

# SonetExpert™

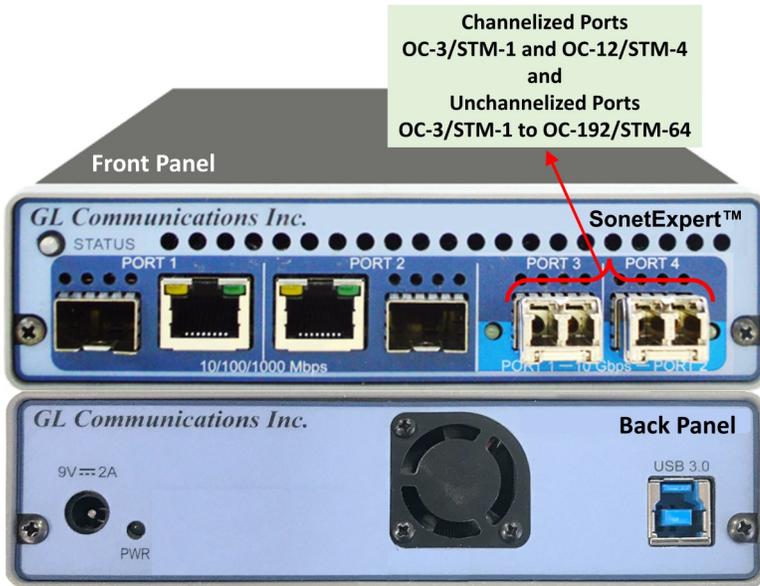
## (OC-3/OC-12/OC-48/OC-192 Channelized and Unchannelized Testing)

### Channelized Key Features

- Allows direct access to everything on SONET / SDH – Framing and Payload, including structured traffic (T1, E1, STS-1 etc.)
- Analyze or emulate voice, data, fax, protocols, analog and digital signals, including echo and voice quality
- Pluggable SFPs allow Single-mode (SM), and Multi-mode (MM) fiber optic non-intrusive tap
- Comprehensive protocol analysis and emulation - HDLC, SS7, ISDN, CAS, PPP, Frame Relay, ATM, UMTS, and more
- Capture and transmit at wirespeed to/from hard disk on all interfaces. Also capture traffic for off-line analysis and playback the captured traffic

### Unchannelized Key Features

- Software is provided as a web interface
- SonetExpert™ can perform Unchannelized BER Testing over OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 and OC-192/STM-64 SONET/SDH rates
- PoS/ATM/Raw captured traffic can be analyzed in real time (for OC-3/STM-1 and OC-12/STM-4)
- SonetExpert™ supports capturing wirespeed traffic (for OC-3/STM-1 and OC-12/STM-4) traffic on 2 ports simultaneously to a file on hard disk, with hardware filtering and timestamping
- SCAN application supported on OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 and OC-192/STM-64 rates



## Overview

Most of the backbone transport for voice, video and data applications continues to be SONET and SDH optical transmission networks. SONET and SDH transmission network also continue to be used for conventional channelized traffic – carrying many TDM T1, E1, T3, and E3 pipes.

GL's **SonetExpert™** application has the following variants of OC-3/STM-1 and OC-12/STM-4 Analyzers:

- SonetExpert™ **Channelized** Analyzer
- SonetExpert™ **Unchannelized** Analyzer

