

GL CORE PRODUCTS

...Global Leader in Telecom Test And Measurement Solutions

Telecom Test Solutions

IP and Ethernet Simulation & Analysis

All Protocols over IP, TCP, UDP
Signaling, Traffic, Voice & Data QoS
10 GigE, MPLS, VLAN, SLA



Wireless Simulation & Analysis

LTE, VoLTE, UMTS, GSM, TRAU, GPRS
Wireless Drive Testing, GPS Mapping
Signaling, Traffic, Voice & Data QoS



TDM Simulation & Analysis

Signaling & Traffic
T1, E1, Analog, FXO, FXS



Network-wide Monitoring Solutions

Signaling & Traffic
VoIP, TDM, Wireless



Voice, Fax, Data, & Video Quality

IP, TDM, PSTN, 3G 4G,2G, Bluetooth
PESQ, POLQA, PAMS
Data Testing over Wired and Wireless



High Speed Telecom Lines

OC-3, OC-12, STM-1, STM-4, T3, E3
Channelized & Unchannelized

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TDM Hardware & Software Products

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TDM Hardware & Software Products

OctalXpress and QuadXpress T1/E1 PCIe Cards

- FTE001 QuadXpress T1 E1 (Main Board)**
Quad Port T1 E1 Main Board w/PCIe (x1) Interface - requires ETA00x or EEA00x licenses
- ETE001 QuadXpress T1 E1 (Daughter Card)**
Quad Port T1 E1 Daughter Board - Requires FTE001 Main Board and ETA00x or EEA00x
- ETA002 Two Port License for T1**
ETA003 Timeslot Delay Loopback for T1
Driver Implementation for Delay and Channel Loop back (up to 192 timeslots, 0 to 4000 ms/channel)
- ETA004 Four Port License for T1**
ETA008 Eight Port License for T1
ETAxxx Optional Software Apps for T1
EEA001 T1 Basic Software – required for T1
EEA002 Two Port License for E1
EEA003 Timeslot Delay Loopback for E1 Driver Implementation for Delay and Channel Loopback (up to 192 timeslots, 0 to 4000 ms/channel)
- EEA004 Four Port License for E1**
EEA008 Eight Port License for E1
EEAxxx Optional Software Apps for E1



tScan 16™ Express Card and breakout box

Dual T1 E1 Express PCIe Card

- XTE001 Dual T1 E1 Express Card**
Dual T1 E1 Card w/PCIe (x1) Interface – supports pulse mask and jitter functions; requires XUT001 or XUE001 for each card; special apps licensed per system
- XUT001 Basic T1 Software**
w/Basic Software for WIN 7 / 8.1 / 10
- XUE001 Basic E1 Software**
w/Basic Software for WIN 7 / 8.1 / 10

For more information, please visit <https://www.gl.com/dual-t1-e1-pcie-boards.html>



Dual T1/E1 Express PCIe Card

Universal Dual HD T1/E1 PCI Cards

- HTE001 HD Universal Dual T1/E1 Card**
Universal Dual T1 E1 Card – supports pulse mask and jitter functions; requires HUT001 or HUE001 for each card; special apps licensed per system
- HUT001 Basic T1 software**
w/Basic Software for WIN 7 / 8.1 / 10



Quad, Octal T1 E1 Card

tScan16™ Express Card

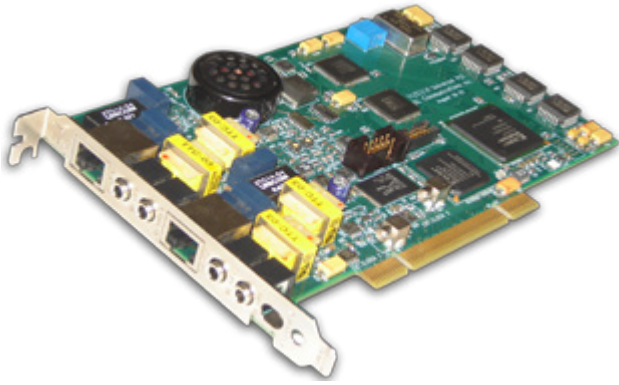
- TTE001 tScan16 Express Card**
16 port T1 E1 Receive Only Card – w/ GL Windows software and optionally Linux API, requires TTE002
- TUT001 Basic Software License for T1**
TUE001 Basic Software License for E1
TUTxxx Optional Software Apps for T1
TUExxx Optional Software Apps for E1
TTE002 Cable and Breakout Box for 16 RJ-48 Interfaces
TTE003 19" Rackmount Kit for Breakout Box

For more information, please visit <https://www.gl.com/16-port-t1-e1-analysis-pcie-card-tscan16.html>

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HUE001 Basic E1 software
w/Basic Software for WIN 7 / 8.1 / 10



HD Universal Dual T1/E1 Card

T1/E1 Portable USB Unit

UTE001 Dual Laptop T1/E1 Hardware USB Base Unit
Portable USB Unit - requires UTA001 or UEA001

UTA001 Basic T1 software
W/ Basic Software for WIN 7 / 8.1 / 10

UEA001 Basic E1 software
W/ Basic Software for WIN 7 / 8.1 / 10

SA000C Optional High stability +/- 1 ppm Internal Clock

For more information, please visit <https://www.gl.com/dual-t1-e1-vf-usb-portable-units.html>



Dual T1/E1 Analyzer USB Pod

tProbe™ - T1 E1 VF, Serial Data Communications Analyzer

PTE001 tProbe™ Analyzer (Dual Ports)
Portable USB Unit – requires PTA001 or PEA001

PTA001 T1 Software for tProbe™

PEA001 T1 Software for tProbe™
w/Basic Software for WIN 7 / 8.1 / 10

SA000c High Stability Internal Clock Option
+/- 1 ppm Internal Clock

PTE015 w/ 2Wire FXO and FXS Optional Board
2Wire FXO FXS Board – T1 and E1 – uses xx600, requires xx624 (MAPS FXO FXS)



tProbe Analyzer (Dual Port)

PTE025 tProbe™ with Data Communications Optional Board
Data Communications Board for Interfaces RS-232, RS-449, RS-442, EIA-530, EIA-530A, V.35, NRZI, Manchester (IEEE, GET, Diff, FM0, FM1)

w/Basic Software for WIN 7 / 8.1 / 10 includes BERT, Enhanced BERT, Error Insertion, Tx/Rx Loopback, Precision Delay Measurement, Monitor Rx Data for Sync 2.4 KHz to 16.384 MHz and Async 300Hz to 115.2 KHz



tProbe w/ Datacom Analyzer Board

Datacom Cable and Accessories

SA600 1S0015 Cable DB15M / DB15M, 6'
For use with X.21

SA601 2C0001 Cable, DB25M/DB25F, 1' reversal
For use with RS232, RS530 and V.24 as DCE

SA602 2S0001 Cable, DB25M/DB25M, 6'
For use with RS232, RS530 and V.24

SA603 3A0001 Cable, DB25M/34M, 6'
For use with V.35

SA604 3S0001 Cable, Bantam/Bantam, 6'
For use with T-1

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SA605 4A0001 Cable, DB25M/DB37M, 6'
For use with V.35

SA606 6S0001 Cable, BNC/BNC, 6'
For use with T-3/E-3 and E-1

SA607 6S358A Cable, BNC to 358A, 6'
For use with T-3

SA608 6S440A Cable, 440A to 440A, 6'
For use with T-3/E-3

SA609 6A440B Cable, BNC to 440A, 6'
For use with T-3/E-3

SA610 7A0002 Cable, Dual Bantam to RJ48, 6'
For use with T-1/E-1

SA611 7A0003 Cable, Bantam to BNC, 6'
For use with T-1/E-1

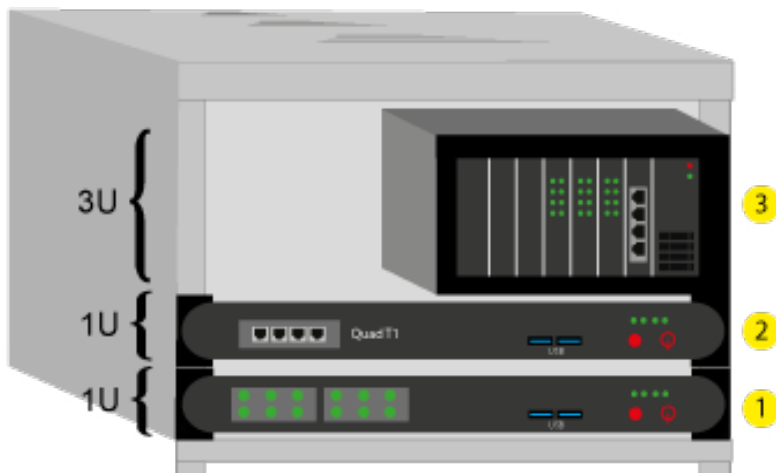
SA614 K00002 Cable, Console - modular RJ11 to DB9 pin connector
For Laptop;

SA615 A440BN Cable, Adapter 440 to BNC, 2.25"
For use with SA606;

Analog Phone Simulator (APS)

APSCB-24 24-Port Analog Phone Simulator, 115V P/S
Simulates a bank of 24 phones; A minimal configuration DCOSS is required – (DT002 and DR001) Requires DS011

MAPS™ APS 24 Port



- 1 VQT Analysis
- 2 MAPS™ APS Server
24-Port Analog Phone Simulator
- 3 APSCB-24 x1 (Patch Panel not shown)

