

T-BERD[®] 2310

Communications Analyzer



the Next Generation in Test

Testing can take you almost anywhere—from lofty rooftops to dark basements to underground vaults. The most valuable tool for the transport technician who is always on the move is a compact, lightweight, and rugged test set that's ready to go at a moment's notice. Meet the T-BERD® 2310 Communications Analyzer, a handheld, easy-to-use test set designed to test signal rates from DS0 to OC-12c. Quick, intuitive, and weighing only five pounds, the T-BERD 2310 offers an integrated, full-featured testing solution to access your network from multiple locations and provide the information you need to qualify your network for service.

As we move into the new millennium, make sure you're ready for anything with the T-BERD 2310, the latest addition to the TTC 2000 Test Pad™ platform. With an innovative touchscreen interface, compact modular architecture, flexible battery-powered operation, and two PCMCIA expansion slots—all in a rugged, field-tested package—the TTC 2000 Test Pad platform defines the new generation in test sets.

Highlights

- **Integrated Testing in the Palm of Your Hand**
Test signal rates from DS0 to OC-12c with a full-featured, handheld analyzer that weighs only five pounds.
- **Fast and Easy to Use**
Set up test procedures quickly and easily with a graphical user interface (GUI) touchscreen and task-oriented, online Help.
- **Front Panel LEDs**
Receive at-a-glance notification of alarms, errors, and synchronization problems for the signal under test.
- **The Convenience of Battery Power**
Take the T-BERD 2310 wherever you go. The battery is small and field-accessible, so if it runs low on site, you can replace it and get back to work in seconds.
- **Rugged, Field-Tested Design**
Be confident that your test set will stand up to the field conditions you work in. The T-BERD 2310 provides fast, accurate results even if accidentally kicked or dropped.
- **Dual Electrical Receivers**
Easily sectionalize your network to determine the direction of errors with optional dual electrical receivers for DS1, DS3, and STS-1.
- **Thru Mode**
Monitor network traffic and test the responses of network elements to inserted alarms and errors without reconnecting and reconfiguring.



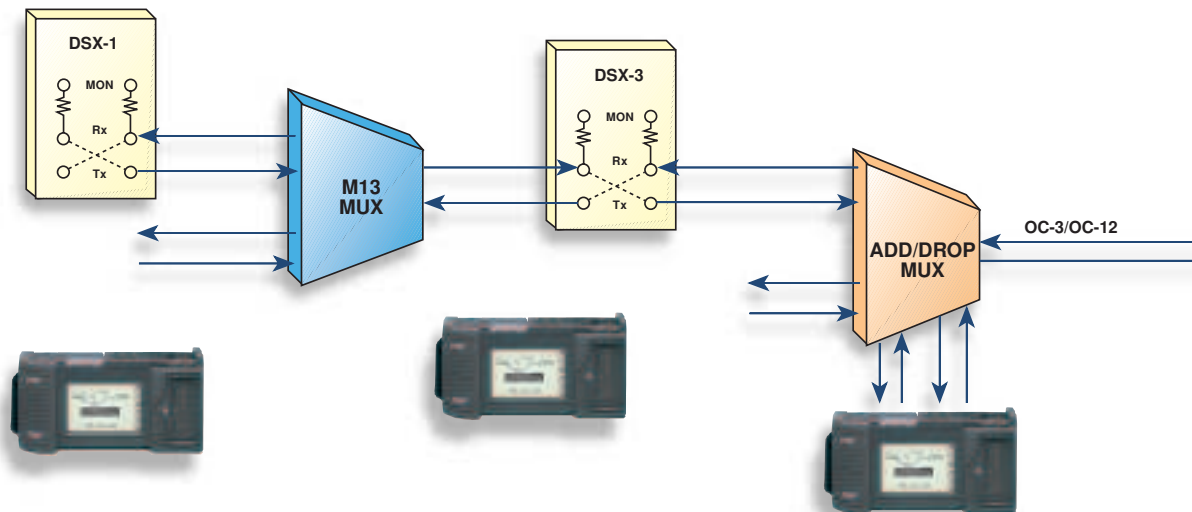
The Logical Choice for Handheld

DS1 Analysis

- Verify the physical layer continuity of your network by performing integrated BER testing and measuring power, frequency, and signal levels. You can analyze DS0 channels by dropping them from DS1 to OC-12 signals and measuring voice frequency (VF) levels and tones. In addition, you can transmit selected VF tones on any channel within a DS1 to OC-12 signal to verify proper network configuration.
- Determine if the timing of your network has been properly configured by comparing the timing setup of equipment installed in your network to an external bits clock source. You can isolate sources of timing errors by using the external bits clock input in order to identify synchronization problems that may be occurring.

DS3 Analysis

- Ensure the correct operation of multiplexers by transmitting various test patterns and performing BER testing on one or all DS1 channels transmitted by a DS3 multiplexer.
- Qualify your network for service acceptance by performing DS3 BER testing and measuring the signal power and frequency level of the DS3 signal. You can access this signal from a DS3 network or a DS3 signal embedded in an STS-1, OC-3, or OC-12 network.