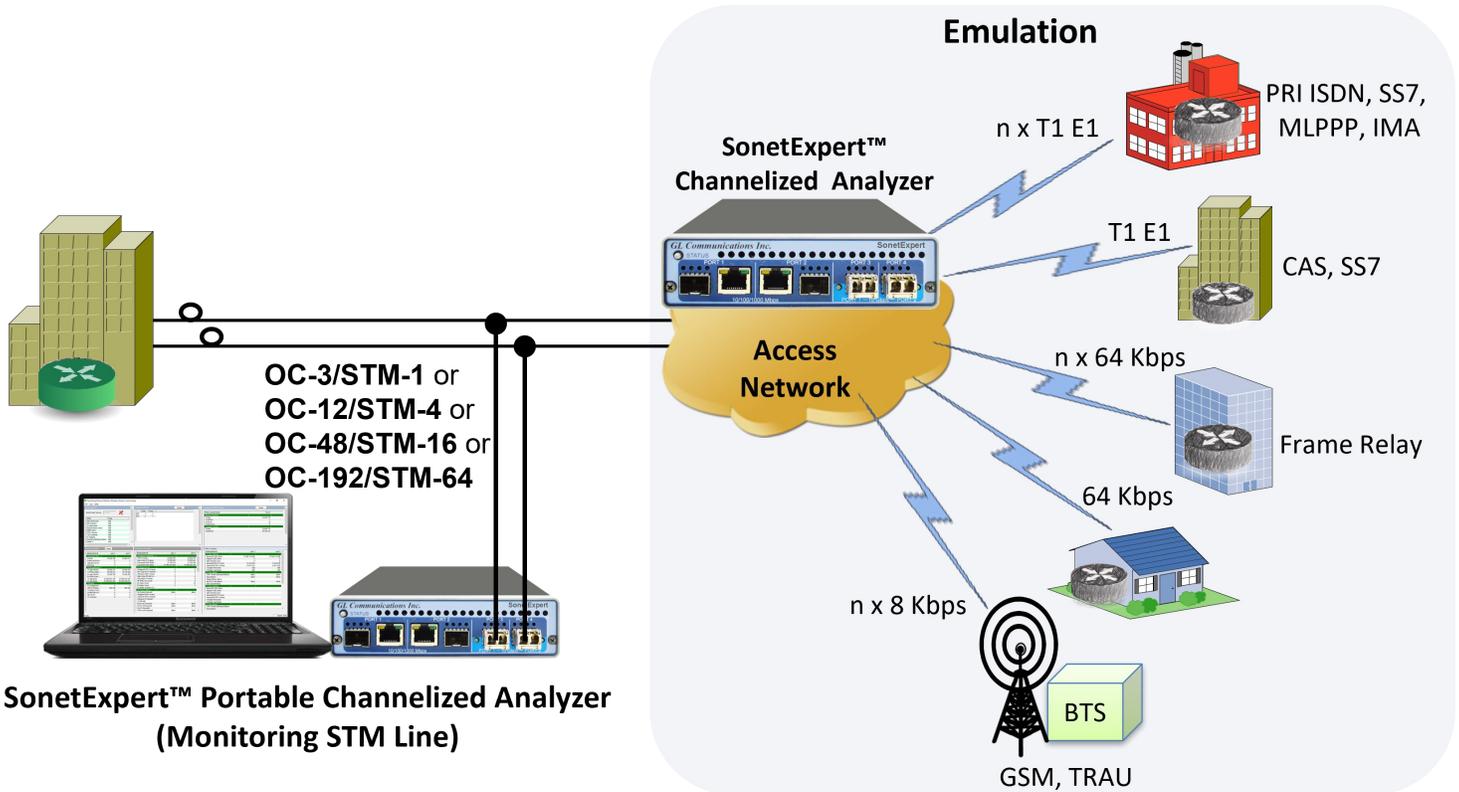
[Channelized Analyzer](#) comprises of hardware and software receiving and transmitting data using SONET and SDH networks and communicating with the GL Soft T1 E1 Analyzer application. The T1 E1 Analyzer application provides the same functionality as GL hardware based T1 E1 Analyzers with the difference that T1 E1 frames are multiplexed into SONET/SDH frames and transmitted over optical lines.

GL's SonetExpert™ [Unchannelized Analyzer](#) is capable of SONET/SDH testing over OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 and OC-192/STM-64 transports. It is based on the PacketExpert™/SonetExpert™ hardware platform. Packetexpert™/SonetExpert™ is a versatile hardware platform that supports both Ethernet (up to 10G) and SONET/SDH (up to OC-192/STM-64) testing, two ports support SONET/SDH testing.



818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
(Web) [www.gl.com](http://www.gl.com) - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [info@gl.com](mailto:info@gl.com)