APSCB-48 48-Port Analog Phone Simulator, 115V P/S
Simulates a bank of 48 phones; A minimal configuration DCOSS is required – (DT004 and Dr001) Requires DS011

MAPS™ APS 48 Port



- 1 VQT Analysis
- 2 MAPS™ APS Server
- 3 APSCB-48 x1 (Patch Panel not shown)

48-Port Analog Phone Simulator

APSCBi-24 24-Port Analog Phone Simulator, International, 230V P/S
Simulates a bank of 24 phones; A minimal configuration DCOSS is required – (DT002 and DR001) Requires DS011

APSCBi-48 48-Port Analog Phone Simulator, International, 230V P/S
Simulates a bank of 48 phones; A minimal configuration DCOSS is required – (DT004 and Dr001) Requires DS011
<http://www.gl.com/aps.html>

For more information, please visit <https://www.gl.com/2Wire-Analog-Bulk-Call-Generator.html>



Analog Phone Simulator

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APSCB-96 96-Port Analog Phone Simulator, 115V P/S

Simulates a bank of 96 phones; A minimal configuration DCOSS is required – (DT008 and Dr001) Requires DS011

MAPS™ APS 96 Port



- 1 VQT Analysis
- 2 MAPS™ APS
- 3 APSCB-48 x2 (Patch Panel not shown)

96-Port Analog Phone Simulator

APSCB-192 192-Port Analog Phone Simulator, 115V P/S

Simulates a bank of 192 phones; A minimal configuration DCOSS is required – (DT004 and Dr001) Requires DS011

MAPS™ APS 192 Port



- 1 VQT Analysis
- 2 MAPS™ APS
- 3 APSCB-48 x4 (Patch Panel not shown)

192-Port Analog Phone Simulator

mTOP™ Integrated Test Platforms

Refer to [mTOP™ Platforms](#) page for more details.

Basic Applications for T1 E1 Analyzer

Monitoring Applications

Monitor T1/E1 Status

Monitor line sync loss, HDB3 violation, carrier loss, frame error, distant MF, alarm indication signal (AIS), ES, and so on.

Four Wire VF Interface with Drop & Insert

Control the gain of the signal, feed the PCM signal on a timeslot to the VF Out jack or to an onboard speaker.

Clock options: Internal, External, & Recovered

Internal clock using an internal oscillator, recovered clock using the clock derived from the received signal, and external clock as provided at the SMB input.

Connection Options: Terminate, Bridge, Monitor

Input signal (the signal connected to the "T1/E1 In" jack) may be terminated using impedance, monitored, or bridged depending on user requirements.

Bytes Values Display for all time slots

Displays data values for each time slot in HEX data format.

Binary Byte Values Display for all time slots

Displays the data values for each time slot in binary data format.

Monitor signaling bits

Displays signaling bits associated with each timeslot are displayed in real-time.

Power Level Display for all time slots

Displays the rms (root-mean-square) value of the digital codewords (after expansion from μ -law or A-law) for each timeslot continuously in dBm.

DC Offset Display for all time slots

Displays DC offsets for all timeslots.

Frequency Display for all time slots

Displays signal frequency in each timeslot continuously.

Multiframe Byte Display

Permits viewing of a complete multiframe. For T1 systems, twelve (12) frames are displayed per multiframe in D4 (193S) framing format, and twenty-four (24) frames in ESF (193E) framing format. For E1 systems, 16 frames are displayed per multiframe.

Real Time Multiframe Monitoring

Permits viewing of multiframe in real-time. The data is refreshed for about every second.

Real Time Bitmap Monitoring

Permits a graphical view of complete multiframe as a real-time bitmap.

Time Slot Byte Display

Displays the timeslot value for about '1' second for a desired timeslot.

ASCII Time slot Display

Permits viewing of real-time ASCII events that are present on the T1 or E1.

Real Time Oscilloscope Display of DS0

PCM codes (amplitude of the incoming signal) of any selected timeslot are displayed in real-time graphically as a function of time.

Real Time Power Spectral Display of DS0

Permits viewing the data received on a specified timeslot spectral domain (spectral amplitude Vs frequency).

TDM Hardware & Software Products



Audio Monitoring

Allows the control of VF output (speakers) of all T1/E1 cards connected to a PC under a single program.

Active Voice Level Monitoring

Computes the Active Voice Level according to the ITU-T P.56 specification, Method B.

Intrusive Testing Applications

Full / Fractional T1/E1 BERT with Drop & Insert

Generates/detects unframed, framed, and fractional data that are defined in Pseudo Random Bit Sequence (PRBS).

Enhanced Multi Channel Bit Error Rate Tester (Supported only in USB and HD T1/E1 analyzer units)

Measures the correctness of data received on T1/E1 lines according to the repetitive pattern file for a given transmission.

Transmit Tone

Transmits a tone of any frequency (within 5 Hz to 4000 Hz) into one or more timeslots simultaneously.

Transmit Gaussian Noise

Transmits Gaussian Noise into one or more timeslots simultaneously (the power level of the noise is adjustable from -140 dBm and up to a maximum of +3.17 dBm).

User-defined Multiframe

Users can define the contents of a multiframe for repeated transmission.

Signaling Bits

Transmits the signaling bits into one or more timeslots simultaneously.

Precision Delay Measurement

Measures the Round Trip Delay of a system.

Tx_Rx Loopback

This application is for diagnostic purposes only. It loops all the receive data from all timeslots back to the transmitting port.

Error Insertion

Permits single, fixed, automatic, and random error insertion into the incoming bit stream. Bulk delay is an added feature in Error insertion application (applicable only to USB Analyzers) that allows users to apply delay on the entire T1/E1 trunk (full multi-frame) of 1.544Mbps (T1) pipe or 2.048 Mbps (E1) pipe.

Basic Client/Server Scripted Control Software (XX600)

Precise & Sequential control of T1 or E1 Lines – Client/Server – Uses TCP/IP, included with basic software

Dual VF Tx Rx (XX605 only for tProbe™)

User Friendly GUI for analog / digital audio Tx/Rx functions – included with basic software, all necessary options except xx626

XX010 API Development Software Toolkit (Windows®)

Develop applications for T1/E1 Products for Windows Platforms ; Requires C++ programming skills.

XX011 API Development Software Toolkit (Linux)

Develop applications for T1/E1 Products for Linux Platforms ; Requires C++ programming skills

XX012 Pulse Shape & Jitter Generation/Measurement

Easy, accurate, visual pulse shape and jitter generation / measurement of T1 E1 signals (Universals, tProbes, Express platforms); included with basic software

XX017 Real-time T1/E1 Multi-Channel Audio Bridge

Streams audio to/from TDM channel(s) from/to sound device(s) in a PC system; supports A-law, u-law, G.726 (16, 24, 32, 40 kbps), 722; included with basic software

XX022 DTMF/MF/MF-R2 Detector and Generator

Allows to transmit and receive DTMF/MF/MFC-R2 Digits with Detailed Analysis. included with basic software

XX023 E1 μ -Law Software or T1 A-law Software

Supports operation of T1 Systems with a-Law and E1 Systems with μ -Law. included with basic software

XX024 Real-time Strip Chart

Provides a real-time display of calls with synchronized PCM and signaling display.included with basic software

XX050 Signaling Bits Recorder Software

Records / Displays ABCD Signaling Bits – All Channels. included with basic software

STE050 Sample Traffic Files

Includes various Fax, Modem, Digits, Voice and Binary Traffic files for voice, fax, data, and tone testing of networks.

Special Applications for T1 E1 Analyzer

XX018 Multi-Channel BERT Software

Supports simultaneous and independent BERT's on many sub-channels, timeslots, and hyper-channels.

XX019 Transmit / Receive File Utility

Includes a Command-line utility for file transmit and receive over T1/E1; a similar versatile GUI application is also provided.

XX020 Record Playback Software

File Capture & Transmit over T1 E1 plus a versatile Automated capture/transmit application and Synchronous Trunk Record Playback Application; includes STE040 Mux / De Mux Software

STE040 Multiplex / Demultiplex Software

Processing Software for T1/E1 Tx / Rx Files – requires dongle; included with xx020 Record / Playback Software

XX021 FDL Software for ESF (T1 Only)

Supports transmit and capture over ESF links.

