T-BERD® 950

Communications Analyzer

TTC™

Your Customers Have It
You Need to Test It
We've got the Solution

TTC® T-BERD® 950 Communications Analyzer

As your customers' networks evolve, you need field service test equipment that can meet the challenge of new technology easily and affordably. The T-BERD 950 is designed to expand and grow to support new technologies and services without sacrificing ease of use or portability. This multi-functional instrument combines troubleshooting and turn-up testing capabilities for digital, analog, voice and data circuits in one unit.

The T-BERD 950 thoroughly tests digital services such as T1/FT1, DDS local loop, and T1 PBX trunks. The T-BERD 950 also supports testing for analog services such as DID and analog data, protocol services like ISDN BRI, ISDN PRI, and frame relay, as well as other network technologies and services. Built with the demands of the field technician in mind, the T-BERD 950 reflects the rich heritage of quality and performance synonymous with the TTC T-BERD name.

Highlights

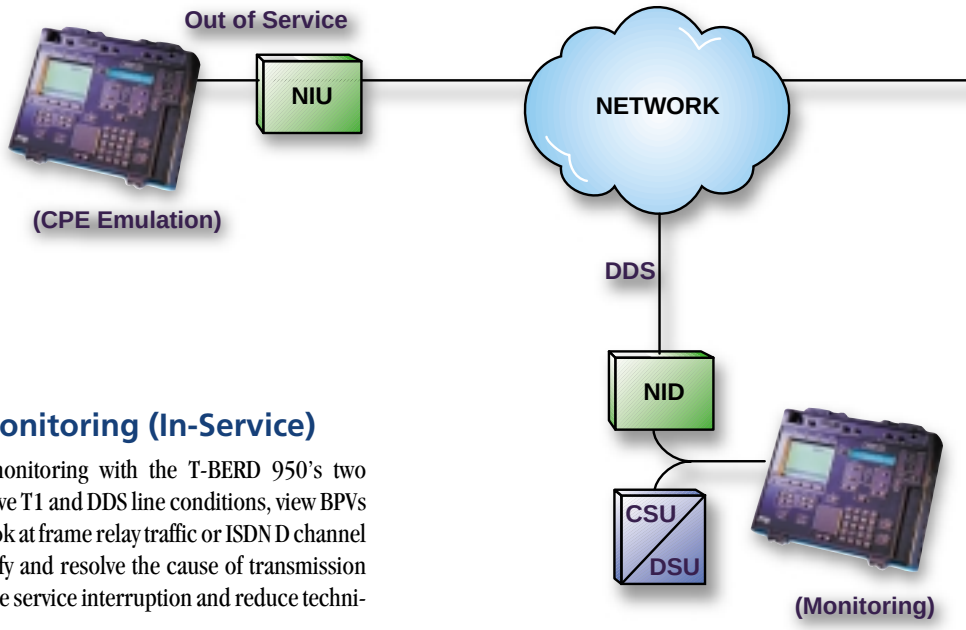
- Combines multiple service testing capabilities in a single test instrument
- Supports both analog and digital testing
- Growth-oriented protocol services board addresses emerging wide area protocol-based services and future applications
- Design minimizes size and weight, while maximizing testing features
- Operates on AC power or hot-swappable, field-replaceable batteries
- Incorporates two user display screens including a large graphical LCD display and a two-line results display
- Provides interface module slot expansion capability for future test access
- Features a three-year warranty and toll-free applications assistance and technical support

Test analog, digital, voice, and data with one instrument—now and in the future

Applications

The T-BERD 950 provides a comprehensive test solution for field service technicians struggling to support an ever-increasing number of technologies and services. With all the tools necessary for fast and effective in-service and out-of-service testing, the T-BERD 950 assists turn-up and troubleshooting of communication circuits and services, all without straining your budget.