## SonetExpert™ Channelized Application



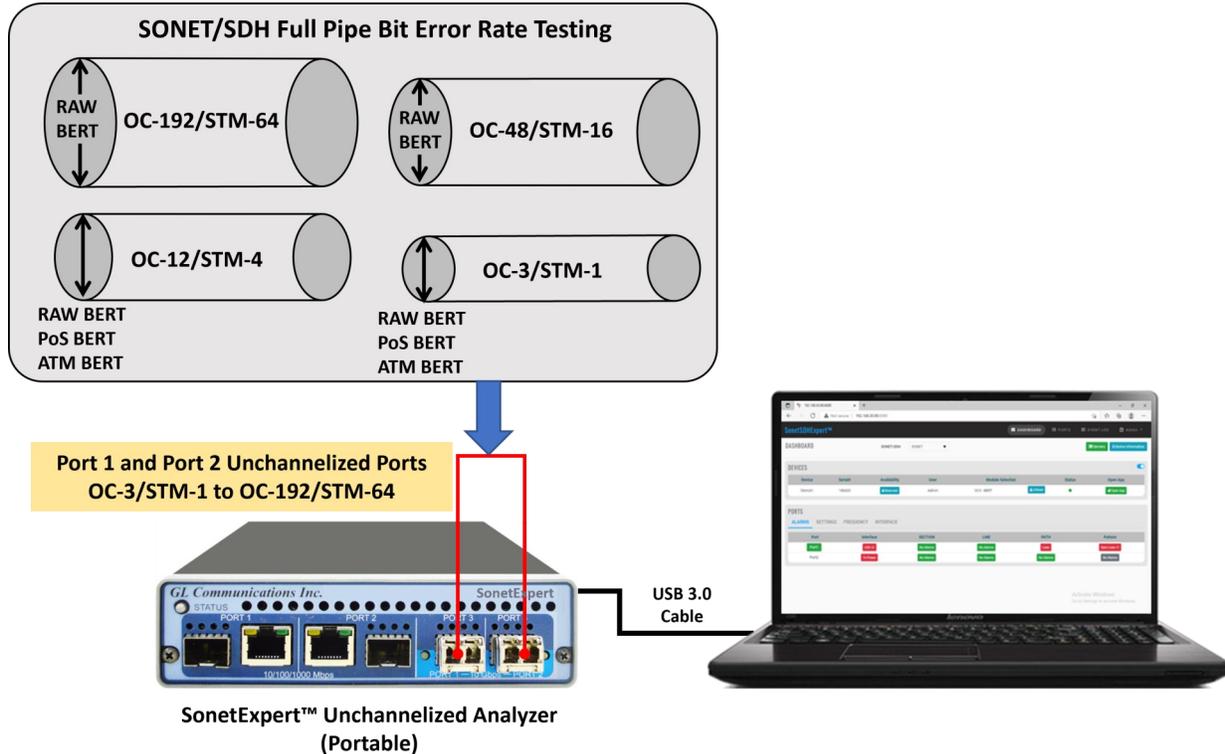
GL's SonetExpert™ Channelized Analyzer supports direct access to all or user-defined  $2 \times 336$  T1s or  $2 \times 252$  E1s per unit for analysis and simulation – all within a one PC. With this hardware, any combination of DS0/64 kbps, fractional T-1/E-1, and  $N \times T1 E1$  interface definitions (a total of 126 E1s or 168 T1s – each port supporting 84 T1s or 63 E1s) can be accessed.

Supports analysis and simulation of various TDM and wireless protocols in real-time / remote / offline. The following are the available protocol analyzers:

- HDLC, SS7, ISDN, CAS, GSM, TRAU, SS1
- Sa Bits HDLC, SSM, V5.x, DCME
- FDL (T1 Interface only)
- ML-PPP, ML-Frame Relay
- ATM IMA
- GPRS (Gb and IP Gx)
- UMTS

Also available is the MAPS™ protocol emulators such as TRAU, ISDN, SS1, ISUP, MAP, CAS, GSM, HDLC, and MC-MLPPP for real-time simulation of corresponding networks.

## SonetExpert™ Unchannelized Application



GL's SonetExpert™ Unchannelized Analyzer supports Bit Error Rate (BER) testing, BER Traffic generation, verification of various PRBS and user defined test patterns over **OC-3 / STM-1**, **OC-12 / STM-4**, **OC-48/STM-16** and **OC-192/STM-64**. Various Error insertions like, Bit Error Insertion, B1/B2/B3 BIP Error insertion, Alarm generation etc. are supported along with BERT testing.

Three types of BERT testing is supported - **Bert over Raw SONET/SDH frames**, **BERT over ATM** and **BERT over PoS**.

SonetExpert™ Unchannelized Analyzer also includes **Record to File and Playback from File** features (for OC-3 / STM-1, OC-12 / STM-4 only). The Record and Playback application allows users to capture and transmit packets at wirespeed. This feature allows capturing real world traffic and simulating it by playing back. Users can Record or Playback Raw SONET/SDH frames, ATM cells or PoS packets.

