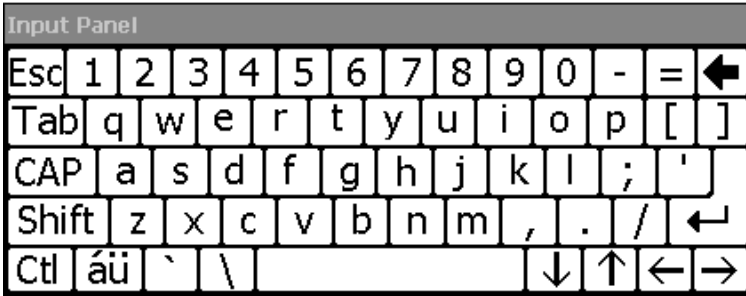




Figure 2-3: Soft keyboard

1. Tap the  icon in the toolbar status area.
2. Tap the Input Panel keys to enter text.
3. Tap  (RETURN) to wrap text or execute a command.
4. Tap the keyboard icon to close the keyboard.


To set soft keyboard properties, select **Start > Settings > Control Panel**. Open the Input Panel icon, and then select **Options**.

Special Characters

The soft keyboard includes characters not visible on the startup keyboard.

CAP Key. Tap the **CAP** (lock) key to create all capital letters and common characters.

Shift Key. Tap the **Shift** key to create a single capital letter or common character.


AU Key. Tap the  key to create special characters.

Getting Help

To open the Help Contents menu on the Y350 NetTek Analyzer Platform, select **Start > Help** in the Taskbar.

To open the Help window and obtain information on T1 Circuit Tester topics, select **Help** from the Start menu; then select **NetTek YBT1 T1 Circuit Tester**.

Use the following methods to obtain help while running the T1 Circuit Tester:

- Tap the  icon in the upper-right corner of the touch screen to display the top level of NetTek YBT1 help.
- Tap underlined text to display information on this topic.
- Tap the **Help** button in a dialog box, if present, to display task-specific information.

The Help Window

Table 2–2 explains how to use the Help window buttons.

Table 2–2: Help window buttons










Tap this button	To
 All Topics	Display the NetTek Analyzer Platform main table of contents.
 Back	Return to the previous help screen.
 Contents	Display the current program or local table of contents.
	Display full-screen help text.
	Display the help text in its own window. Tap and drag the Help window title bar to move the window.
	Close the Help window. To reopen the window, tap the Help icon in the taskbar.
	Close the Help window and quit help.

Table 2-2: Help window buttons (Cont.)

Tap this button	To
	Scroll the text towards the bottom of the screen.
	Scroll the text towards the top of the screen.

Using the Main Controls

Figure 2-4 shows the common controls used in the test windows.

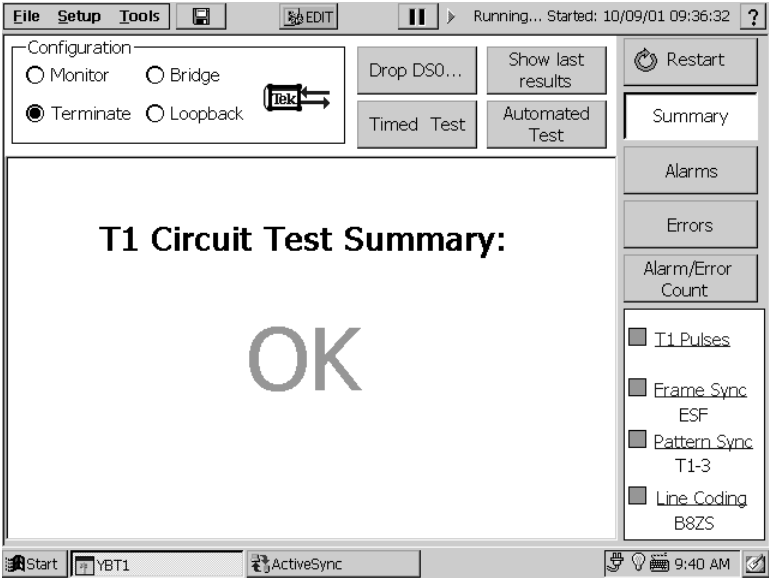










Figure 2-4: NetTek YBT1 main controls

Toolbar Buttons

Table 2–3 shows the toolbar buttons and explains their function.

Table 2–3: Toolbar icons


Tap this icon	To	Details
	Open the File menu	Save or export results and screens; exit the software.
	Open the Setup menu	Edit settings; access or save user data; return to factory default settings.
	Open the Tools menu	Configure option settings; open the keyboard; calibrate the touch screen; upgrade a module; obtain hardware and software version information.
	Save results	Save current results to default file location. ¹
	Open the instrument Settings window	Configure instrument settings. See page 3–8.
	Pause a test	Allows viewing or capture of results screens. ²
	Resume a test	
	Open the help window	Obtain NetTek YBT1 help.


¹ BuiltInDisk\YBT1\Results.


² Data collection continues while screen is paused.

Configuration Buttons


Select a button for the type of circuit connection you want to make. For detailed information on connecting the NetTek YBT1 to a signal, see page 3-1.

 **Monitor.** Selecting Monitor provides a nominal 100 Ω input impedance and compensates for the 20 dB resistive loss of a DSX monitor port. This setting is useful for in-service monitoring of T1 lines at DSX monitor ports that are resistor-isolated. The YBT1 transmitter is disabled in Monitor mode.

 **Bridge.** Selecting Bridge provides greater than 1 Ω k input impedance for bridging lines that are already terminated. This setting compensates for cable loss of up to 10 dB. The YBT1 transmitter is disabled in Bridge mode.

 **Terminate.** Selecting Terminate provides a nominal 100 Ω input impedance. This setting compensates for up to 10 dB of cable loss for T1 lines. This setting is useful for out-of-service termination of a T1 circuit during testing.

Terminate mode enables the YBT1 transmitter for error insertion testing.