OLV021 Offline FDL Analysis Software for ESF (T1 Only)

Offline FDL Analysis Software for T1 ESF Links

Call Capture & Analysis Software Options

XX031 Enhanced T1/E1 Call Capture/Analysis Software

CCA with traffic based call triggering. Trigger and capture on specific traffic types e.g. fax, specific modems, voice, and tones such as dial, busy, ring back, royalty, includes CMU031; requires license for XX030

CDR032 Call Data Records

Provides detailed and complete call information for every call including detailed signaling, alarm, and voiceband events. Requires and works with Multiple Call Capture xx031, or PacketScan PKV100, or PPP/ML-PPP xx135 and xx136. Also requires VBA032 and VBA036; requires dongle(s)

CMU031 Call Management Utility

Organize, play, and view captured calls from XX031 software – requires dongle, included with XX031

TDM Hardware & Software Products



Windows Client/Server Software Options

- XX606 Pulse Shape & Jitter Measurement**
Pulse Shape and Jitter Measurement Data of T1 E1 signals (Universal and tProbes only), included with basic software
- XX610 w/ Transmit and Receive File capability**
Provides ability to Tx Rx Files directly over T1/E1 lines – server based; ability to Tx Rx data directly from client;
- XX620 w/ DTMF/MF/MFC-R2 + answer/place call capability**
Tone and Dual Tone detection and generation and CAS signaling capability; included with basic software
- XX625 w/Channel Associated Signaling Simulator**
Special Client simulates all CAS protocols, including wink-start, loop-start, ground start, R1, MFC-R2, etc. (requires xx610, xx620, and xx630) also available as a remote client with dongle
- XX626 w/ SS1 Signaling Analyzer and Dialer**
SS1 Signaling analysis and dialer for FAA circuits; includes xx610, and xx630
- XX629 w/ISDN Emulation**
Emulates call setup and teardown using ISDN protocol – all variants; includes xx640, recommended xx610 and xx620 for traffic generation and reception.
- XX630 w/ DSP Capability**
Permits complex DSP Operations;
- XX631 w/Dynamic DSP Capability**
Permits time varying DSP Operations, requires xx630
- XX634 w/ High Throughput HDLC Tx/Rx Test**
Allows HDLC Simulation with large number of hyper-channels, channels, and sub-channels, with impairments.
- XX635 w/ High Throughput PPP Tx/Rx Test**
PPP Emulation, requires xx634
- XX636 w/ High Throughput MC ML-PPP Tx/Rx Test**
Performs MC ML-PPP and NCP Emulation-including Client GUI for MCML-PPP Emulation-requires xx634 & xx635
- XX640 w/ HDLC Encode/Decode & Remote Capture**
Allows sending and receiving HDLC frames from files;
- XX643 w/ MTP2 Emulation**
Emulates endpoints using MTP2 protocol stack for building signaling systems for validation and testing.
- XX646 w/ TRAU Frames Tx & Rx with error testing**
Continuity testing within payload over multiple TRAU Traffic Channels.
- XX650 w/ File based HDLC Record/Playback over SA-bits**
Supports receiving and transmitting of HDLC frames on TS0 special bits in *.hdl file format– E1 only.
- XX660 w/ File based Record/Playback FDL**
Supports receiving and transmitting over ESF – T1 only
- XX670 w/Multi-Channel Rx BERT**
Supports simultaneous Rx BERT on many timeslots and hyper Channels, requires xx610.

- XX680 w/T1E1 Traffic Classifier**
Analyzes and classifies various traffics such as voice, fax, data, tones (dial tone, ring-back tone, busy tone etc) as well as identify dialing digits and other events happening on a T1/E1 network; requires dongle
- XX690 w/ SS7 Protocol Decode Agent**
Client application to monitor and decode SS7 Links, filters based on user specified protocol parameters, builds CDRs, 069 streams over TCP/IP to remote site; specialized client required at remote site;.
- XX691 w/ ISDN Protocol Decode Agent**
This is a console client application that monitors ISDN Links, decodes multiple ISDN protocol standards, filters, user specified protocol parameters, builds CDRs, streams over TCP/IP to remote site; specialized client required at remote site.
- XX653 ATM-SSCOP Emulation**
SSCOP Emulation over ATM
- XX654 Inverse Multiplexing over ATM (IMA) Protocol Emulation**
Emulates Inverse Multiplexing over ATM (IMA) over multiple T1s or E1s; includes GUI.
- XX655 w/ Multi-link Frame Relay Emulation**
Emulates, transmits, and receives multilink frame relay test traffic; requires xx634

MAPS™ Protocol Simulation & Conformance for TDM

- XX624 MAPS™ FXO FXS (only for tProbe™)**
Emulates 2wire FXO / FXS interfaces, requires PTE015; includes xx620, and xx630
- XX649 MAPS™ – SS7 (ISUP and MAP) Emulation**
SS7 Protocol Emulation with detailed control, requires xx610 and xx620 for traffic generation; xx643 is included; Also available as a remote client with dongle
- XX647 MAPS™ – SS7 / ISUP Conformance Scripts**
Includes SS7 / ISUP Protocol Conformance Scripts; requires xx649
- XX648 MAPS™ – ISDN Emulation**
ISDN Protocol Emulation with detailed control, includes xx661 for LAPD Emulation, requires xx610 and xx620 for traffic generation; Fax emulation supported (Optional - Refer [XXFT0](#))
- XX642 MAPS– ISDN Conformance**
ISDN Protocol Conformance Test Scripts, includes xx661
- XX661 LAPD Server**
Emulates endpoints using LAPD protocol stack for building signaling systems for validation and testing
- XX662 LAPD Conformance**
LAPD Conformance testing as per ITU / ISO specifications, requires xx634
- XX651 MAPS™ CAS Emulation (may require CB)**
Special Client simulates all CAS protocols, including wink-start, loop-start, ground start, R1, MFC-R2, etc. (requires xx610, xx620, and xx630); Fax emulation supported (Optional - Refer [XXFT0](#)); also available as a remote client with dongle. May require Channel Bank (APSCB-24 or APSCB-48) for 2wire emulation

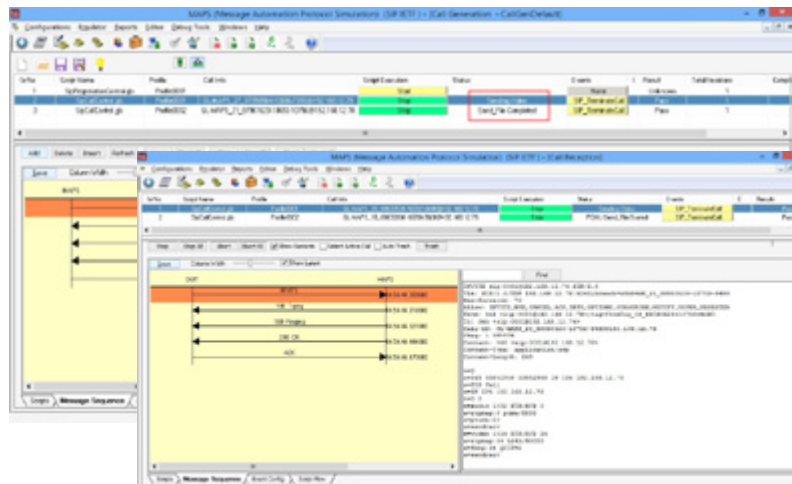
TDM Hardware & Software Products



- XX652 MAPS™ – MC ML-PPP Protocol Conformance Scripts**
Includes MC ML-PPP Protocol Conformance Scripts; includes xx634
- XX656 MAPS – INAP Emulation**
ITU SS7 INAP CS1 CS2 Emulation
- XX692 MAPS™ – GSM A Interface Emulation**
GSM A Interface Emulation with detailed control, includes xx643; requires xx610 and xx620 for traffic generation
- XX693 MAPS™ – GSM Abis Interface Emulation**
GSM “Abis” Interface Emulation with detailed control, includes xx661 and requires xx646 for TRAU Tx Rx
- XX694 MAPS™ MAP Emulation**
MAP Protocol Support for interfaces B,C,D, E, F, G, and H
- XX695 MAPS™ SS7 BICC Emulation**
Bearer Independent Call Control (BICC) Emulation
- XX682 MAPS – IUP Emulator**
BT (UK) IUP Protocol Emulation, includes xx643, xx610 and xx620 required for traffic generation; Fax emulation supported (Optional - Refer [XXFT0](#));
- XX696 MAPS™ SS7 CAP Emulation (CAMEL App Part)**
Customized Application for the Mobile network Enhanced Logic – CAMEL Application Part (CAP) includes xx643
- XX697 MAPS™ BSC to SGSN Emulation over E1**
BSC to SGSN Emulation over E1 (at BSC),
- XX698 MAPS™ SGSN to BSC Emulation over E1**
SGSN to BSC Emulation over E1 (at SGSN)
- XX699 MAPS – ANSI MAP Emulation**
IS41 Emulation on B, C, E, F, H, Q, and N interfaces xx634

Protocol Analyzer and Emulators

- XX090 T1/E1 Real-time HDLC Decode/Store/Impair Software**
Decodes, Captures, Impairs HDLC frames from DSO timeslots.
- XX095 E1 Real-time SA Bit HDLC Analysis**
Transmits and captures HDLC frames from SA bits TS0.
- XX100 T1/E1 Real-time ISDN Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of ISDN D-Channel.
- XX102 T1 REAL-TIME DDS PROTOCOL ANALYZER**
Real-Time Monitoring / Capture of DDS Channels within T1 Lines – supports 9.6, 4.8, 2.4 kbps channels in DS0-A and DS0-B formats
- XX105 T1/E1 Real-time ISDN Protocol Emulator**
Supports call emulation using all flavors of ISDN.
- XX110 E1 Real-time V5.x Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of V5.X.
- XX120 T1/E1 Real-time SS7 Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of SS7 (MTP, ISUP, TCAP, SCCP, INAP, IS-41, TUP, CAMEL, CAP)
- XX130 T1/E1 Real-time Frame Relay Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of Frame Relay protocol.
- XX135 PPP and ML-PPP Analyzer**
Analysis and Decode of ML-PPP and PPP protocols and other higher layer IP protocols
- XX136 PPP and ML-PPP Packet Analysis**
Realtime Packet Voice, Video, and Fax Analysis – includes SIGTRAN, PacketScan functions - but not specialized codecs; requires xx135
- XX140 T1/E1 Real-time GR303 Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of GR303 (TMC, EOC, CSC)
- XX142 T1/E1 Real-time CDMA2000 Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of A interfaces in CDMA2000 networks.
- XX150 T1/E1 Real-time GSM Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of GSM protocol (all layers).
- XX151 T1/E1 Real-time GSM Protocol Analyzer with Motorola Mobis Option**
Supports real-time monitoring, decoding, and analysis of GSM protocol – all layers with Motorola Mobis decodes; requires xx150.
- XX153 TRAU Protocol Analyzer : w/ PDA for Voiceband Analysis**
TRAU Playback : TRAU Playback of captured TRAU files
TRAU Toolbox : TRAU Toolbox – Emulate Tx/Rx TRAU
- XX155 T1/E1 Real-time GPRS Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of Gn-Interface & Gb-Interface.
- XX160 T1/E1 Real-time ATM Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of ATM on T1/E1 lines
- XX165 T1/E1 Real-time UMTS Protocol Analyzer**
Supports real-time monitoring, decoding, and analysis of broadband wireless protocols



