



SUNRISE TELECOM

... a step ahead



SunSet[®] 10G

SONET and SDH Testing in a
Single Handheld Unit

SunSet[®] 10G

Advanced SONET and SDH Transmission Testing & Analysis in a Handheld Set

It's not magic; it's Sunrise Telecom technology. Revolutionizing the definition of a handheld tester, the SunSet 10G is the industry's smallest and lightest 10 Gbps test set. At 2 kg (4.4 lb), there's no limitation to where you can take it. And it's packed with as much testing power and with a rich feature set that you'd expect from a bulky, bench-top instrument.

One Solution for the Global Optical Network

With support for twelve different optical and electrical rates from 1.5/2 Mbps through 10 Gbps, the SunSet 10G covers all test interfaces for core and metro SONET/SDH rings and their tributaries. With all-inclusive solutions for SDH, SONET, PDH, T-carrier, electrical and optical, the SunSet 10G increases testing efficiency, consolidates training, and saves money. And as optical networks reach across international boundaries, the SunSet 10G can turn up SDH and SONET service around the world.

Field engineers can verify proper hand-offs at SONET/SDH gateways; test network continuity across the 10G backbone network and analyze its tributaries; and test the OC-192/STM-64 wavelengths in the DWDM network. Applications include basic end-to-end performance testing with BERT, in-service performance monitoring, and simulating abnormal conditions to check the network's response. Regardless of line rate or transmission standard, everything from basic BERT to advanced APS and pointer testing is right at your fingertips.

Designed for the Core Network -
The world's most compact and easy to use
DS1/E1 to OC-192/STM-64 test set.

- 2 kg handheld test set for SONET and SDH
- SONET and SDH testing from STS-1/STM-0 to OC-192/STM-64
- T-carrier and PDH testing from DS1/E1 to E4
- Dual wavelength transmitter up to 2.5 Gbps
- Mapping/demapping from STS-192c SPE/VC4-64c Bulk down to VT1.5, VT2, VC11, VC12
- Mux testing (SDH to SDH, SDH to PDH, SONET to SONET, SONET to T-carrier)
- SONET/SDH overhead byte access and control
- Battery operated: one hour operating time at 10 Gbps
- Economical for wide deployment



As optical networks reach across international boundaries, it is critical to have a tool that comprehensively supports both SONET and SDH. From DS1/E1 to OC-192/STM-64 (10 Gbit/s), the SunSet 10G supports all interfaces and standards for SONET, SDH, T-carrier, and PDH, as well as full mapping based on Telcordia and ITU standards.

The SunSet 10G has the power and features you'd expect from a bench top instrument in a platform you could take anywhere. Comprehensive SONET/SDH errors and alarms are conveniently sorted based on near-end and far-end, section, line, and path (or regenerator section, multiplexer section, and high end and low end path for SDH). Tests range from simple verification of optical power level and frequency to advanced features like overhead control, pointer, and APS testing.