 **Loopback.** Selecting Loopback provides a nominal 100 Ω input impedance and compensates for up to 10 dB of cable loss for T1 lines. Loopback performs measurements on the received data while looping the payload data from the receiver to the transmitter. Loopback is useful when testing from the far end of a T1 line.

Drop DS0 Button

Opens the DS0 Activity Graph. This view displays the data activity for each of the T1 time slots. Activity is indicated as percentage ones-density in the each time slot, represented as a unique color ranging from all zeros through all ones in 10% increments.

Each row of the display represents a user-defined period of time. Over multiple time periods, the display builds up row-by-row with the oldest row dropping from the top of the view as the newest row is added to the bottom.

Show Last Results Button

Returns the test results history that has accumulated since the last time you selected the Restart button. You can use most of the tester controls to walk through the logged data.

Timed Test Button

Opens the Timed Test window. Use this window to define the length of time to run the tester for a controlled test.

Automated Test Button

Opens the Automated Test window. Use this window to select and run a preset test pattern sequence.

Restart Button

Select this button to reset all of the current measurement status and history, including error and alarm counts. If any instrument setting is configured for “Same as Rx Signal”, a Restart will initiate the receiver detection algorithm for the selected setting(s).

***NOTE.** If you accidentally selected Restart and want to return the previous test results, select **Saved Last Results**.*

Summary Button

Select this button to open the Summary window. See page 2–14 for detailed information.

Alarms Button

Select this button to open the Alarms window. See page 2–15 for detailed information.

Errors Button

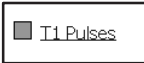
Select this button to open the Errors window. See page 2–17 for detailed information.

Alarm/Error Count Button



Select this button to open the Alarm/Error Count window. See page 2–19 for detailed information.

T1 Pulse Indicator



Identifies valid T1 pulses at the Receive input.

- Green indicates T1 pulses detected.
- White indicates the NetTek YBT1 is searching for T1 pulses.

During the search the T1 pulse indicator displays *Receiving*. If the NetTek YBT1 detects T1 pulses at a level too low to make accurate measurements, it displays *Weak Signal* and continues searching.

Frame Sync Indicator



The NetTek YBT1 identifies the framing at the Receive input and compares it with the framing selected in the Settings Instrument tab (Setup > Edit).

- Green indicates that the received framing type matches the instrument settings.
- Red with an X indicates that the received framing type does not match the instrument settings.
- White indicates that the NetTek YBT1 is searching for the framing type.

The Frame Sync Indicator always displays the type of framing detected: *D4* or *ESF*, even if it does not match the instrument settings. During the search the indicator displays *Receiving*.

Pattern Sync Indicator



The NetTek YBT1 identifies the data pattern at the Receive input and compares it with the BER pattern selected in the Settings Instrument tab (Setup > Edit).

- Green indicates that the received BER pattern matches the instrument settings.

- Red with an X indicates that the received BER pattern does not match the instrument settings.
- White indicates that the NetTek YBT1 is searching for the BER pattern type.

The Pattern Sync Indicator always displays the type of pattern detected: *QRSS*, *ALL Ones*, *All Zeros*, *1 in 8*, etc, even if it does not match the instrument settings. During the search, or if the pattern cannot be identified, the indicator displays *Receiving*.

Line Coding Indicator

The NetTek YBT1 identifies the line coding at the Receive input and compares it with the line coding selected in the Settings Instrument tab (Setup > Edit).

- Green indicates that the received line coding matches the instrument settings.
- Red with an X indicates that the received line coding does not match the instrument settings.
- White indicates that the NetTek YBT1 is searching for the line coding type.

The Line Coding Indicator always displays the type of coding detected: *AMI* or *B8ZS*, even if it does not match the instrument settings. During the search the indicator displays *Receiving*.

Instrument Settings

For information on how to modify the NetTek YBT1 instrument settings, such as line coding, framing, transmitter clock, BER test patterns, and transmitter output level, or perform specialized testing on T1 circuits, see page 3–8.

Understanding the Summary Window

This is the default window you see at startup. The Summary window reports the accumulated results since the last time you began a test or selected the Restart button. View this window to obtain general information before navigating to other windows for detailed results.

To open this window, select the **Summary** button on the right side of the display.

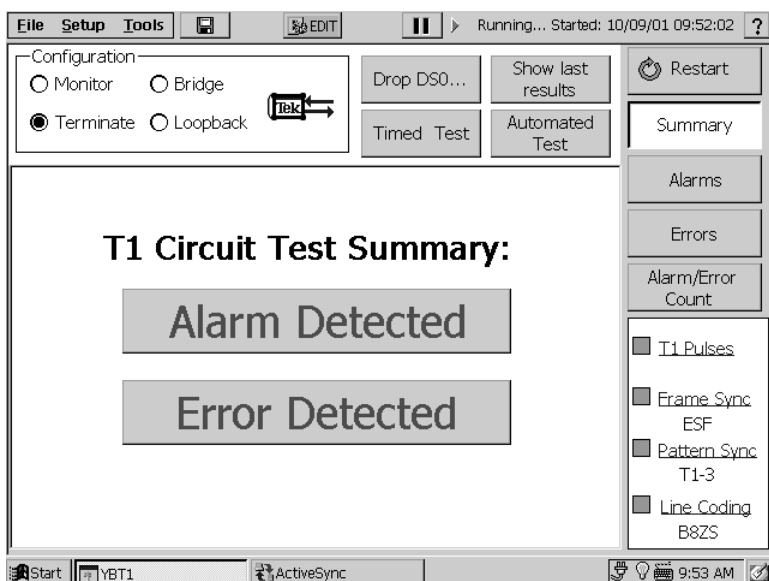


Figure 2-5: NetTek YBT1 Summary window

T1 Circuit Test Summary

This field summarizes the current test results.

OK. Indicates that no alarms or errors were detected during the test period or since the last Restart.

Alarm Detected. Indicates that an alarm was detected during the test period. Tap the alarm indicator to open the Alarm window for additional details (This is the same as selecting the Alarms button).

Error Detected. Indicates that an error was detected during the test period. Tap the Errors indicator to open the Errors window for additional details (This is the same as selecting the Errors button).