MAPS™ Call Generation and Call Reception

TDM Hardware & Software Products



- XX089 Protocol Identifier**
Identifies protocols within T1/E1 whether the bandwidth occupied is full, fractional, timeslot, or sub-timeslot.
- XX500 Lucent Protocol Analyzers**
- XX092 CAS (Channel Associated Signaling) Analyzer**
Channel Associated Signaling Analyzer – includes xx610, xx620, and xx630; performs R1, MFC-R2, and other CAS Signaling Analysis
- XX162 ATM BERT**
Performs ATM Bit Error Rate testing over virtual circuits.
- OLV090 Offline/ Remote HDLC Protocol Analyzer**
Decode and Analyze pre-captured HDLC files Remote Protocol Analyzer (includes WCS xx600, requires xx640)
- OLV095 Offline SA Bit HDLC Protocol Analyzer**
Decodes and analyzes pre-captured SA Bit HDLC files.
- OLV100 OLV100 Offline / Remote ISDN Analyzer**
Decode / Analyze pre-captured ISDN files Remote Protocol Analyzer (includes WCS xx600, requires xx640); Optional with PKV170 Network Surveillance Base Software for ISDN Decode / Analysis;
- OLV110 Offline / Remote V5.x Protocol Analyzer**
Decode / Analyze pre-captured V5.X files Remote Protocol Analyzer (includes WCS xx600, requires xx640)
- OLV120 Offline / Remote SS7 Protocol Analyzer**
Decode / Analyze pre-captured SS7 files.
Remote Protocol Analyzer (includes WCS xx600, requires xx640); optional with PKV170 Network Surveillance Base Software for SS7 Decode / Analysis.
- OLV130 Offline / Remote Frame Relay Protocol Analyzer**
Decode / Analyze pre-captured Frame Relay files Remote Protocol Analyzer (includes WCS xx600, requires xx640), Note 2
- OLV135 Offline PPP and ML-PPP Protocol Analyzer**
Decodes and analyzes pre-captured ML-PPP and PPP files.
- OLV136 Offline PPP and ML-PPP Packet Analysis**
Offline Packet Voice, Video, and Fax Analysis - includes SIGTRAN, PacketScan™ functions - but not specialized codecs.
- OLV140 Offline / Remote GR303 Protocol Analyzer**
Decode / Analyze pre-captured GR303 files, Remote Protocol Analyzer (includes WCS xx600, requires xx640)
- OLV142 Offline CDMA2000 Protocol Analyzer**
Decodes and analyzes pre-captured CDMA2000 files.
- OLV150 Offline GSM Protocol Analyzer**
Decodes/Analyzes pre-captured GSM files;
optional with PKV170 Network Surveillance Base Software for GSM Decode / Analysis.
- OLV151 Offline GSM Protocol Analyzer with Motorola Mobis decodes**
Decodes/Analyzes pre-captured GSM files with Motorola Mobis decodes; requires OLV150.
- OLV153 Offline TRAU Protocol Analyzer**
Decodes and analyzes pre-captured TRAU files.
- OLV155 Offline GPRS Protocol Analyzer**
Decodes and analyzes pre-captured GPRS files.
- OLV160 Offline ATM Protocol Analyzer**
Decodes and analyzes pre-captured ATM files.
- OLV165 Offline UMTS Protocol Analyzer**
Decodes and analyzes pre-captured UMTS files.
- OLV092 Offline CAS Analyzer**
Offline CAS Analyzer; optional with PKV170 Network Surveillance Base Software for CAS Decode / Analysis;
- DC007 DCME Test & Analysis Software w/ Desktop PC**
- DC008 DCME Test & Analysis Software w/Portable PC**
- ## TDM Network Monitoring Tools
- PKV169 Network Surveillance Lite Software**
Probe Level WebServer for PacketScan™, includes Oracle 11g Express Edition; requires PKV100; optionally requires PKV105 for Sigtran; PKV103 for GSM & UMTS; PKV107 for LTE
- PKV170 Network Surveillance Base Software (Perpetual License, Unlimited Users/Nodes) – Includes Standard Server-Grade Computing Platform**
Centralized Database Engine and Client – works with Protocol Analyzers, includes Oracle 11g Standard Edition One and Standard Server-Grade Computing Platform ; requires the following respective modules based on the protocol selection
- PKV171 Network Surveillance Agent Toolkit**
Documentation, sample code (C++), and technical support for real-time connection to probes
- PKV175 T1 E1 Physical Line Monitoring Option for Network Surveillance**
Provides T1 E1 Physical Layer Status with Network Surveillance Solution
- PKV172 ISDN Call Detail Record (CDR) Option for Network Surveillance**
Provides ISDN CDR option for Network Surveillance Base Software – At central site - requires OLV100; At probe level requires respective protocol analyzer software and hardware.
- OLV100 Offline / Remote ISDN Analyzer**
Decode/Analyze ISDN option for Network Surveillance Software. Optional with PKV170 Network Surveillance Base Software for ISDN Decode / Analysis; Remote Protocol Analyzer (requires xx640)
- PKV173 SS7/SIGTRAN Call Detail Record (CDR) Option for Network Surveillance**
Provides SS7 (ISUP and MAP) /SIGTRAN CDR option for Network Surveillance Base Software - At central site - requires OLV120 for SS7 and requires PKV106 for SIGTRAN; At probe level requires respective protocol analyzer software and hardware.
- OLV120 Offline / Remote SS7 Analyzer**
Decode / Analyze SS7 option for Network Surveillance Software. Optional with PKV170 Network Surveillance Base Software for SS7 Decode / Analysis; Remote Protocol Analyzer (requires xx640)

TDM Hardware & Software Products

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PKV106 Offline / Remote SIGTRAN Analyzer

Decode / Analyze SIGTRAN option for Network Surveillance Base Software

PKV092 CAS Call Detail Records (CDR) Option for Network Surveillance

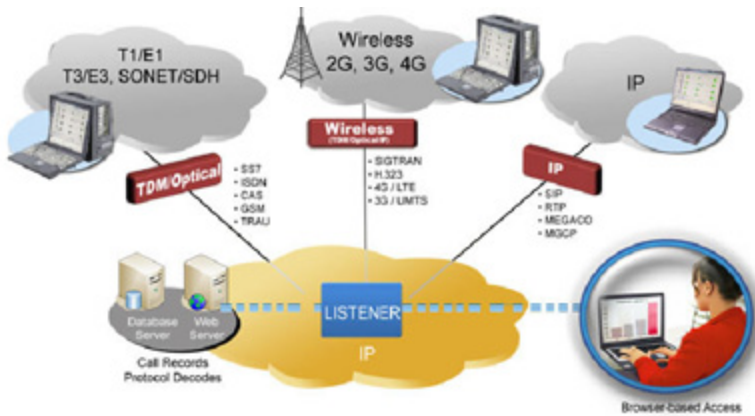
Provides CAS CDR option for Network Surveillance Base Software requires OLV092 at the central site, Decode/Analyze CAS Option for Network Surveillance Base Software – requires PKV170 and PKV092.

PKV174 GSM (TDM or IP) & TRAU Call Detail Record (CDR) Option for Network Surveillance

Provides GSM (TDM and IP) & TRAU (TDM) CDR option for Network Surveillance Base Software - At central site - requires OLV150 for GSM and requires OLV153 for TRAU, OR requires PKV109 for GSM IP; At probe level requires respective protocol analyzer software and hardware.

OLV092 Offline/Remote CAS Analyzer

Decode/Analyze CAS Option for Network Surveillance software Optional with PKV170 Network Surveillance Base Software for CAS Decode / Analysis;



Network Surveillance

OLV150 Offline / Remote GSM Analyzer

Decode / Analyze GSM option for Network Surveillance Software. Optional with PKV170 Network Surveillance Base Software for GSM Decode / Analysis.

OLV153 Offline / Remote TRAU Analyzer

Decode / Analyze TRAU option for Network Surveillance Base Software

PKV176 Provides VoIP Protocol (SIP, MGCP, Megaco etc.) CDR option for Network Surveillance Base Software

Requires SIP, Megaco, MGCP, H323, RTP Specific Software at Probe Level; requires PKV101 at the central site.