Get ALL the Testing Power You Need to Turn-Up and Troubleshoot Multiple Services— in One Compact, Rugged Tester

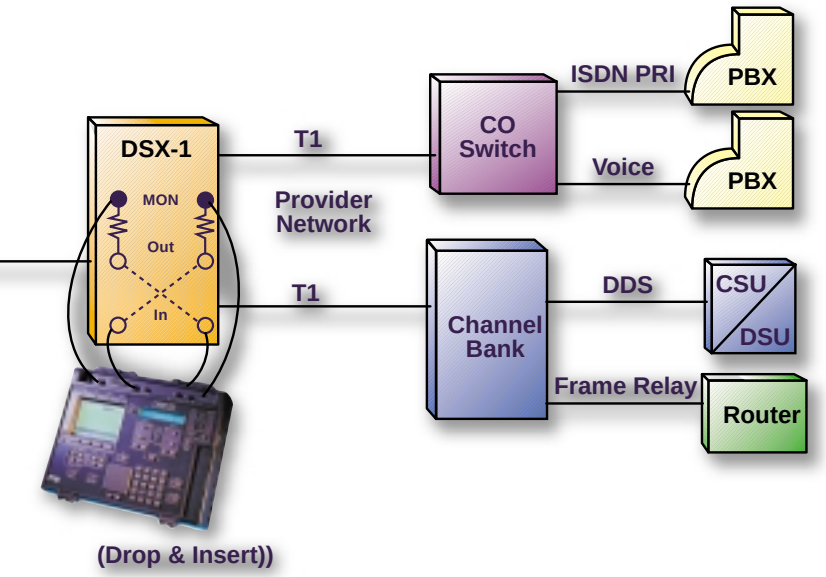


Full-Duplex Monitoring (In-Service)

Perform full-duplex monitoring with the T-BERD 950's two receivers. Monitor active T1 and DDS line conditions, view BPVs or T1 CRC errors, or look at frame relay traffic or ISDN D channel activity. Quickly identify and resolve the cause of transmission degradation to eliminate service interruption and reduce technician dispatches.

CPE Emulation (Out-of-Service)

Perform point-to-point testing using built-in BERT pattern stress testing or conduct end-to-end PVC testing and emulate CPE link management using the Frame Relay option. Conduct switched services testing of T1 PBX trunks or ISDN PRI lines using "call place and receive" features.



T1 Drop & Insert Mode

Solve channel-specific DS0 and FT1 problems with the T1 drop & insert mode. Identify the problem channel and then take only that channel out of service, without interrupting the remaining channels. Perform out-of-service tests, conduct BERT, place and receive calls on PBX switch trunks utilizing robbed bit signaling, perform PCM TIMS analysis on a DS0, or even test frame relay or DDS service on an isolated channel.

Architecture

The T-BERD 950 was designed with expansion in mind. Strong T1 test architecture and features such as the protocol services board, PCMCIA access, and an interface module slot enable the T-BERD 950 to expand to meet virtually any field testing need.

Designed with Expansion in Mind

T1 Architecture

The T-BERD 950 supports numerous T1 test applications including BERT, signal analysis, and full-duplex monitoring. Signaling and PCM TIMS options offer strong digital signal processing (DSP) capability, providing the baseline for applications such as channel access testing as well as future expansion into other T-Carrier testing applications.

Protocol Services Board

The T-BERD 950 simplifies protocol services testing, avoiding complex decodes. The test set supports protocol-based services with turn-up testing and in-service troubleshooting. With the Frame Relay option, emulate CPE link management while generating test frames for service verification. Or use the ISDN PRI option to test ISDN service with PBX emulation, placing and receiving voice and data calls. Place and receive two simultaneous calls while emulating an NT1/TE device with the ISDN BRI option. The protocol services board assures that your T-BERD 950 can grow into new protocol-based applications and technologies as they emerge.

PCMCIA

Easy software upgrades and option installations are available via PCMCIA technology. Whether in the field or at the office, the PCMCIA slot provides ready access to future upgrades, including new applications and technologies. A second PCMCIA slot is built into the unit for future applications.