Understanding the Alarms Window

The Alarms window reports individual test results collected during the test period. View this window to obtain alarms history from the Alarms rolling display. To open to the window, select the **Alarms** button on the right side of the display.

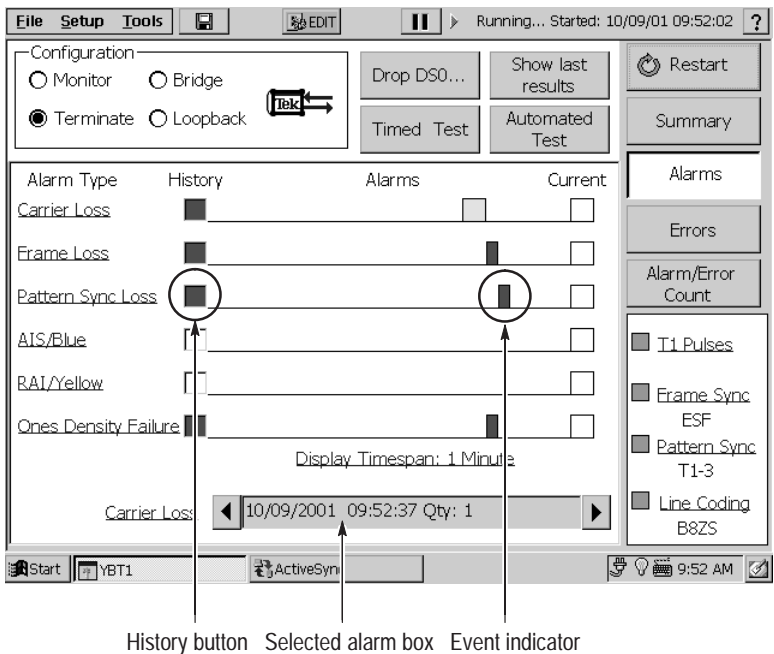


Figure 2-6: NetTek YBT1 Alarms window

History Button

Tap an Alarm Type history button to open the Test History window. View this window for detailed information on the selected alarm, including the total alarm count.

Alarms Display

The Alarms rolling display scrolls from right to left to capture alarm events in time.

Current Indicator

Red indicates that this Alarm Type is currently being detected.

Display Timespan

The timespan of the rolling displays is fixed to one minute and cannot be adjusted. Select a History button to view details of the last 100 alarms.

Selected Alarm Scroll Box

If you tap an event indicator in the Alarms rolling display, the indicator will turn yellow and information on the time, date, and number of alarms associated with the event will appear in the Selected Alarm Scroll Box.

Tap the left arrow to select the previous alarm in the same row. Tap the right arrow to select the next alarm in the same row.

Understanding the Errors Window

The Errors window reports individual test results collected during the test period. View this window to obtain errors history from the Errors rolling display. To open to the window, select the **Errors** button on the right side of the display.

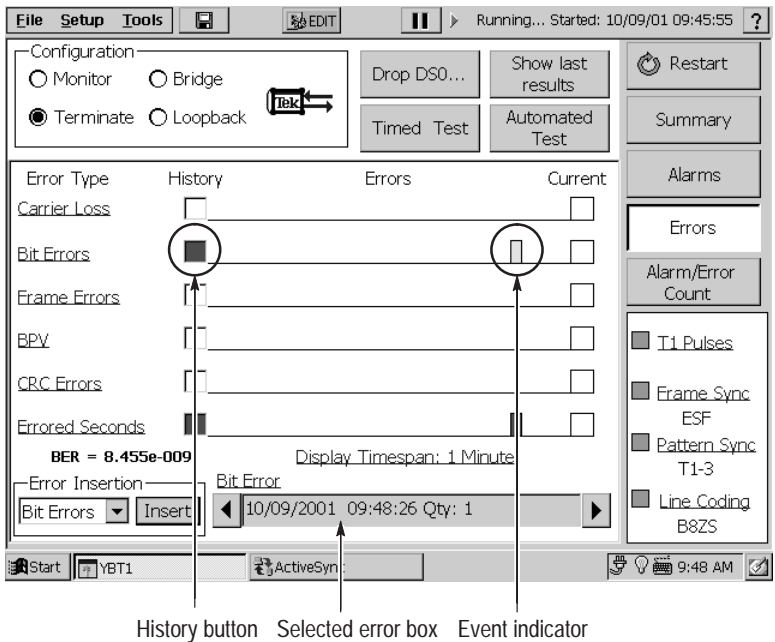


Figure 2-7: NetTek YBT1 Errors window

History Button

Tap an Error Type history button to open the Test History window. View this window for detailed information on the selected error, including the total error count.

Errors Display

The Errors rolling display scrolls from right to left to capture error events in time.

Current Indicator

Red indicates that this Error Type is currently being detected.

Display Timespan

The timespan of the rolling displays is fixed to one minute and cannot be adjusted. Select a History button to view details of the last 100 errors.

Selected Error Scroll Box

If you tap an event indicator in the Errors rolling display, the indicator will turn yellow and information on the time, date, and number of errors associated with the event will appear in the Selected Error Scroll Box.

Tap the left arrow to select the previous error in the same row. Tap the right arrow to select the next error in the same row.

BER Count

The BER = indicator (bit error rate indicator) displays the cumulative bit error rate since the last time you began a test or selected the Restart button. The reported BER is calculated on the total number of bits received while in a pattern synchronization condition.

Error Insertion List Box

To insert a single error into the NetTek YBT1 output data stream:

1. Configure the NetTek YBT1 for a Terminate connection. See page 3–4 for instructions.
2. Select an error type from the Errors Insertion drop-down list box.
3. Tap **Insert**.

The NetTek YBT1 transmits the single error immediately. You must loop the far end connection to monitor errors at the Rx (Receive) input of the NetTek YBT1.

Understanding the Alarm/Error Count Window

The Alarm/Error Count window lists test results since the last time you began a test or selected the Restart button.

View this window for detailed information on the last 100 alarms and errors, including the alarm/error type, number of occurrences (count), and the time of each occurrence.

