VIAVI

VIAVI Solutions

Brochure

VIAVI
T-BERD/MTS-5800
All-In-One Tester Promotes Power Utility Reliability

The T-BERD/MTS-5800 is a portable test unit designed to make the utility technician's life easier and the power grid more reliable. The compact tester helps technicians and contractors at power substations complete a broad range of network tests on both legacy and emerging technologies and protocols.

The T-BERD/MTS-5800 enables different technicians to perform the same tests, the same way, in the same order bringing a systematic, measurable approach to substation communication installation and maintenance. The end results are improved grid reliability, satisfied regulators, and a smooth migration path to a smart grid-friendly infrastructure.

The External WAN and the Substation LAN

Two sub-sections of the network that require meticulous attention are the wide-area network (WAN) or "backbone" connecting control centers to substations, and the local-area network (LAN) connecting power system equipment within a substation to the broader network.

Key Benefits

- Ability to generate summary reports in minutes
- Simplifies multi-technology testing with an all-in-one test solution
- Optimized for substation use with a multitouch screen, scripted workflows, and clear results
- Supports efficient best practices with repeatable methods and procedures
- Speeds fiber testing, Ethernet service testing, and advanced ad-hoc tests for troubleshooting chronic problems

Key Features

- 1/10 Gigabit Ethernet with 10 separate traffic streams measuring throughput, delay, jitter, frame loss rate, and bustability
- VLAN discovery, VLAN P-Bit verification, IPv4, TOS/DSCP priority verification, service disruption measurements, Ethernet multicast transparency check and MPLS encapsulation
- Automated RFC 2544 and Y.1564 test methodologies included at no extra charge
- 72 channel, multi-constellation GNSS satellite receiver with NTP and PTP test applications
- SONE/SDH (OC-3 to OC-192) delay, throughput and service disruption measurements
- Nx64 C37.94 and T1/T3 interfaces, and Serial Datacom (RS-232/V.24, RS-530(a), X.21, RS-449, V.35)
- Compatible with VIAVI 4100-Series OTDR modules with Smart LinkMapper™, fiber microscopes, and visual fault locators
- Job Manager for easy, automated test configurations and reporting, Stratasync software

Wide Area Network

It is imperative that the WAN is transmitting data and messaging at peak performance between control centers and substations. Armed with VIAVI T-BERD/MTS-5882s, technicians should test the following for network availability, performance, and delays:

- **Fiber tests.** Inspect fiber for dirty connectors and verify the underlying fiber integrity. Ensure optical power is appropriate and confirm patch panels, connectors and splices have not introduced impairments, creating marginal communications conditions that can lead to failures.

- **Transport quality.** Confirm that the throughput, delay, and bit error rates (SONET/SDH, Ethernet/IP/MPLS) are within the service provider/carrier SLA targets. Use industry standard ITU Y.1564 to test multi-application transport performance.

- **Ethernet Control Plane.** Protocols that provide redundancy over Ethernet/IP networks use multicast traffic for control. Multicast is traditionally blocked by service providers to avert broadcast storms. Test that multicast traffic is not blocked and is flowing transparently from end-to-end.

- **VLAN and IP Priority.** For optimal application performance across the shared WAN circuit, ensure that VLAN and OP priority bits and configurations are correctly configured and passing across the WAN from end-to-end.

- **Layer 4 (TCP) application testing.** Confirm TCP level performance using RFC 6349.

- **Timing.** Check PTP (IEEE 1588v2) and NTP to confirm the Maximum Time Error is within IEC 61850 targets so teleprotection equipment, synchrophasers and event recorders stay within microseconds of each other. Check synchronous Ethernet and synchronization in packet networks.

Substation LAN

Many communication devices are used to control power system equipment in the substation yard, therefore its top performance is critically important. To maintain the reliability of the substation's functions, the T-BERD/MTS-5882 should be used for:

- **Fiber tests.** Glass fiber is impervious to electromagnetic interference (EMI), but must still be tested for integrity so transmissions through patch panels, connectors and splices are error free.

- **Tele-protection interfaces.** C37.94, including one-way delay (OWD), serial datacom such as RS-232/V.24, and X.21/V.11, and Nx64 T1 interfaces that connect power system equipment to Intelligent Electronic Devices (IEDs) should be Bit Error Rate tested to confirm that EMI is not impacting communications.

- **Proper Ethernet installation.** Confirm multicast is properly configured and is transparently passed. Ensure VLANs and IP address are properly configured, and that traffic contains the correct priority markings. Confirm Ethernet port discovery is functioning on switches.

The 30-Minute Close-Out

The T-BERD/MTS-5800's breadth of tests combined with the work-saving features of Job Manager, a free app designed for the T-BERD/MTS product line, not only helps power utility technicians complete a broad range of tests systematically and consistently, but also consolidates the test results into a summary report. Just manually compiling such reports could easily take hours, but with the T-BERD/MTS-5800 a technician can complete the tests and the reporting in minutes.

StataSync

StrataSync is free, cloud-hosted software system that supports VIAVI instruments with integrated centralized asset, inventory, configuration, and test data management. StrataSync is designed to eliminate email dispatches, manual test procedure set-up, manual reporting, and management dash-boarding.

StrataSync™

Warranty

A three-year warranty is standard with the T-BERD/MTS-5800, and service contracts are available.

Ordering Information

Products	Part Number	Photo
Timing Expansion Module with GPS antenna	C5TEM-R	
1GigE IEEE 1588 Test Option Software	C5LS1588	
Serial Datacom Module supporting RS-232/V.24, RX/530/444, RS-485, V.35 and X.21	C5DEMKIT	
FiberChek Probe Fiber Microscope with LC and SC/PC tips	FIT-FC-KIT2	
OTDR Module for 5800		
T-BERD/MTS-5800v2		

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