Interface Module Slot

The interface module slot enables the unit to add hardware to meet the challenges of new applications and technologies. Since the T-BERD 950's introduction, interface modules for analog (2W/4W), and datacom (DTE/DCE) have been developed and as new test access becomes important, interface modules will continue to be made available to allow the T-BERD 950 to evolve with your test needs.

AC power and hot-swappable battery operation enable the T-BERD 950 to go everywhere testing is needed. Convenient user displays make it easy to set up tests and view results, so technicians can focus on the network, not their test equipment.

User Displays

The T-BERD 950 provides an easy-to-use, application-focused user interface. Its two user displays provide the instant flexibility needed when testing and troubleshooting circuits and services in the field. The two-column graphical LCD shows all setup parameters and can also be used to view full-page results while the two-line screen simultaneously displays results. This user interface eliminates the need for numerous menus or constant toggling between setup and results screens, allowing technicians to concentrate on finding and solving circuit problems.

Battery/Power Management

For maximum convenience and flexibility, the T-BERD 950 operates on AC or battery power wherever testing is needed. With built-in charging capabilities and accurate fuel gauge readings on the display, power use is easily monitored and the battery can be recharged when necessary. Intelligent power management features optimize available energy by diverting power away from options not in use. In addition, the batteries are hot-swappable—change one when it is needed most, without losing power.

Rugged and Portable, the T-BERD 950 Goes Wherever You Need to Test

Intuitive
Task-based Testing
That's Easy—
Every Time

TNT Task Testing

Designed to make routine test setup simple and intuitive, TNT Task Testing guides even the less experienced field service technician through an average turn-up quickly, easily, and accurately. By using the tasks and terminology typically employed by a technician during a testing, TNT eliminates the need for technicians to know extensive information about the technologies or services being tested or the proper configuration for a particular test. TNT is designed to more closely align the T-BERD 950's functions with the daily tasks of a field service technician.

The T-BERD 950 configures the required parameters for turn-up and troubleshooting in the background after the user has selected the task and type of test to be performed, avoiding unnecessary user confusion and wasted time. The T-BERD 950 then displays only the most common results for the task being performed for a quick analysis of the circuit. For intense troubleshooting and analysis, complete test results are still available. User interface innovations like improved defaults, results interpretation, and a prompting window that guides the user through setup and results viewing, provide consistent operation, reduce complexity, and make the T-BERD 950 even easier to use.

TNT Task Testing

Home

- Provides an easy and intuitive method of configuring the T-BERD 950 to begin testing the communications network
- Identifies a combination of task and test selections to simplify test setup and results interpretation

TNT Setup

- Automatically configures the unit based on the chosen test and task to be performed
- Shows only the few configurations required by the test to be performed

TNT Results

- Displays the most common key results for the task being performed on one page
- Enables a quick analysis of the circuit

Context Specific Help

- Provides expanded assistance on the current operation through context specific help as well as additional or related information on a particular task or test
- Defines results and provides information on typical acceptable values

Features

The T-BERD 950 is the only instrument technicians need to perform analog and digital circuit testing, point-to-point service testing, and voice and data services testing. Its flexible, modular design eliminates the need for multiple test instruments and reduces technician training time, saving unnecessary expense.

T1/FT1 Testing

Standard comprehensive T1 testing provides T1 measurements such as frame errors, signal level, and CRC errors, as well as T1/FT1 access for standard BERT and options such as signaling, PCM TIMS, and protocol-based services testing. The two transmitters and receivers provide terminate, drop & insert, and dual receiver monitoring test modes. Additional features such as loop codes and signal performance measurements also ensure maximum testing capability and minimal network down time.

Bit Error Rate Testing

Extensive standard BERT features provide the most accurate measure of point-to-point transmission performance by stress testing circuits to ensure proper circuit configuration and identify transmission impairments. Advanced features such as automatic pattern synchronization, MULTIPAT®, built-in HDSL loopcodes and T1 Smart Repeater loopcodes, round trip delay measurements, and G.821 performance results accompany a full range of stress patterns.