You can sort the information in this window by alarms/errors type, count (in descending order), and time of occurrence by tapping the appropriate column header.

To open this window, select the **Alarm/Error Count** button on the right side of the display.

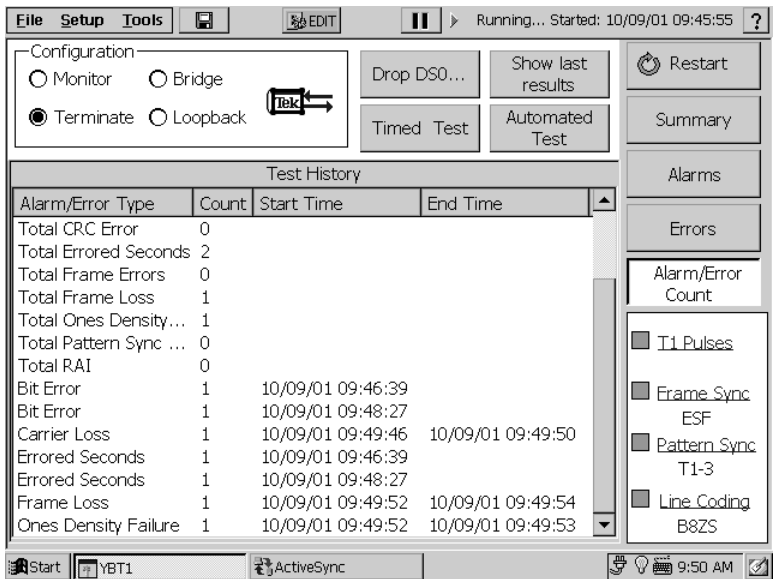


Figure 2-8: NetTek YBT1 Alarm/Error Count window



Reference

Connecting to a Signal

There are several ways to connect the NetTek YBT1 to a T1 circuit within the base station environment. Each type of connection allows you to test a different aspect of functionality.

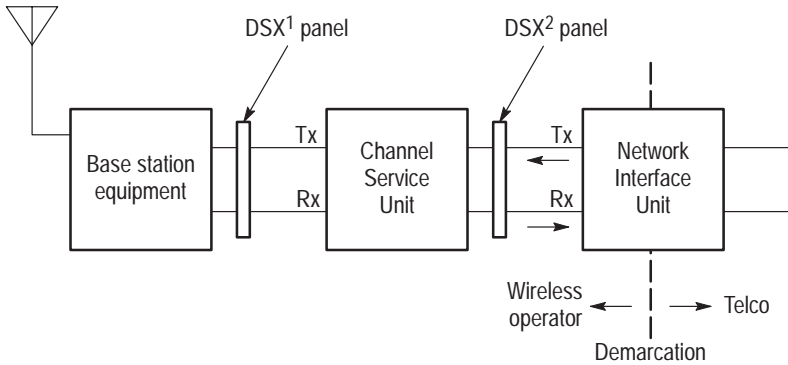


Figure 3-1: Typical base station showing T1 network interfaces

Making a Monitor Connection

This is the most common type of connection to a DSX service panel. In this configuration, you can use the YBT1 to monitor either the network side or the customer side of the data stream without removing the line from service. This configuration does not transmit data, therefore it does not block communications on either side.

Use this configuration to detect errors on the line, such as Bipolar Violations (BPV) and CRC (Cyclic Redundancy Check) errors, or to perform bit error-rate testing if a known test pattern is being received.

As a typical example, to monitor an outgoing signal at a DSX service panel, configure the NetTek YBT1 as follows:

1. Connect the RJ48-to-Bantam Y Cable to the T1 Line Interface. See page 1-5.
2. Select the **Monitor** option button in the NetTek YBT1 Configuration field.
3. Connect the Bantam “Receive” plug to the monitor jack on the DSX¹ service panel as shown in Figure 3-2.
4. Select the **Summary** button on NetTek YBT1.
5. Press **Restart** to clear any error/alarm counts and restart the test.

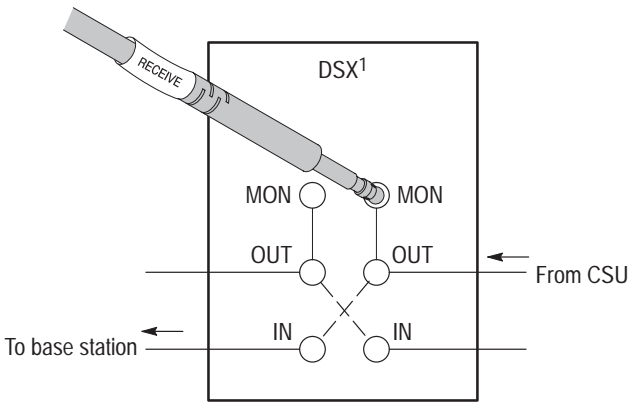


Figure 3-2: Typical connection for single-port monitoring

Making a Bridge Connection

Use this type of connection to perform nonintrusive testing on a T1 circuit without being limited to a designated monitoring port with the appropriate isolation.

Use this configuration to detect errors online, such as bipolar violations and CRC errors, or to perform bit error-rate testing if a known test pattern is being received.

For example, to connect the NetTek YBT1 to a T1 circuit without loading the circuit, do the following:

1. Connect the RJ48-to-Alligator Clip Cable to the T1 Line Interface. See page 1–5.
2. Select the **Bridge** option button in the NetTek YBT1 Configuration field.
3. Connect the “Receive” alligator clips to the appropriate points in the service access. See Figure 3–3.
4. Select the **Summary** button on the NetTek YBT1.
5. Press **Restart** to clear any error/alarm counts and restart the test.