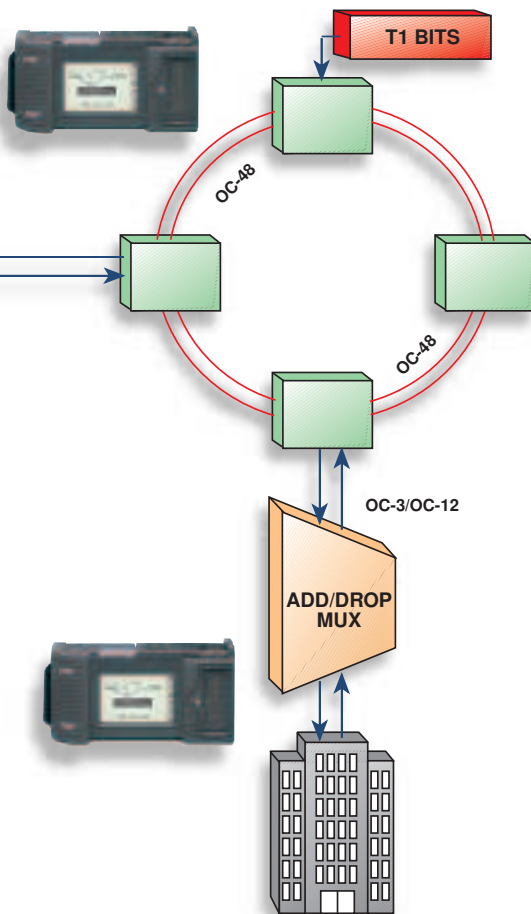
Bi-directional Monitoring

- Significantly reduce the time and effort spent in determining the direction of errors by using dual DS1/DS3/STS-1 receiver jacks. With this feature, you can sectionalize your network and focus your testing towards the source of errors. Moreover, you can use the dual results display window and front panel LED indicators to monitor two signals independently, as well as compare the measurements simultaneously.

Integrated Transport Testing

SONET Analysis

- Verify the continuity of your SONET network by performing OC-3/3c and OC-12/12c BER testing as well as measuring the optical power, signal, and frequency levels of the signals.
- Use the Monitor/Thru Mode feature to maintain protection line connectivity while monitoring signals on your network, avoiding the costly disruption of SONET service. Additionally, you can locate the signal you wish to test by first monitoring at an access point. Then, once the desired signal has been found, insert alarms/errors using the Thru Mode option without reconnecting or reconfiguring your T-BERD 2310.
- Determine if your network has been properly provisioned by performing pointer justification measurements, as well as confirming concatenated/nonconcatenated signal reception. In addition, to ensure your network is reporting problems correctly, you can send and receive pointer adjustments and transmit alarms through your SONET network.
- Monitor critical errors at STS-1 access points, as well as drop embedded DS1 or DS3 payloads for analysis.



*Access your network
at multiple locations
with the T-BERD 2310.*

Integrated Testing in the Palm of Your Hand

Touch-Screen Graphical User Interface

Testing is as simple as the touch of an icon. With one touch, you'll be using the T-BERD 2310's simple, straightforward GUI with its user-friendly icons to set up test procedures and view information quickly and accurately. With another touch, task-oriented online help appears on the screen. Plus, the T-BERD 2310 saves your last test setup so you can quickly perform the same test at different locations. Testing is automatic—with the touch of an icon, you can have the information you need and be on your way to the next site.



Select icons with a simple touch of the screen.

Rugged Design

The T-BERD 2310 is designed to survive the testing environments you work in. With a rubber overmold and shock-mounted display, the T-BERD 2310 provides accurate test results even if accidentally kicked or dropped. In addition, every T-BERD 2310 passes a heat-stress and vibration test to ensure that it will stand up to the onsite conditions you face every day. And we back our durability with a three-year warranty and the service and support you've come to expect from TTC.

2000 Test Pad Patented Modular Architecture

The TTC 2000 Test Pad platform has set a new standard for flexibility and future growth potential for lightweight, handheld test instruments. As with all modules of this platform, the T-BERD 2310 separates easily from the TTC 2000 Test Pad so you can plug in other application modules as your testing needs change. With this flexibility, you can tailor your test-set inventory to match the type and frequency of your testing.

Field-Replaceable Battery

The unpredictability of field testing conditions demands battery operation. The T-BERD 2310's state-of-the-art nickel-metal-hydride (NiMH) battery is small and field-accessible so you can keep a spare battery on hand for quick changing between calls. Advanced battery charge capabilities allow the battery to charge in either trickle-charge or fast-charge modes. And when you don't need to use the battery, simply plug in to AC power to perform your tests.

Plug in different application modules to meet your changing test requirements.

The Right Touch for Integrated Testing

Top Panel LEDs

Reduce incorrect cabling procedures with yellow top panel active port LEDs. These lights illuminate to indicate which ports are active as determined by your setup of the T-BERD 2310. Once you have completed your test setup, active port LEDs guide you in determining which ports to use for your test. Also, if you find yourself working in a dimly lit environment, you no longer need to strain to read or find which connections to use. The T-BERD 2310 automatically identifies the active ports for you.