PKV101 Offline / Remote PacketScan Analyzer (Optional with PKV170 NetSurveyorWeb™)

Requires SIP, Megaco, MGCP, H323, RTP Protocol Decodes at Central Site (w/ dongle) - requires PKV170 and PKV176

MPT00 T1 Multiport Repeater

<http://www.gl.com/multiport.html>
For 1:12 T1 Repetition



T1 Multiport Repeater

MPE00 E1 Multiport Repeater

<http://www.gl.com/multiport.html>
For 1:12 E1 Repetition



E1 Multiport Repeater

DPT00 Dual T1 Multiport Repeater

<http://www.gl.com/multiport.html>
For 2X 1:4 T1 Repetition



Dual T1 Multiport Repeater

TDM Hardware & Software Products

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- DPE00 Dual E1 Multiport Repeater**
<http://www.gl.com/mltiport.html>
 For 2X 1:4 E1 Repetition



Dual E1 Multiport Repeater

- SWT001 T1 / E1 / J1 Monitor / Intrusive Switch**
<http://www.gl.com/t1e1j1switch.html>
 For 8 Port Monitor / Intrusive Failsafe Switch



T1/E1/J1 Monitor /Intrusive Switch

- SME063y Special Dual E1 Y Cable**
 Dual E1 Y Cable; Pinout E1#1, 8-2, 7-1, 6-5, 5-4, E1#2, 4-2, 3-1, 2-5, 1-4 – At least one required, up to 36 may be required; not included with SME063 or SME063d

- SME063sc Duplex SC to SC Single Mode 1310 nm**
 Duplex SC to SC Single Mode 1310 nm – 2 meters – At least one required

- BTS001 Small BTS GSM Cell**
 BTS with Abis over IP; up to 8 Tx/Rx channels

- BTS010 w/ GSM – R Option**
 Optional GSM – R Features

- BSC010 BSC / MSC GSM – R Option**
 Optional GSM – R Features for BSC and MSC

Miscellaneous

- SME063 STM-1 Multiplexer / Demultiplexer**

- SME063 w/ 1:1 Fiber Protection**
<http://www.gl.com/stm-1-mux-demux.html>
 Multiplexes and demultiplexes 63 E1s into / from an STM 1;
 optional 1:1 Fiber Protection

***** End of TDM Hardware & Software Products Section *****

Fax & Modem Analysis over TDM / IP

 Index

Fax & Modem Analysis Software

FXT001 GLInsight™ - Single Fax Analysis - TDM

FXT002 GLInsight™ - Single Fax Analysis – IP

Provides offline fax protocol and image analysis of captured PCM files w/ dongle.

http://www.gl.com/glinsight_overview.html

MDT001 GLInsight™ - Single Modem Analysis - TDM

MDT002 GLInsight™ - Single Modem Analysis - IP

Provides offline modem protocol and data analysis of captured PCM files w/dongle.

XXFT6 120 Fax port licenses

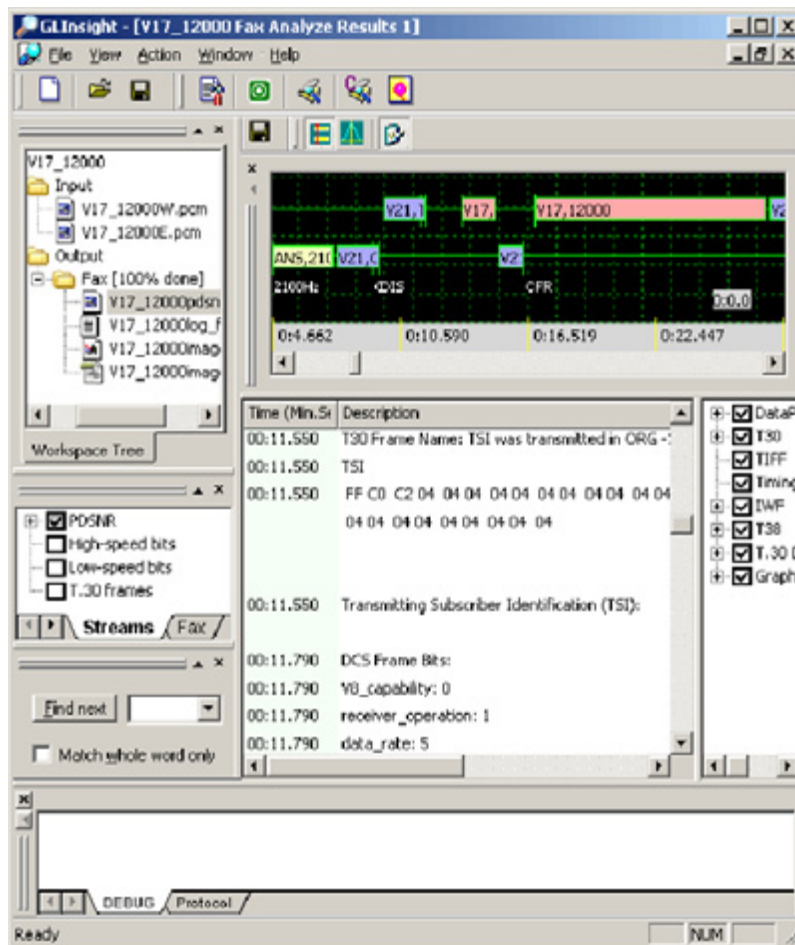
VQT035 Voice Recorder (FXO RJ11 Hardware Tap / 2-Wire Capture Software)

Used for capturing Audio from RJ11 connections for GL Insight Fax / Modem Analysis, requires warranty or USB T1E1 unit; includes FXO RJ11 Hardware Tap VBA038 FaxScan™ for PCM

PKV104 FaxScan™ for SIP and Fax over IP (T.38)

FaxScan™ is GL's command-line Fax decoder/demodulator application used to analyze the recorded voice band traffic (PCM stream & PCAP files) for Fax traffic. It provides analysis of the T.38 packets, T.30 frames, general call-flow indicators and decoded fax image in TIFF-F format. FaxScan™ is also available as a licensed module along with GL's Voice Band Analyzer (VBA) for processing 2-Wire or 4-Wire captures.

**** End of Fax & Modem Analysis over TDM / IP Section ****



GL Insight™

XXFT0 Fax Emulation

Fax Emulation for T1 E1 and Analog Interfaces (FXO and FXS), Includes xx600, requires one of the licenses as below-

XXFT2 2 Fax port licenses

XXFT3 8 Fax port licenses

XXFT4 30 Fax port licenses

XXFT5 60 Fax port licenses

Echo Canceller Test Tools



Echo Canceller Test Tools

PKB105 G.168 Echo Canceller Test Compliance Suite

Supports manual G.168 Echo Canceller Test Compliance Procedures and Codec Files (w/dongle to enable GLCView); includes PKB070.

PKB067 Automated Echo Canceller Testing – All IP Version

Provides Fully Automated EC testing per G.168 from the VoIP side includes PKB110 – call for details and limitations (w/dongle version); includes PKB070 and AEC001

PKB080 Automated Echo Canceller Testing TDM-VoIP

Provides Fully Automated LEC Testing per G.168 for combined TDM-VoIP Interfaces, requires dongle; includes PKB100, PKB110, xx600, xx610, xx630 and requires additional PKV100, T1/E1 Card with xx062 and xx105); includes PKB070 and AEC001

PKB081 Automated Acoustic Echo Canceller Compliance Testing (Partial Tests)

Provides Fully Automated AEC Compliance Testing per G.167 and P.340 for combined TDM-TDM and TDM-VoIP Interfaces, includes xx600, xx610, xx630, xx631; may require PKB100, PKB110, and Level Adjustment Unit ; xx062 and xx020 recommended ; includes PKB070.

AEC001 AutoEC Test Viewer

Offline Viewing of AutoEC Test Files / Results; included with PKB067 and PKB080

PKB070 Audio Processing Utility

Adds noise, creates line or acoustic echo, analyzes speech level and other useful functions – requires dongle; included with EMU037

XX062 Echo Path Delay / Loss Simulation Software

Simulates Echo Path Delay and Loss w/GLCView ; includes PKB070

XX063 Echo Path Delay / Loss Measurement Software

Measures Echo Path Delay and Loss.

XX065 G.168 Manual Test Suite for T1 & E1 Echo Cancellers

(Manual Testing Software and Procedures)
Specialized procedures, test software, and test files for manual Echo Canceller Testing per CCITT G.168; w/ GLC View; includes xx020, xx062, xx063, xx066, and PKB070.

XX066 Digital Echo Canceller

This application is a multi-channel digital echo canceller; Measure and displays impulse response, ERL, delay, etc.

XX067 Automated Echo Canceller Testing without VQT

Performs automated Echo Canceller testing in accordance with G.168 ITU test requirements; optional Voice Quality Testing Software; includes xx019 Tx/Rx Utility software or xx600, xx610, and xx630; w/dongle.

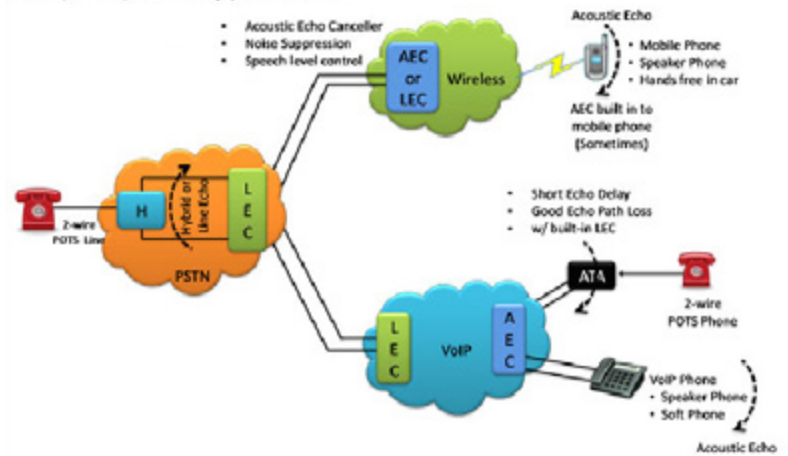
XX068 Semi-Automated and Scripted Echo Canceller Testing Suite w/ C++ Client

Uses Windows Client Server Software (includes xx600, xx610, xx630) with customizable scripts for EC G.168 Testing; w/dongle - available with C++ Client.