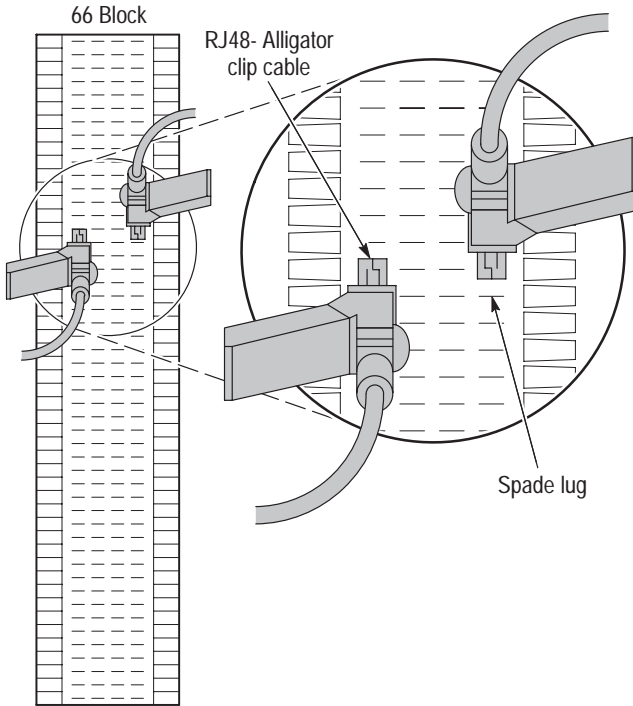


Figure 3-3: Typical connections for bridge monitoring

Making a Terminate Connection

Use this type of connection to place the NetTek YBT1 at the end of a service line when the line is out of service. With this configuration you can test base station equipment independent of the service line or the service line independent of the base station.

For example, to test CSU equipment off line, connect the NetTek YBT1 as follows:

1. Connect the RJ48-to-Bantam Y to the T1 Line Interface. See page 1-5.

2. Select the **Terminate** option button in the NetTek YBT1 Configuration field.
3. Connect the “Transmit” Bantam plug to the IN side of the service access as shown in Figure 3–4.
4. Connect the “Receive” Bantam plug to the OUT side of the service access as shown in Figure 3–4.
5. Loop the DSX² service panel at the NIU.
6. Select the **Summary** button on the NetTek YBT1.
7. Press **Restart** to clear any error/alarm counts and restart the test.

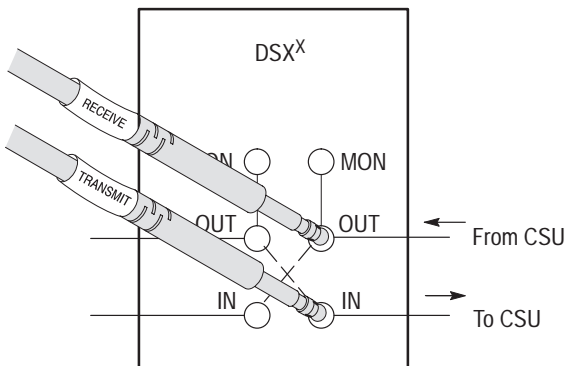


Figure 3–4: Typical connections for terminating a T1 circuit

Making a Loopback Connection

Use this type of connection to retransmit the incoming signal back to the point of origin through the NetTek YBT1. Looping back is virtually equivalent to hard wiring the receive side of the line to the transmit side of the line while allowing the NetTek YBT1 to make measurements on the received data.

For example, to loopback a T1 circuit through the NetTek YBT1, do the following:

1. Connect the RJ48-to-Bantam Y or RJ48-to-Alligator Clip Cable to the T1 Line Interface. See page 1–5.
2. Select the **Loopback** option button in the NetTek YBT1 Configuration field.
3. Connect the “Transmit” Bantam plug or alligator clips to the IN or OUT side of the service access, depending on the circuit you want to terminate. Connect the “Receive” Bantam plug or alligator clips to the other side of the line for monitoring purposes. See Figure 3–5.
4. Select the **Summary** button on the NetTek YBT1.
5. Press the **Restart** button to clear any previous error/alarm counts and restart the test.

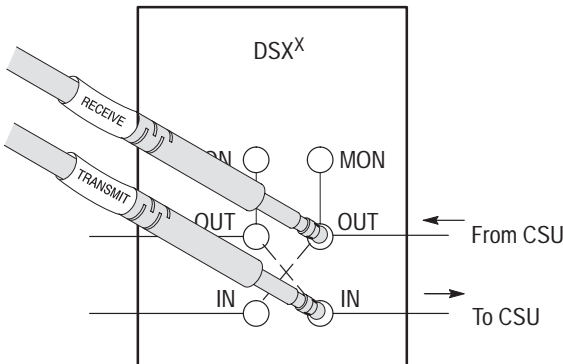


Figure 3–5: Typical connections for loopback mode

Testing a Circuit

After you connect to a signal, measurement results accumulate as long as the NetTek YBT1 detects T1 pulses. You can view the test results at the end of a timed test or while a test is running.

Typically, the first results you see in the main window are the Summary Results, which consist of either an indication that the data stream contains no errors, or that errors or alarms were detected since the last restart.

If the NetTek YBT1 detects errors or alarms, open an Alarms or Errors window to obtain additional information. These windows provide graphical presentations of the most recent test events, as well as indicators that show the current and past performance of the T1 line under test. You can also view an itemized list of all the alarm or error occurrences since the last restart.

You can view all of the DSO time slots simultaneously on the Drop DSO activity graph. A colored bar is displayed for each consecutive time interval within the measurement time span. The display is color coded to reveal common data problem patterns:

- Normally quiet channels may be disrupted by random noise.
- Channels normally containing variable data may be locked into a continuous pattern.
- Normal startup protocol, represented by identifiable fixed bars, may not change to a variable pattern.

Selecting Settings

The NetTek YBT1 automatically detects most of the parameters necessary to test a T1 circuit. However, you can override any or all of the automated settings to speed up synchronization or perform specialized tests.

To set the NetTek YBT1 receive function for automated testing, do the following:

1. Select **Setup** > **Edit** in the toolbar at the top of the startup window.
2. Open the Instrument tab and configure the option buttons as follows:
 - a. Line Coding: **Same as Rx Signal**.
 - b. Framing: **Same as Rx Signal**.
 - c. Transmit Clock: **Recovered**.
 - d. Generated BER Pattern: **Same as Rx Signal**.