Overhead analysis

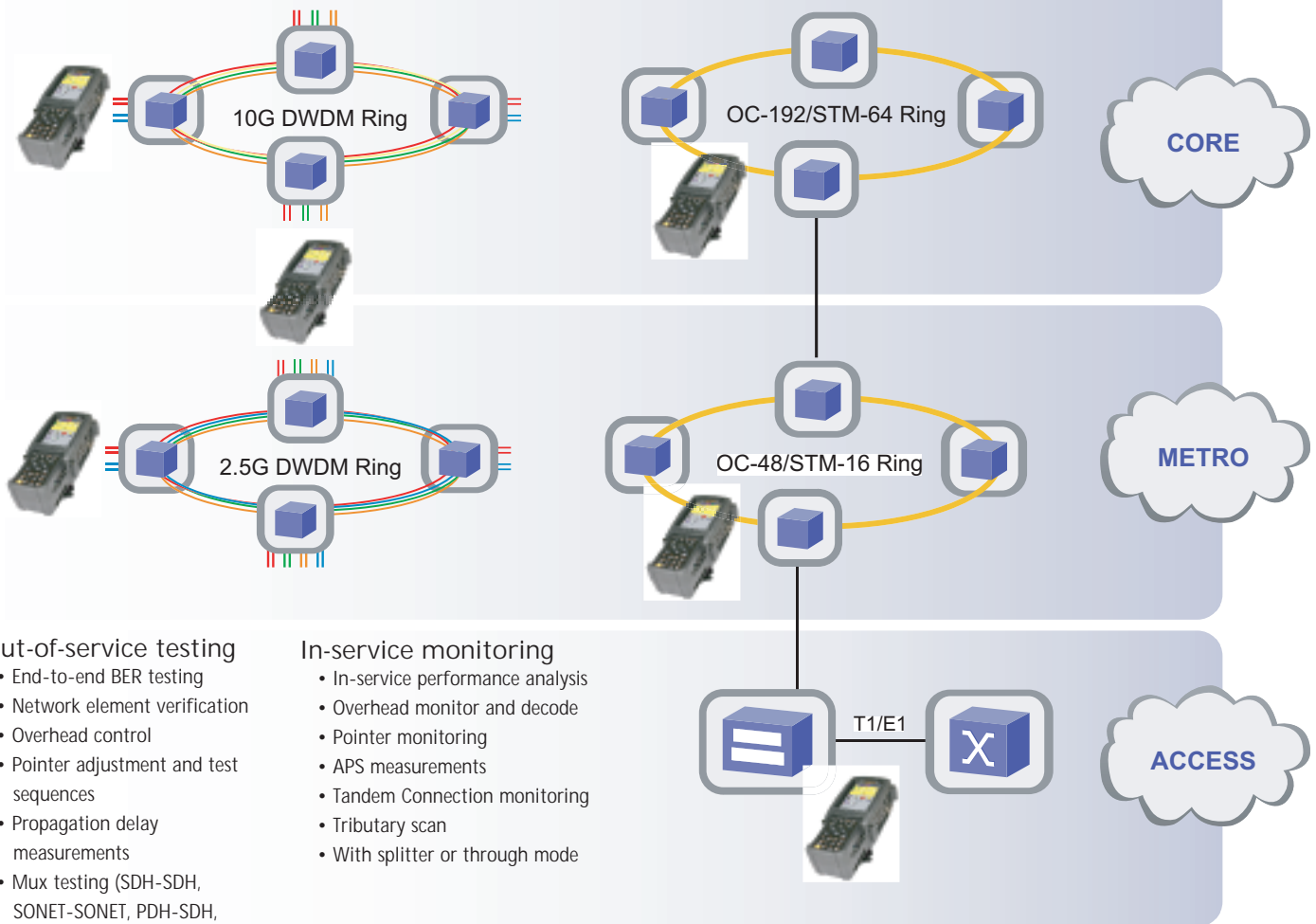
Even as a handheld instrument, the SunSet 10G provides advanced and comprehensive overhead testing capabilities including parity, protection switching, pointers, and network status. Overhead analysis displays both the hexadecimal and simple language decodes of all overhead bytes, easily sorted by section, line, path, and VT path for SONET (regenerator section, multiplexer, high and low order paths for SDH). You can also view

- Verify network continuity with BER testing
- Easily detect SDH/SONET errors and alarms with LEDs and well-organized results
- Confirm proper frequency and power level
- Monitor pointer movement in the network and adjust pointer values to stress network elements
- Identify network synchronization problems by connecting the external clock input to the synchronization timing source of the network
- Check the network's automatic protection switch (APS) function and measure network switchover time
- Troubleshoot problems across multiple network operators with Tandem Connection Monitoring (TCM)

network traces (J0, J1, J2), labels (C2, V5), and test communication channels (D1-D3, D4-D12) by performing BER tests on them. In-service and out-of-service Tandem Connection monitoring can also be performed when this protocol is being carried across several network operators, allowing the operator to detect and generate TCM errors and alarms, as well as Access Point Identifiers (APIDs). The SunSet 10G enables you to control the transmitted overhead bytes and stress the network's response to various conditions.

APS testing

Automatic Protection Switching, a mission critical function in SONET/SDH networks, enables the network to respond quickly to failures, minimizing lost traffic. The SunSet 10G qualifies this vital system to ensure the network's protection mechanism is configured and operating properly. The SunSet 10G measures the amount of time for the network to complete an automatic protection switchover. Users can select the gate time limit, switch time limit, as well as the sensor criteria.



Through mode and monitoring

The SunSet 10G supports monitor mode with a splitter or through mode for in-service monitoring when a splitter is not available. It features the highest receiver sensitivity for 10 Gbps on the market, allowing you to accurately analyze low-level 10 Gbps signals from optical monitoring points.

Remote Testing

You can operate the test set remotely and retrieve data from it through a LAN network via the 10/100 BaseT network port, or through an RS-232c connection via the serial port.

Soft LEDs

provide a complete snapshot of circuit status at a glance. The LED content automatically changes based on application to give the most pertinent and helpful information for every test.

Event log summary

gives you measurement results with the press of the status key.