PKB080 Automated Echo Canceller Testing for TDM-VoIP

Refer to [Voice Quality Testing Products](#) for more details.

Echo, noise, and delay possibilities



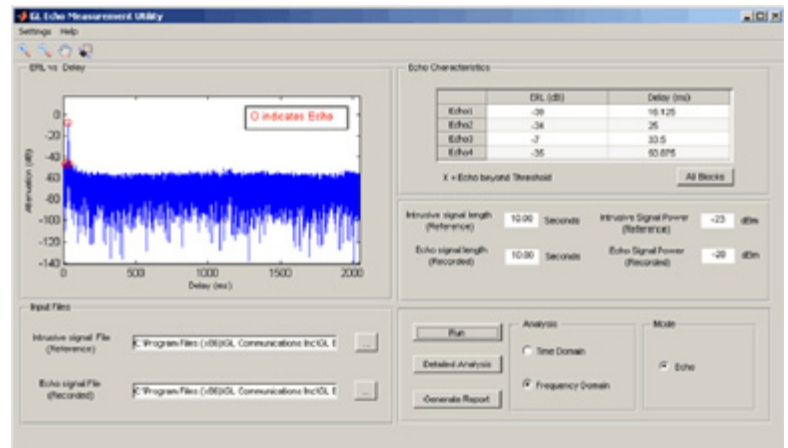
Echo Canceller

PKB081 Automated Acoustic Echo Canceller Compliance Testing (Partial Tests)

Refer to [Voice Quality Testing Products](#) for more details.

EMU037 Echo Measurement Utility

Analyzes echo return loss (ERL) and echo path delay (EPD) for 2Wire Analog, VoIP, T1 E1, and Mobile networks; PKB070 is included Refer to [Voice Quality Testing Products](#) for more details.



2-Wire Echo Measurement (EMU)

**** End of ECHO Canceller Test Tools ****

T3 E3 Analysis Emulation



T3E3 Hardware & Software Products

T3 E3 Portable Unit

TE3001 Dual T3 E3 / T1 E1 Hardware USB Base Unit
Portable USB Unit – Requires TT3001 or EE3001



Dual T3 E3 / T1 E1 USB unit

TE3005 RACK ENCLOSURE FOR T3/E3 SYSTEM – UP TO 6 T3/E3S
2U - 19" Rack Enclosure, Power Supply, Fans, 4 Port USB Hub, Cables and Accessories, Accommodates three (3) Dual T3/E3 USB Units, Requires TT3001 or EE3001.



2U- RACK Enclosure for T3/E3 System

TT3001 T3 / T1 / E1 Analyzer Basic Software
Basic Software for Windows® 7/10

EE3001 E3 / E1 Analyzer Basic Software
Basic Software for Windows® 7/10

- Portable T3 E3 / T1/E1 High Performance USB Base Unit
- w/ Basic Software for T3 / T1 Analyzer Basic Software
- w/ Basic Software for E3 / E1 Analyzer Basic Software
- Optional applications listed below

<http://www.gl.com/laptopt3e3.html>

For more information, please visit <https://www.gl.com/test-high-speed-wan-services-t3-e3-ds3-line.html>

mTOP™ Integrated Test Platforms

Refer to [mTOP™ Platforms](#) page for more details

For more information, please visit <https://www.gl.com/test-tools-in-rack-based-platforms.html#mtop-t1e1t3e3>

Basic Applications

Monitor T3 or E3 Status

Monitors the T3 (DS3) /E3 line conditions for available T3/E3 ports

Alarm Generation and Error Injection

Internally generates various types of errors and / or alarms and transmits them on the outgoing T3 (DS3)/E3 stream

Tx Rx Memory Loopback

Loops all the received data from the memory back to the transmitting port

Monitor Received Data

Monitors raw bit values on the selected ports

Transmit and Receive Configurations

Various options (errors insertion, error counting, FEAC messaging, frequency offset) can be configured in the Tx/Rx parameters for the T3 (DS3)/E3 signal

Multiplex and De-multiplex T1/E1 signals

Processing Software for T3/E3 Tx / Rx Files

Bit Error Rate Test - BERT (Full Frame and Unframed)

Measures the correctness of data received on T3 (DS3) /E3 channels for a repetitive fixed or pseudorandom pattern for the given transmission

Special Applications

(Note: XX below denotes TT3 or EE3 depending on the T3 or E3 Basic Software Purchased)

TT3020 T3 Record Playback Software (GUI)

EE3020 E3 Record Playback Software (GUI)

File Capture & Transmit over T3 E3 – framed & unframed

TT3021 T3 FEAC Messaging

Decode and Simulate Far End Alarm Channel (FEAC) messages

TT3190 T3 HDLC Tx/Rx Test + Analyzer (GUI)

EE3190 E3 HDLC Tx/Rx Test + Analyzer (GUI)

Send, Receive, and Analyze HDLC over T3 or E3

TT3135 T3 PPP Analyzer (GUI)

EE3135 E3 PPP Analyzer (GUI)

Analysis and Decode ML-PPP and PPP protocols and other higher layer IP protocols over T3 or E3

TT3130 T3 Frame Relay Analyzer (GUI)

EE3130 E3 Frame Relay Analyzer (GUI)

Analysis and Decode Frame Relay protocol over T3 or E3

TT3160 T3 ATM Analyzer

Analysis and decode of ATM cells over T3

TT3200 Channelized T3 License for T1

TTT001 Soft T1 Analyzer Application-Required and Included

TTTxxx Channelized Options for T1

Direct T1 Analysis for up to 28 T1s from T3
Channelized Options for T1

TT3210 Channelized T3 License for E1

EEE001 Soft E1 Analyzer Application-Required and Included

T3 E3 Analysis Emulation

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- EEExxx Channelized Options for E1**
Direct E1 Analysis for up to 21 E1s from T3
Channelized Options for E1
- EE3200 Channelized E3 License for E1**
- EEEE001 Soft E1 Analyzer Application-Required and Included**
- EEExxx Channelized Options for E1**
Direct E1 Analysis for up to 16 E1s from an E3
Channelized Options for E1
- TT3600 T3 Basic Client Server Scripted Control Software**
- EE3600 E3 Basic Client Server Scripted Control Software**
Precise & Sequential control of T3 or E3 Analyzer via
Client Server - Uses TCP/IP
- TT3610 T3 Client Server Tx/Rx File**
EE3610 E3 Client Server Tx/Rx File
Tx / Rx Files on Unframed or Unchannelized T3 or E3;
requires xx600
- TT3634 T3 Client Server High Throughput HDLC Tx/Rx Test**
EE3634 E3 Client Server High Throughput HDLC Tx/Rx Test
HDLC Simulation over T3 or E3 with Impairments ; requires xx600
- TT3635 T3 Client Server High Throughput PPP Tx/Rx Test**
EE3635 E3 Client Server High Throughput PPP Tx/Rx Test
PPP Emulation over T3 or E3, requires xx634 and xx600
- TE3002 USB T3 E3 Hardware Warranty**
T3 E3 USB Extended 1 yr. Hardware Warranty
- TE3003 USB T3 E3 Software Support**
T3 E3 USB Extended 1 yr. Software Upgrades and Support

For complete list of accessories including special hardware options, visit <http://www.gl.com/accessor.html>

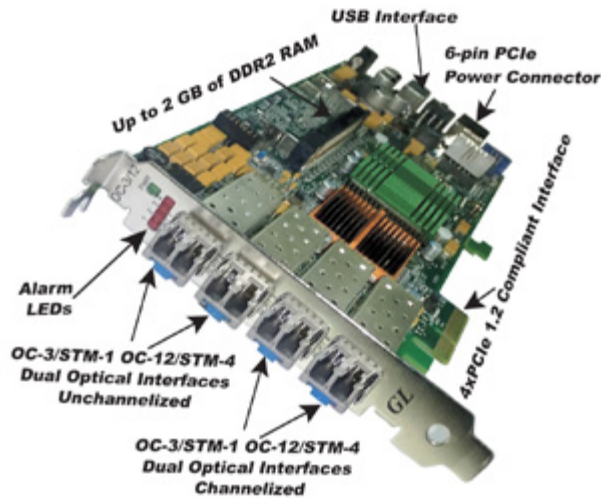
***** End of T3E3 Analysis Emulation Section *****

OC-3/STM-1 OC-12/STM-4 Analysis & Emulation

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OC-3, STM-1 and OC-12, STM-4 Hardware

LTS100 Lightspeed1000TM - Dual OC3/12 STM1/4 PCIe Card



Dual OC-3/12 & STM-1/4 PCI Express Card

LTS105 Lightspeed1000TM - Portable Dual OC3/12 STM1/4 USB Unit
PCIe Card or Portable USB Unit with Quad Interfaces: 2 - OC3 / OC12 / STM1 / STM4, 2 - GigE, and a single USB 2.0; requires LTS200 or LTS201, or LTS300 or LTS301, LTS501 or LTS502; includes 2 SM SFPs
<http://www.gl.com/OC3-OC12-analysis-emulation-card.html>



Portable Dual OC-3/12 & STM-1/4 USB unit

LTE001 **E1 Personality for Channelized**
E1 Personality for n x 16 E1 Channels

LTT001 **T1 Personality for Channelized**
T1 Personality for n x 16 T1 Channels

LTS102 **Hardware Warranty**
LTS103 Software Support

LTS111 **API Software Toolkit for Custom Development (Linux)**
Develop Custom Applications for OC-3/STM-1 OC-12/STM-4 Cards for Linux; Requires C++ dev skills

For more information, please visit <https://www.gl.com/OC3-OC12-analysis-emulation-card.html>