The NetTek YBT1 will automatically detect data formatting and analyze the received signal. To view summarized test results, press the **Summary** button and check the T1 Circuit Test Summary line. To view details on specific test results, press the **Alarms** or **Errors** buttons.

Instrument Settings Window

The Instrument Settings window allows you to configure the NetTek YBT1 for specialized testing of T1 circuits.

1. In the menu bar, select **Setup** > **Edit** to open the Settings window. See Figure 3–6.
2. Select the option buttons appropriate to the tests you want to make.

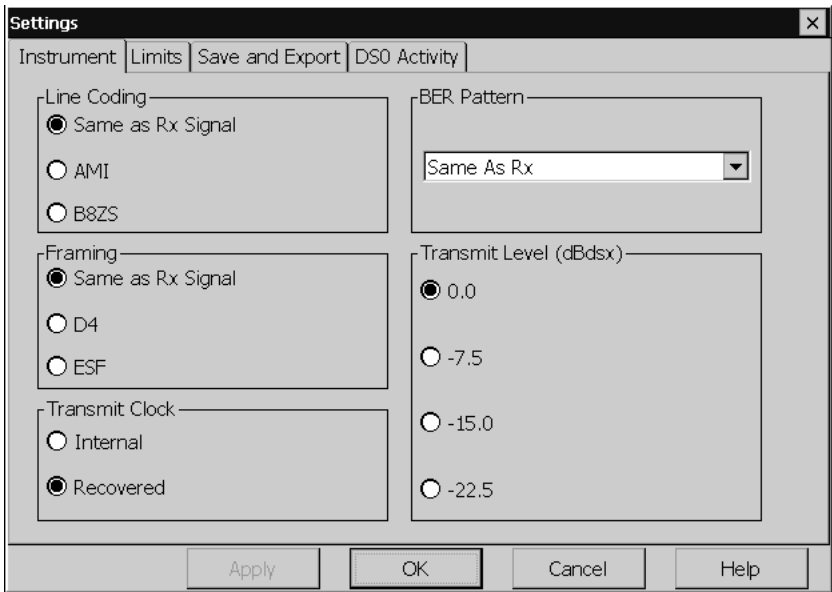


Figure 3–6: Instrument settings window

Line Coding. Select the line coding for the YBT1 transmitter and receiver.

- Same as Rx Signal. Automatically detects the incoming line coding and configures the YBT1 receiver and transmitter to match.
- AMI. The YBT1 receiver will not perform B8ZS decoding on incoming data.
- B8ZS. The YBT1 receiver will not perform AMI decoding on incoming data.

Framing. Select the frame formatting for the YBT1 transmitter and receiver.

- Same as Rx Signal. Automatically detects the incoming framing format and configures the YBT1 receiver and transmitter to match.

- D4. Configures the YBT1 to transmit and receive T1 data with D4 (SuperFrame) framing.
- ESF. Configures the YBT1 to transmit and receive T1 data with ESF (Extended SuperFrame) framing.

Transmit Clock. Select the YBT1 transmitter timing source.

- Internal. Configures the YBT1 transmitter to use the internal crystal oscillator as a reference. See *Appendix A: Specifications* for frequency information.
- Recovered. Configures the YBT1 transmitter to use the clock recovered from the received data.

BER Pattern. Select the YBT1 transmitter and receiver Bit Error Rate test pattern from the drop-down list box.

- Same as Rx. The YBT1 automatically detects the incoming pattern and configures the receiver to match. Following synchronization, the transmitter is configured to transmit the same pattern.
- QRSS
- All Ones
- All Zeros
- 1 in 8
- 2 in 8
- 3 in 24
- T1-1 (Min/Max)
- T1-2 (Trip Test)
- T1-3 (54 Octet)
- T1-4 (120 Octet)
- T1-5 (53 Octet)
- T1-6 (55 Octet)
- User Defined. Create and edit your own BER pattern. All patterns are defined in 8-bit octets.

Transmit Level (dBdsx). Select the power level and pulse shape for the YBT1 transmitter. You can adjust the settings to simulate the insertion of varying lengths of twisted-pair cable. For example, 0 dBdsx corresponds to a “nominal” signal level of 3 V peak.

- 0.0
- -7.5
- -15.0
- -22.5

Pressing **Apply** to configure the YBT1 for the selected settings and initiate a Restart. The Settings window will remain open.

Pressing **OK** to configure the YBT1 for the selected settings and initiate a Restart. The Settings window will close and the measurement window will return.

Pressing **Cancel** to return the original settings and cancel your selections. The measurement window will return.



Appendices

Appendix A: Specifications

This section lists the electrical, environmental, and physical specifications of the NetTek YBT1 T1 Circuit Tester. All specifications are guaranteed unless labeled “typical.” Typical specifications are provided for your convenience and are not guaranteed.

The electrical characteristics listed in Table A–1 apply to the T1 Circuit Tester operating within the environmental conditions listed in Table A–2 on page A–2.

Table A–1: Electrical characteristics

Characteristic	Description
Transmitter Characteristics	
Pulse Shape	Compatible with ANSI T1.102, 1993 and DS1, DSX-1 specifications, section 6.2.5 to 6.2.8 and 6.2.10.
Output Jitter	UI peak-to-peak: < 0.02% Compatible with PUB 62411.
Data Format, nominal	AMI, B8ZS
Frequency accuracy, nominal	± 50 ppm
Receiver Characteristics	
Sensitivity	Terminate mode: 0 to –12 dBx ^{1, 4} Bridge mode: 0 to –12 dBx ^{2, 4} Monitor mode: –20 to –30 dBx ^{3, 4}
Input Impedance, nominal	Bridge mode: > 1000 Ω Monitor mode: 100 Ω ± 1.0% Loopback mode: 100 Ω ± 1.0% Terminated mode: 100 Ω ± 1.0%
Jitter Tolerance, nominal	400 to 100,000 Hz: complies with ITU, AT&T, and Telcordia requirements for T1 applications (PUB 62411, TRNWT 000499 Cat II, CCITT G.823, ITU-TI.431).