Test Analog, Digital, Voice, and Data with One Instrument

Options for Analog, Datacom, ISDN, Frame Relay, and more:

- ***Datacom (DTC/DCE) Interface Module***
  Test end-to-end WAN service through DTE/DCE equipment emulation and in-service monitoring.
- ***Analog (2W/4W) Interface Module***
  Perform TIMS measurements for testing point-to-point data circuits and emulate loop, ground, and DID equipment for testing analog voice circuits.
- ***ISDN Primary Rate Option***
  Place, receive, and monitor calls on 23B+D, 47B+D, and 47B+2D circuits while viewing full layer 3 D channel decodes.
- ***ISDN Basic Rate Option***
  Verify circuit switched voice and data and D packet services by performing NT1/TE and LT BERT, or NT1 emulation; troubleshoot problems using call status, call progress, call failure reports, or full layer 3 D channel decodes.
- ***Frame Relay Option***
  Access strong CPE emulation and dual receiver monitoring features; perform link management emulation and test frame generation to verify LMI functionality, PVC status, and Quality of Service (QoS).
- ***DDS Local Loop Option***
  Perform dual receiver monitoring and terminate testing at the customer's four wire 56k, 64k, or sub-rate line; access standard BERT features and options such as frame relay. Test the local CSU/DSU with the OCU-DP emulation feature.
- ***PCM Signaling and PCM TIMS Options***
  Perform DS0 channel access testing, call terminating, originating, and monitoring on several trunk types; run PCM TIMS tests such as C-message noise and three tone slope over individual channels.

Summary

Change is the one constant of the telecommunications industry, and TTC is prepared to keep you ahead of the changes and on top of emerging technologies with test equipment you can trust. Though new technologies present unique challenges for installation and maintenance, you can count on the TTC T-BERD 950 to provide a single testing solution, both now and in the future.

Thank you for your interest in the T-BERD 950. If you have any questions about TTC or the T-BERD 950's features, specifications, and capabilities, call 1-800-638-2049, talk to your local sales engineer, or visit us on the Internet at www.ttc.com.

Customer Care

Warranty and Repair Service

TTC repair excellence starts with a three-year warranty on all mainframes and includes repair and calibration capabilities worldwide. We also offer extended warranty options, as well as service/calibration plans to meet your unique needs. As part of our ISO-9000-approved quality system, our components are screen-tested before installation and all instruments are operated at elevated temperatures and vibration levels before being shipped.

Technical Support

To complement our instruments and systems, TTC offers superior technical support. Our Technical Assistance Center engineers offer expert consultation on any technical problem from 8 a.m. to 8 p.m. Monday through Friday, EST (**1-800-638-2049** or **1-301-353-1550**).

Training

The right technical training makes everyone more productive and every test instrument more effective. Whether your goal is to shorten installation time, reduce downtime, or increase productivity, TTC's instructors provide practical, hands-on training tailored to your specific needs. We can provide training at our facility in Germantown, MD, or at any location you designate.

Product Information

Model No.	***Description***
Mainframe	
TB950	T-BERD 950 Communications Analyzer
Interface Modules	
TB950-ANLG	Analog (2W/4W) Interface Module
TB950-DATA	Datacom (DTE/DCE) Interface Module
Options	
TB950-FR	Frame Relay
TB950-LL	DDS Local Loop
TB950-PRI	Primary Rate ISDN
TB950-BRI	Basic Rate ISDN
TB950-PSB	Protocol Services Board
TB950-SIG	PCM Signaling
TB950-TIMS	PCM TIMS

NOTE: Specifications, terms, and conditions are subject to change without notice.

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TTC™

OPTIMIZING NETWORK PERFORMANCE

ISO 9001 CERTIFIED

TB950-B-10/99