UnChannelized Analysis and Emulation Software Applications

LTS200 **OC3 / STM1 ATM Monitor, BERT, Tx/Rx Test**
Basic ATM Monitoring, Test, and BERT

LTS201 **OC3 / STM1 PoS Monitor, BERT, Tx/Rx Test**
Basic PoS Monitoring, Test, and BERT

LTS300 **OC12 / STM4 ATM Monitor, BERT, Tx/Rx Test**
Basic ATM Monitoring, Test, and BERT

LTS301 **OC12 / STM4 PoS Monitor, BERT, Tx/Rx Test**
Basic PoS Monitoring, Test, and BERT

LTS202 **Record Playback for OC3 / STM1 ATM**

LTS203 **Record Playback for OC3 / STM1 PoS**
Wirespeed capture and playback to / from hard disk w/ time-stamping; STS-3C/VC-4

LTS204 **Protocol Analysis for OC3 / STM1 ATM**
AAL2, AAL5 Protocol Analysis

LTS205 **Protocol Analysis for OC3 / STM1 PoS**
PoS Protocol Analysis

LTS215 **Packet Data Analysis (PDA) for PoS**
Packet Data Analysis (PDA) for PoS

LTS206 **Protocol Analysis for OC3 / STM1 UMTS**
UMTS Protocol Analysis; requires LTS200

LTS216 **Packet Data Analysis (PDA) for UMTS**
IuCs Call Analysis for UMTS, also called PDA

LTS214 **OC3 / STM1 SSCOP Server**
SSCOP Server Emulates ATM Layer 2 and Adaptation Layer (AAL2/5) Services – used with MAPS -IuCs

LTS217 **OC3 / STM1 AAL2 Traffic Core**
Traffic Simulation over AAL2 using various codecs, ability to Tx Rx voice files, tones, digits, etc, can be used with LTS220, requires additional codec licenses

LTS220 **OC3 / STM1 MAPS UMTS IuCS over ATM**
IuCS Interface Emulation over ATM, simulates RNC and MSC, requires LTS214

LTS207 **Delay Emulation for OC3 / STM1 PoS payloads**
Delay Emulation for PoS from 1 ms to 500 ms

LTS208 **Delay Emulation for OC3 / STM1 ATM payloads**
Delay Emulation for ATM from 1 ms to 500 ms

LTS302 **Record Playback for OC12 / STM4 ATM**

LTS303 **Record Playback for OC12 / STM4 PoS**
Wirespeed capture and playback to / from hard disk w/ time- stamping; STS-12C/VC-4-4C

OC-3/STM-1 OC-12/STM-4 Analysis & Emulation



LTS304 Protocol Analysis for OC12 / STM4 ATM
AAL2, AAL5 Protocol Analysis

The screenshot shows the ATM Protocol Analyzer interface. The top part is a table of captured frames with columns for Dev, TS, Frame#, Time (Relative), Len, Err, NP, VCI, PT, DSP, AAL Type, Frame Type, OC, LU, and UUI. Below the table, there is a detailed view of an ATM frame structure, including the ATM Layer (GFC, VPI, VCI, PT, CIP) and the AAL5 Reasonably (CPCS-PDU) Layer (Payload, Padding, CPCS User-to-User Indication (CPCS-UUI), Common Part Indicator (CPI), Length).

ATM Protocol Analyzer

LTS305 Protocol Analysis for OC12 / STM4 PoS
PoS Protocol Analysis

LTS315 Packet Data Analysis (PDA) for PoS
Packet Data Analysis (PDA) for PoS

LTS306 Protocol Analysis for OC12 / STM4 UMTS
UMTS Protocol Analysis; requires LTS300

LTS316 Packet Data Analysis (PDA) for UMTS
luCs Call Analysis for UMTS, also called PDA

LTS314 OC12 / STM4 SSCOP Server
SSCOP Server Emulates ATM Layer 2 and Adaptation Layer (AAL2/5) Services – used with MAPS -luCs

LTS317 OC12 / STM4 AAL2 Traffic Core
Traffic Simulation over AAL2 using various codecs, ability to Tx Rx voice files, tones, digits, etc, can be used with LTS220, requires additional codec licenses

LTS320 OC12 / STM4 MAPS UMTS luCS over ATM
luCS Interface Emulation over ATM, simulates RNC and MSC, requires LTS214

LTS307 Delay Emulation for OC12 / STM4 PoS payloads
Delay Emulation for PoS from 1 ms to 500 ms

LTS308 Delay Emulation for OC12 / STM4 ATM payloads
Delay Emulation for ATM from 1 ms to 500 ms

The screenshot shows the Network Delay Emulation configuration window. It includes a 'Ports' section with a list of ports (1, 2) and a 'Counter' table showing statistics for two ports. The 'Delay 1-500 ms' section has a value of 100. There are 'Start', 'Stop', and 'Exit' buttons at the bottom.

Counter	Port 1	Port 2
1s rx packets	353 223	0
10s rx packets	3 531 852	0
30s rx packets	10 595 941	0
60s rx packets	21 192 233	0
Overflow packets	0	0
Overflow events	0	0

Network Delay Emulation

Channelized Analysis and Emulation Software Applications

The following are only available for PCIe version of Lightspeed 1000

LTS501 OC3 / STM1 RAW

LTS502 OC12 / STM4 RAW
Rx/Tx RAW – Channelized / Unchannelized

LTS503 Record Playback for OC3 / STM1 RAW

LTS504 Record Playback for OC12 / STM4 RAW
Wirespeed capture and playback to / from hard disk w/ time-stamping

LTS108 Any 16 Ports Channelized License for OC3 / 12, STM1/4
Any 16 Ports Channelized License for OC3 / 12, STM1/4, n=1

LTS116 Any 32 Ports Channelized License for OC3 / 12, STM1/4
Any 32 Ports Channelized License for OC3 / 12, STM1/4, n=2

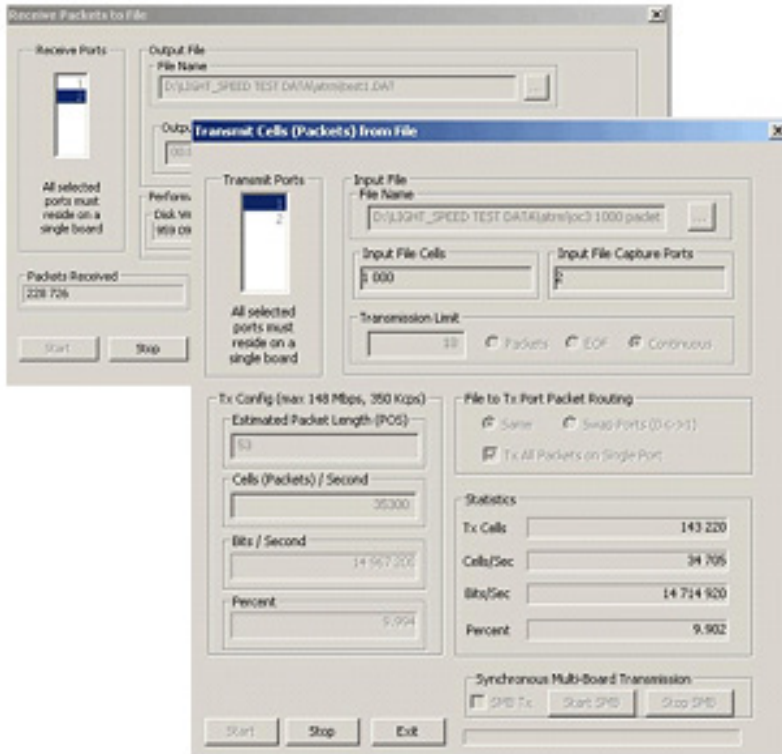
LTS124 Any 48 Ports Channelized License for OC3 / 12, STM1/4
Any 48 Ports Channelized License for OC3 / 12, STM1/4, n=3

LTS164 All Ports Channelized Licenses for OC3 / STM1
All Ports Channelized Licenses (84x2 for T1, 63x2 for E1), n=5

OC-3/STM-1 OC-12/STM-4 Analysis & Emulation

 **Index**

LTS464 All Ports Channelized Licenses for OC312/ STM4
All Ports Channelized Licenses (84x4 for T1, 63x4 for E1), n=6



Record and Playback for OC3/OC12

LTEXXX Channelized Options for E1
Channelized Options for E1 (ISDN, SS7, HDLC)

LTTXXX Channelized Options for T1
Channelized Options for T1 (ISDN, SS7, HDLC)

LTS400 512 MB Memory
LTS401 1 GB Memory
LTS402 2 GB Memory

IPN1310 SFP Transceiver for 1 Gbps Optical, Duplex LC, Single-Mode, 1310nm
Generic SFP for 1 Gbps Optical, Duplex LC Connector, Single-Mode, 1310nm, 15km typical maximum range

IPN850 SFP Transceiver for 1 Gbps Optical, Duplex LC, Multi-Mode, 850nm
Generic SFP for 1 Gbps Optical, Duplex LC Connector, Multi-Mode, 850nm, 550m typical maximum range

PN1310p SFP+ Transceiver for 10 Gbps Optical, Duplex LC, Single-Mode, 1310nm
Generic SFP+ for 10 Gbps Optical, Duplex LC Connector, Single-Mode, 1310nm, 10km typical maximum range

IPN850p SFP+ Transceiver for 10 Gbps Optical, Duplex LC, Multi-Mode, 850nm
Generic SFP+ for 10 Gbps Optical, Duplex LC Connector, Multi-Mode, 850nm, 300m typical maximum range