Table A-1: Electrical characteristics (Cont.)

Characteristic	Description
Jitter Transfer Curve, nominal ⁵	Attenuator meets the requirements of PUB 62411, PUB 43802, TR-TSY 009, TR-TSY 253, TR-TSY 499, and ITU-T1.431 and G.703.
¹ 100 Ω input impedance. Employs long-haul equalizer.	
² 1 k Ω input impedance. Employs long-haul equalizer.	
³ 100 Ω input impedance. Employs long-haul equalizer and 20 db amplification.	
⁴ T1 Pulses Indicator (receive level) reports <i>Weak Signal</i> when lower amplitude signals are detected.	
⁵ NetTek Y350 reference clock.	

Table A-2: Environmental characteristics

Characteristic	Description
Temperature Range	
Operating	0 to +50° C (+32 to +122° F)
Nonoperating	-40 to +60° C (-40 to +140° F)
Humidity	
Operating	5 to 80% RH, noncondensing: 0 to +30° C (14 to 86° F) 5 to 30% RH, noncondensing: +30 to +50° C (86 to 122° F)
Nonoperating	5 to 80% RH, noncondensing: 0 to +30° C (14 to 86° F) 5 to 30% RH, noncondensing: +30 to +50° C (86 to 122° F)

Table A-2: Environmental characteristics (Cont.)

Characteristic	Description
Altitude	
Operating	4,600 m (15,333 ft)
Nonoperating	12,192 m (50,000 ft)

Table A-3: Certifications and compliances

Category	Standards or description
EC Declaration of Conformity – EMC	<p>Meets intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Union:</p> <p>EN 61326 EMC requirements for Class A electrical equipment for measurement, control, and laboratory use.^{1,2,3}</p> <p>IEC 61000-4-2 Electrostatic discharge immunity (Performance criterion C).</p> <p>IEC 61000-4-3 RF electromagnetic field immunity (Performance criterion A).</p> <p>IEC 61000-4-4 Electrical fast transient / burst immunity (Performance criterion B).</p> <p>IEC 61000-4-5 Surge immunity (Performance criterion C).</p> <p>IEC 61000-4-6 Conducted RF immunity (Performance criterion A).</p> <p>IEC 61000-4-11 Voltage dips and interruptions immunity (Performance criterion B).</p> <p>EN 61000-3-2⁴ AC power line harmonic emissions.</p>

Table A-3: Certifications and compliances (Cont.)

Category	Standards or description
Australia/New Zealand Declaration of Conformity – EMC	Complies with EMC provision of Radiocommunications Act per the following standard: AS/NZS 2064.1/2 Industrial, Scientific, and Medical Equipment:1992.
FCC Compliance	Emissions comply with FCC Code of Federal Regulations 47, Part 15, Subpart B, Class A Limits.
U.S. Nationally Recognized Testing Laboratory Listing	UL 60950 3rd edition Safety of Information Technology Equipment.

- 1 Emissions which exceed the levels required by this standard may occur when this equipment is connected to a test object.
- 2 Compliance demonstrated using high-quality, shielded interface cables.
- 3 Compliance demonstrated with NetTek YBT1 PC card installed in the rear PCMCIA slot of the Y350 NetTek Analyzer Platform.
- 4 (A14)

Table A-4: Physical characteristics

Characteristic	Description
Dimensions ¹	Height: 25 cm (9.75 in) Width: 33 cm (13 in) Depth: 9 cm (3.5 in)
Weight ¹	One battery installed: 4.23 kg (9.2 lbs) Two batteries installed: 4.82 kg (10.2 lbs)

- 1 Y350 NetTek Analyzer Platform with NetTek YBT1 PC card installed.

Appendix B: Accessories

This section lists the NetTek YBT1 T1 Circuit Tester standard and optional accessories.

Standard Accessories

Table B-1 lists the accessories included with your tester.

Table B-1: Standard accessories

Quantity	Part number	Description
1 ea	015-0694-00	YBT1 PC Card
1 ea	119-6618-00	T1 Line Interface
1 ea	020-2424-00	Component kit: RJ48 loopback plug, single port RJ48-to-Bantam Y cable
1 ea	070-9964-00	NetTek YBT1 T1 Circuit Tester User manual. Includes software installation CD-ROM.

Optional Accessories

Table B–2 lists the optional accessories you can purchase for your YBT1 T1 Circuit Tester. Contact your Tektronix representative or distributor for ordering information. See page ix for information on contacting Tektronix.

Table B–2: Optional accessories

Part number	Description
020-2425-00	Component kit, contains 1 each: RJ48-to-RJ48 straight-wired cable, 6 ft RJ48-to-RJ48 cross-wired cable, 6 ft RJ48-to-Alligator clip cable, 6 ft

Appendix C: Diagnostic Self Tests

To verify the NetTek YBT1 T1 Circuit Tester is functioning properly, run the diagnostic self tests.

***NOTE.** The following verification procedure does not confirm that the YBT1 T1 Circuit Tester meets or exceeds the specifications listed in Appendix A–I.*

1. Install the RJ48 Loopback Plug into the T1 Line Interface as shown in Figure 1–5 on page 1–10.
2. Power on the NetTek Analyzer Platform. See page 1–9 for instructions.
3. Select **File > Exit** in the YBT1 application if the T1 Circuit Tester is running.
4. In the taskbar, select **Start > Programs > Tektronix Utilities > Diagnostics**.
5. Tap the + box next to **All Modules, All Tests** to expand the selection tree.
6. Tap the + box next to **Platform**.
7. Deselect all platform diagnostics (remove all checks).
8. Tap the + box next to **Platform** again to compress the menu tree.
9. Tap the + box next to **YBT1**.
10. Verify that General Tests and Line Port Tests are checked. Deselect (uncheck) the Ref Port Tests. See Figure C–1.