In addition to record and Playback on OC-3 / STM-1, OC-12 / STM-4 interfaces, the captured traffic can also be analyzed in real time. **ATM Analyzer** is used to analyze and decode different ATM protocols like ATM, AAL2 Protocols (CPS-SDU, SSSAR-SDU, and SSSCS), AAL5 (CPCS), UNI and others across **U plane** and **C plane** of UNI and NNI interface. The analyzer can also decode ATM frames constituting Classical IP over ATM, or CIP based networks, and traditional SS7 Stack (ISUP, SCCP, MAP, CAMEL (CAP) etc) over ATM.

The **PoS Analyzer** captures a host of PoS protocols exchanged between the two nodes over SONET & provides useful analysis, which includes distribution of protocols, protocol fields, frame lengths, and frame status. PoS is a highly scalable layer 2 protocol that uses PPP encapsulation to carry IP packets directly in SONET/SDH networks. Currently it carries a majority of the Internet traffic because it can make efficient use of existing SONET infrastructure. Raw SONET/SDH analyzer analyses the RAW captured frames and ecodes in real time.

GL's SonetExpert™ Unchannelized web application includes the **Scan** feature which scans the SONET/SDH interfaces starting with the highest speed interface down to the slowest one (OC-192/STM-64, OC-48/STM-16, OC-12/STM-4, OC-3/STM-1 and STS-1/STM-1e), automatically detects the traffic structure and reports the structure in an easy to view graphical format.

The software provides a web interface, and is accessed through any browser running on any device like PC, Laptop, tablet etc.

## Buyer's Guide

| Item No                            | Product Description (Channelized Application)  |
|------------------------------------|--|
| <a href="#">SEUE02</a>             | SonetExpert™ Channelized Analyzer (OC-3/STM-1)                                       |
| <a href="#">SEUT02</a>             | SonetExpert™ Channelized Analyzer (OC-12/STM-4)                                      |
| <a href="#">SEE001/<br/>SET001</a> | SonetExpert™ OC-3/STM-1 Basic E1 Software /SonetExpert™ OC-3/STM-1 Basic T1 Software |
| <a href="#">SEU110</a>             | SonetExpert™ Upgrade to PXN100   |
| <a href="#">SEU120</a>             | SonetExpert™ Upgrade to PXN101   |

| Item No                | Product Description  |
|------------------------|--|
| <a href="#">SEU100</a> | SonetExpert™ Dual OC3/12 STM1/4 USB Unit<br><br><b>Accessories</b><br>Includes OC3/OC12/STM1/STM4 SFPs (customer preference of MM or SM)<br>USB Cable 3.0 (1)<br>Power adapter +12 Volts, 3 Amps (1) |
| <a href="#">SEU901</a> | SonetExpert™ Unchannelized BERT for OC3/STM1 and OC12/STM4 Rates   |
| <a href="#">SEU902</a> | SonetExpert™ Unchannelized BERT for OC3/STM1, OC12/STM4, OC48/STM16, OC192/STM64 Rates   |
| <a href="#">SEU300</a> | SonetExpert™ Unchannelized OC3/STM1/OC12/STM4 ATM Monitor, BERT, Tx/Rx Test  |
| <a href="#">SEU301</a> | SonetExpert™ Unchannelized OC3/STM1/OC12/STM4 PoS Monitor, BERT, Tx/Rx Test  |
| <a href="#">SEU302</a> | SonetExpert™ Unchannelized Record Playback for OC3/STM1/OC12/STM4 ATM  |
| <a href="#">SEU303</a> | SonetExpert™ Unchannelized Record Playback for OC3/STM1/OC12/STM4 PoS  |
| <a href="#">SEU304</a> | SonetExpert™ Unchannelized Protocol Analysis for OC3/STM1/OC12/STM4 ATM  |
| <a href="#">SEU305</a> | SonetExpert™ Unchannelized Protocol Analysis for OC3/STM1/OC12/STM4 PoS  |
| <a href="#">SEU503</a> | SonetExpert™ Unchannelized Record Playback for OC3/STM1 RAW  |
| <a href="#">SEU504</a> | SonetExpert™ Unchannelized Record Playback for OC3/STM1/OC12/STM4 RAW  |
| <a href="#">SEU315</a> | SonetExpert™ Unchannelized Packet Data Analysis (PDA) for PoS  |



**GL Communications Inc.**

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
 (Web) [www.gl.com](http://www.gl.com) - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [info@gl.com](mailto:info@gl.com)