DS-1 to OC-12c BER Testing

Test the full functionality of your network by performing BER testing at signal rates from DS-1 to OC-12c. Use the T-BERD 2310's ability to BERT signals carried within an OC-12 signal or BERT the entire OC-12c signal to ensure your network has continuity from end to end.

Front panel LEDs

Strategically placed front panel LEDs provide immediate visual feedback on the status of your test. Green LEDs tell you that a signal is present and the T-BERD 2310 is synchronized to your network. Red LEDs indicate that errors and alarms have been detected by the T-BERD 2310. In addition to current test status, history LEDs keep track of your test results, so you can quickly identify recurring problems. Plus, these LEDs allow you to monitor the progress of your test from a distance, so you can perform other functions at the same time.

Dual PCMCIA Interface

Two PCMCIA slots add to your T-BERD 2310's power and flexibility. The standard dual PCMCIA interface makes it easy to download future software upgrades so your test set always has the newest, up-to-date testing software.

VT100 Emulation

Leave the extra computers back at the office. The T-BERD 2310 emulates the VT100 terminal capabilities of your laptop computer and allows you to establish a communication link with your network elements to quickly and easily change provisioning setups.



Get immediate feedback of test status with color coded front panel LEDs.



Use active port LEDs to ensure error-free cabling and PCMCIA slots for future software upgrades.

Customer Care

Technical Support

To complement our instruments and systems, engineers at TTC's Technical Assistance Center offer expert consultation on any technical problem. Call 800-638-2049 or 301-353-1550 between 8 a.m. and 8 p.m. Monday through Friday EST.

Training

The right training makes everyone more productive and each test instrument more effective. Whether your goal is to shorten installation times or reduce mean time to repair, TTC's instructors provide practical, hands-on training tailored to your specific needs. Classes are provided at TTC locations worldwide and can also be held at any location you designate.

Warranty and Repair Service

TTC's Customer Care starts with a comprehensive warranty on all mainframes and includes repair and calibration capabilities worldwide. TTC also offers extended warranty options, as well as service/calibration plans to meet your unique needs. As part of our ISO-9001 approved quality system, all components are screened before installation and each instrument is rigorously tested before being shipped.

Summary

The T-BERD 2310 is designed to be your handheld, integrated, full-featured testing solution, giving you test access to your network from multiple locations and providing the information you need to qualify your network for service. You can set up test procedures quickly and easily with the GUI touchscreen, be confident of correct cabling procedures with top panel LEDs, and monitor the progress of your test with front panel LEDs. Lightweight, rugged, and battery operated, the T-BERD 2310 goes wherever you do. The T-BERD 2310—for integrated testing in the palm of your hand, call 800-638-2049 or visit us at www.ttc.com



Software Enhancement Agreement

TTC offers individual software subscription services for the TTC 2000 Test Pad platform. This service provides software enhancements to application platforms, annual software upgrades that are automatically delivered to you, a release notice that details new features and their applications, and complete installation instructions with every software upgrade package.

Specifications

Dimensions and Weight

Overall Dimensions:

7.5 x 11.5 x 2.25 in. (19 x 29.2 x 5.7 cm)

Weight:

5 lbs. (11.02 kg.)

Environmental Characteristics

Temperature:

Operating:

32° F to 113° F (0° C to +45° C)

Non-Operating:

-4° to 158° F (-20° C to +70° C)

Humidity:

10% to 90% relative humidity, non-condensing

Shock and Vibration:

Meets IEEE-743

Electrical Characteristics

Battery Type:

10.8 v Nickel-Metal-Hydride (NiMH)

Operating Time:

STS/DS3/DS1 tests – up to 1.5 hours

OC-3/OC-12 tests – up to 45 minutes

Recharging Period:

1.5 hour maximum

AC Adapter:

120 VAC to 19 VDC, 2.4 AMPS

Interfaces

DS1 bantam connectors

DS3/STS-1 560A connectors

OC-3/OC-12 (optional) ST/FC/SC connectors

Product Information

Application Modules

| <i>Model No.</i> | <i>Description</i> |
|------------------|---|
| TB2310-ST51 | T-BERD 2310 single DS1/DS3/STS-1 Tx/Rx |
| TB2310-OC3 | T-BERD 2310 single DS1/DS3/STS-1/OC-3 Tx/Rx |
| TB2310-OC12 | T-BERD 2310 single DS1/DS3/STS-1/OC-3/OC-12 Tx/Rx |

Options

| <i>Model No.</i> | <i>Description</i> |
|------------------|------------------------------|
| TB2310-DUALRX | Dual DS1/DS3/STS-1 Receivers |
| TB2310-VT100 | Terminal Emulation |

User Interface Module

| <i>Model No.</i> | <i>Description</i> |
|------------------|--------------------|
| TTC2000 | TTC 2000 Test Pad |



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

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TB2310-B-5/99