***NOTE.** If your NetTek YBT1 does not include a reference port, deselect (uncheck) the Ref Port Tests check box.*

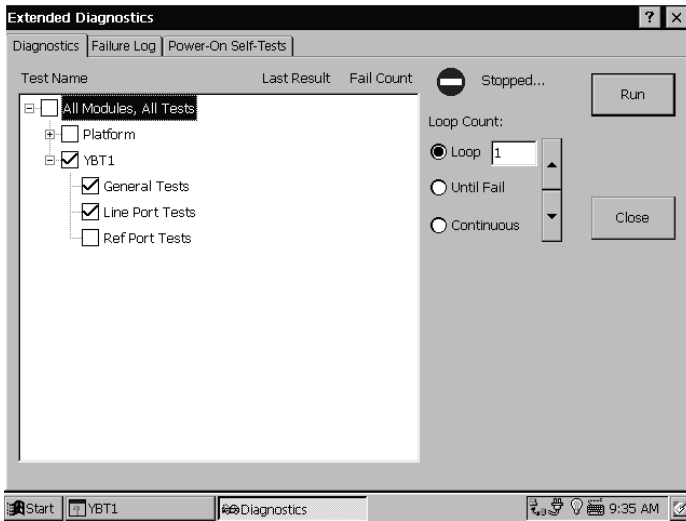


Figure C-1: YBT1 diagnostic settings

11. Select the **LOOP** option button.
12. Set the loop count to **1** with the up/down arrow buttons.
13. Select **Run** to start the diagnostics.
14. Verify that each test executes and passes.
15. Select **Close** to exit the diagnostic system.

If you encounter errors, open the **Failure Log** tab to obtain more information.

Test Descriptions

You must install the RJ48 Loopback Plug into the T1 Line Interface to run any of the following tests individually.

General Tests

Verifies that the NetTek YBT1 software module loaded onto the Y350 NetTek Analyzer Platform is communicating with the YBT1 PC card.

Line Port Tests

Verifies that the Line port is functioning properly in both the transmit and receive modes (through the loopback plug).

A transmitted reference pattern is compared to the received data pattern for an exact match. This test also verifies that the internal PC card hardware is functioning properly.

NOTE. *If your NetTek YBT1 does not include a reference port and you did not deselect (uncheck) the Ref Port Tests check box in step 10 on page C-1, the diagnostics will report this test as failed.*

Appendix D: Installing NetTek YBT1 Software

You can use the following methods to install, reinstall, or upgrade NetTek YBT1 software on the Y350 NetTek Analyzer Platform.

- **Serial Connection Method.** Uses a standard serial (RS-232) connection between a host PC and the NetTek Analyzer Platform.
- **Archive File Method.** Uses a PC memory card installed in the Y350 NetTek Analyzer Platform.

PC Requirements

This installation requires a desktop PC with CD-ROM drive and Windows 95, 98, or NT 4.0 operating system.

Installing From a Serial Connection

This upgrade procedure requires a serial connection between the NetTek Analyzer Platform and the desktop PC.

1. Connect one end of the standard accessory Y350 NetTek Analyzer Platform RS-232 cable to the serial (COM) port on the desktop PC. See your computer documentation for the port location.
2. Connect the other end of the cable to the Y350 NetTek Analyzer Platform serial port. See the NetTek Analyzer Platform user manual for the port location.

If the desktop PC serial interface has already been configured to use Windows CE Services or Active Sync, you must disable the serial connection.

Disabling the Windows CE Services Serial Connection

If Windows CE Services is installed, do the following to disable the serial connection:

1. Right-click on the CE Services icon in the desktop PC status area; then select **Communications**.
2. In the Windows CE Services Properties dialog box, open the Communications tab.
3. In the Device Connections via Serial Port field, deselect Enabled. (Enable mobile device connection must already be selected to make this selection).
4. Select **OK**; then close the dialog box.

Disabling the Windows Active Sync Serial Connection

If Windows Active Sync is installed, do the following to disable the serial connection:

1. Right-click on the Active Sync icon in the desktop PC status area; then select **Connection Settings**.
2. In the Connection Settings dialog box, deselect the Allow serial cable or infrared connection to this COM port check box.
3. Select OK to close the dialog box.

Installing the YBT1 Software

To install the NetTek YBT1 software on the Y350 NetTek Analyzer Platform, do the following:

1. Insert the NetTek YBT1 software installation CD-ROM into the desktop PC.
2. The disk should start up automatically. If it does not, run **setup.exe** in the CD-ROM root directory.
3. Follow the on-screen instructions provided by the upgrade wizard.
4. When the module upgrade is complete, shut down the NetTek Analyzer Platform and install the NetTek YBT1 PC card.
5. Start up the NetTek Analyzer Platform.

The NetTek YBT1 T1 Circuit Tester is now ready to use. To start the application, double-click the YBT1 icon on the NetTek Analyzer Platform desktop or select **Start > Programs > NetTek > YBT1**.

***NOTE.** When you have completed the upgrade process, be sure to re-enable your Windows CE Services or Active Sync serial connection.*

Installing Using an Archive File

To install the NetTek YBT1 software using an archive file, do the following:

1. Use a desktop PC to copy the archive file **ybt1.arq** in the Upgrade > Archive directory of the NetTek YBT1 software installation CD-ROM to a PC memory card.
2. On the NetTek Analyzer Platform, select **Start > Shutdown**; then select **Shutdown**.
3. Remove the NetTek YBT1 PC card if installed.
4. Insert the PC memory card containing the ybt1.arq file into the NetTek Analyzer Platform.
5. Start up the NetTek Analyzer Platform.
6. On the NetTek Analyzer Platform, select **Start > Programs > Tektronix Utilities > Module Upgrade**. Follow the on-screen instructions to install the NetTek YBT1 software.
7. When the YBT1 module upgrade is complete, shut down the NetTek Analyzer Platform and remove the PC memory card.
8. Insert the NetTek YBT1 PC card into NetTek Analyzer Platform.
9. Start up the NetTek Analyzer Platform.

The NetTek YBT1 T1 Circuit Tester is now ready to use. To start the application, double-click the YBT1 icon on the NetTek Analyzer Platform desktop or select **Start > Programs > NetTek > YBT1**.



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