Large status flag

provides continuous test status information with the press of the status key.

Easy-to-use

Graphically-oriented user interface. Test results are clear and straightforward; configuration is simple and intuitive.

I/O ports

Including RS-232 serial port and 10/100 BaseT network port, for remote control and uploading results.

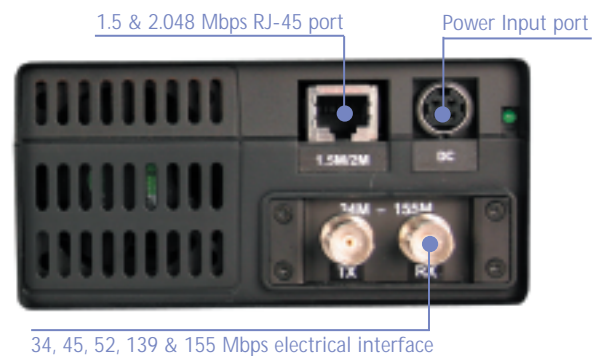
Field-replaceable Lithium Ion battery

provides you with the portability for field testing and ensures uninterrupted measurements during power outages. This field-replaceable battery offers one hour of usage at 10 Gbps rates!



The SunSet 10G is the industry's first handheld SONET/SDH test set to offer both electrical interfaces and optical interfaces.

- DS1, E1, E3, DS3, STS-1, E4, and STS-3
- SONET and SDH
- T-carrier and PDH



34, 45, 52, 139 & 155 Mbps electrical interface

2.5 Gbps, 622, 155, & 52 Mbps optical test interface

10 Gbps optical test interface

Support for OC-1/3/42/48 / STM-0/1/4/16 and OC-192/STM-64 packed into a handheld unit

- FCUPC or SCUPC connector types available
- Dual wavelength transmitters to 2.5 Gbps
- Most sensitive 10 Gbps receivers, essential for in-service monitoring applications
- SONET and SDH

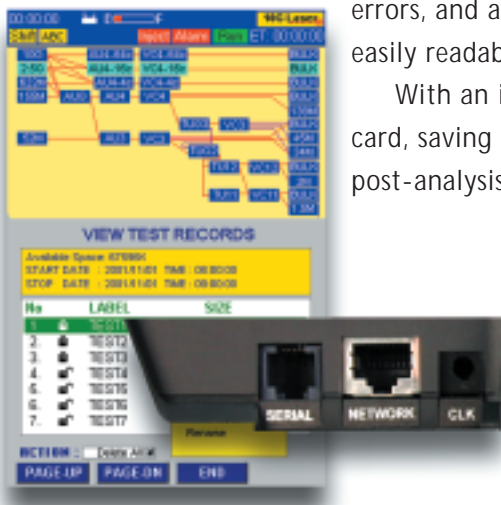


Results and reporting

Easy-to-read test results allow field engineers to immediately correct problems; with multiple storage and upload possibilities, results can easily be shared with the central office, exchange, or network operating center as needed.

Histograms provide a graphical record of errors and alarms through time for easier correlation of repeating problems. Record up to 57 days with 15 minute resolution or 1 hour with 1 second resolution. All important defects, errors, and alarms are constantly logged with date and time stamp. This critical log is easily readable for quick reference or can be stored or printed or documentation.

With an integrated 10/100 BaseT network port, RS-232 serial port, and a storage PC card, saving and uploading results is simple. All results can be stored as text files for post-analysis and documentation.



One-button configuration

Configuration couldn't be simplified any more than pressing a button. And that's just what we did. The SunSet 10G's auto-configuration automatically scans all test interfaces for a signal and then configures its line rate, mapping, and payload accordingly. With auto-configuration, it takes only a few seconds to identify an active channel and start testing.



Service & Support

Sunrise Telecom proudly gives its customers excellent service and support. Technical assistance is available from local representatives in over 70 countries, from factory experts, on the Internet, and via Sunrise's customer support line.

Contact Sunrise Telecom to find your local Sales Representative or Distributor and discover how the SunSet 10G can solve your testing needs.

Specifications

Detailed specifications are available for the features listed in this document. Inquire with your local representative.

Accessories

Several SunSet 10G accessories are available for specific testing requirements.

Ask your representative for ordering information and additional specifications.

Customer Support

1 800 701 5208 (US/Canada only)
1 408 360 2200 (International)

e-mail

support@sunrisetelecom.com

Visit our web site

www.sunrisetelecom.com



Sunrise Telecom
302 Enzo Drive
San Jose, CA 95138 USA
ph 1 408 363 8000
fax 1 408 363 8313