IPN100m QSFP28 Transceiver Multi-Mode 100G
QSFP28 Transceiver, Multi-Mode, 850nm, 100m, for 100 G, FTLC RDPL or equivalent

IPN100s QSFP28 Transceiver Single-Mode 100G
QSFP28 Transceiver, Single-Mode, for 100G, FTL4C2QE1C or equivalent

IPN040m QSFP+ Transceiver Multi-Mode 40G
QSFP+ Transceiver for 40G, Multi-Mode, 850nm, 100m, FTL4C2QE1C or equivalent

IPN040s QSFP+ Transceiver Single-Mode
QSFP+ Transceiver for 40G, Single-Mode, FTL4C1M1C or equivalent

IPN801 SFP Transceiver for 1 Gbps, Electrical, RJ45
Generic SFP for 1 Gbps, Electrical w/ RJ45 Connector

SA019a 1 Gbps / 10 Gbps Fiber Optic Cable, Single-Mode,
Duplex LC to Duplex LC
2m FO Jumper for 1 Gbps or 10 Gbps, 9/125 Single-Mode, Ø2mm

SA019b 1 Gbps / 10 Gbps Fiber Optic Cable, Single-Mode,
Duplex LC to Duplex SC
2m FO Jumper for 1 Gbps or 10 Gbps, 9/125 Single-Mode, Ø2mm

SA019c 1 Gbps / 10 Gbps Fiber Optic Cable, Multi-Mode,
Duplex LC to Duplex LC
2m FO Jumper for 1 Gbps or 10 Gbps, 50/125 Multi-Mode, OM3, Ø2mm

SA019d 1 Gbps / 10 Gbps Fiber Optic Cable, Multi-Mode,
Duplex LC to Duplex SC
2m FO Jumper for 1 Gbps or 10 Gbps, 50/125 Multi-Mode, OM3, Ø2mm

SA019e 4G / 100G Fiber Optic Cable, Multi-Mode
20 feet MPO (Female) Fiber Cable, 12 Fibers, QSFP, Multimode, for connection between 2 QSFP+ or 2 QSFP28 transceivers

SA019f 4G / 100G Fiber Optic Cable, Single-Mode
20 feet MPO (Female) Fiber Cable, 12 Fibers, QSFP, Single mode, for connection between 2 QSFP+ or 2 QSFP28 transceivers

SA019st 1 Gbps / 10 Gbps Fiber Optic Non-Intrusive T-tap, Duplex LC, Single-Mode
1 Gbps / 10 Gbps Fiber Optic T-tap for Non-Intrusive Monitoring, Duplex LC Connectors, 9/125 Single-Mode, 70/30 split – Should also order SA019sc or SA019sk2

SA019sc Fiber Optic Analyzer Cable, (Special 'Y' Cable), Single-Mode, Duplex LC to Dual Duplex LC, 3m
3m FO Jumper, 9/125 SM, Duplex LC-Dual Duplex LC, Ø3mm, Special Analyzer Cable for use with SA019st

SA019mt 1 Gbps / 10 Gbps Fiber Optic Non-Intrusive T-tap, Duplex LC, Multi-Mode
1 Gbps / 10 Gbps Fiber Optic T-tap for Non-Intrusive Monitoring, Duplex LC Connectors, 50/125 Multi-Mode, 70/30 split – Should also order SA019mc or SA019mk2

SA019mc Fiber Optic Analyzer Cable (Special 'Y' Cable), Multi-Mode, Duplex LC to Dual Duplex LC, 3m
3m FO Jumper, 50/125 MM, Duplex LC-Dual Duplex LC, Ø3mm, Special Analyzer Cable for use with SA019mt

SA019rt Electrical Regeneration Tap for 10/100/1000Base-T (non-aggregation)
Wirespeed Non-aggregation replication and monitoring, passive access without packet tampering, traffic from all OSI layers available for analysis, no IP address, fail-safe bypass, redundant power option extra

OC-3/STM-1 OC-12/STM-4 Analysis & Emulation

 Index

SA019rta Electrical Regeneration Tap for 10/100/1000Base-T (aggregation)

Wirespeed aggregation replication and monitoring, passive access without packet tampering, traffic from all OSI layers available for analysis, no IP address, fail-safe bypass, redundant power option extra

SA019sk2 1 Gbps Fiber Optic Single-Mode T-tap Kit with Required Cables and SFP Transceivers

Kit Includes: (1) SA019st, (1) SA019sc, (2) IPN1310, (2) SA019a, (2) SA019b

SA019mk2 1 Gbps Fiber Optic Multi-Mode T-tap Kit with Required Cables and SFP Transceivers

Kit Includes: (1) SA019mt, (1) SA019mc, (2) IPN850, (2) SA019c, (2) SA019d

SA019skp2 10 Gbps Fiber Optic Single-Mode T-tap Kit with Required Cables and SFP+ Transceivers

Kit Includes: (1) SA019st, (1) SA019sc, (2) IPN1310p, (2) SA019a, (2) SA019b

SA019mkp2 10 Gbps Fiber Optic Multi-Mode T-tap Kit with Required Cables and SFP+ Transceivers

Kit Includes: (1) SA019mt, (1) SA019mc, (2) IPN850p, (2) SA019c, (2) SA019d

***** End of OC-3/STM-1 OC-12/STM-4 Analysis & Emulation Section *****

Handheld Testers



Handheld Testers

- LTS010 LinkTest™ Dual E1 - E1, Datacom, Jitter, Wander Testing**
<http://www.gl.com/linktest-dual-e1-datacom-tester.html>
 GL's LinkTest™ Dual E1 is a handheld dual-port tester for E1 and data communications (V.11 / X.24, V.24/RS232, V.35, V.36/RS449, EIA-530, EIA-530A) interfaces.



LinkTest™ Dual E1

- LTS011 Data Communication Option**
 Data (V.24, V.28, RS-232, X.21, V.11, V.35, V.36, RS-449, EIA-530, EIA-130A)
- LTS012 Data, Jitter, and Pulse Mask Option**
 Data, Jitter, and Pulse Mask Option
- LTS015 Remote Option**
 Remote Option
- LTS010S Extended 1 Yr. Hardware and Software Support**
 Extended 1 Yr. Hardware and Software Upgrades and Comprehensive Support
- LTS016a DTE/DCE Cables V.24 / V.28 / RS-232**
- LTS016b DTE/DCE Cables X.21 / V.11**
- LTS016c DTE/DCE Cables V.35**
- LTS016d DTE/DCE Cables V.36 / RS-449**
- LTS016e DTE/DCE Cables EIA-530A**
 Includes both DTE and DCE Cables
- LTS017 SNMP Option for LTS010**
 SNMP Remote Control and Automation, based on SNMP protocol, allows user to control remotely using SNMP queries
- DX005 Second-Year Extended Hardware Warranty**
 Please review Hardware Warranty Guidelines as outlined in the User Manual

For more information, please visit <https://www.gl.com/linktest-dual-e1-datacom-tester.html>

- PKV201 PacketShark™**
GbE Packet Capture, Filter & Aggregation Tap
<http://www.gl.com/packetshark-handheld-gigabit-ethernet-tester.html>

GL's PacketShark™ is a handheld hardware that can tap packet networks, capture Ethernet packets at wire speed, i.e., in optical or electrical interfaces up to 1 Gb/s and selectively filter the captured traffic based on specified criteria. Packets are transmitted through two ports and the packets that are traffic compliant with one of the filters is sent to a packet analyzer, such as GL's PacketScan™ for detail packet analysis. Alternatively, the traffic can be even sent to a memory card (SD) and later analyzed offline.

- PKV202 Remote Option**

- PKV201S Extended 1 Yr. Hardware and Software Support**
 Extended 1 Yr. Hardware and Software Upgrades and Comprehensive Support



PacketShark™

- IPN701 IPNetSim™ Handheld - Ethernet, IP, WAN Network Emulator**
<http://www.gl.com/ipnetsim-handheld-wan-emulator.html>

GL's IPNetSim™ Handheld is a hand-held battery operated instrument that can simulate the real-time IP and Carrier Ethernet network dynamics by means of hardware controlled packet delay, loss, jitter, errors, bandwidth limitations, congestion, and duplication. IPNetSim™ Handheld offers to manage network behaviors of up to 1 Gbps rates with accuracy always better than 1ms. IPNetSim™ Handheld is equipped with hardware based impairments generator, and dual GbE ports.

- IPN702 Remote Options**

Handheld Testers

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IPN701S Extended 1 Yr. Hardware and Software Support

Extended 1 Yr. Hardware and Software Upgrades and Comprehensive Support



IPNetSim™ Handheld

VQT290 VHandi—Hand Portable FXO call with VQT

Hand portable unit for manually and automatically generating FXO calls with support for VQT and path confirmation. Works with VQuad and VQT WebViewer™. Includes one FXO port and one Ethernet port for transferring results and degraded voice files to Central System.



vHandi Portable FXO call with VQT

**** End of Handheld Testers Section ****

Voice Quality Testing Products



Voice Quality Testing Products

Voice Quality Testing Options

VQT002 Voice Quality Testing (PESQ only)

GL's VQT (Voice Quality Testing) using ITU algorithms PESQ.

VQT004 Voice Quality Testing (PESQ, PAMS, PSQM)

<http://www.gl.com/completevqtsolutions.html>

- PESQ - Perceptual Evaluation of Speech Quality
- PAMS - Perceptual Analysis Meas. System
- PSQM - Perceptual Speech Quality Measure

VQT006 VQT w/ POLQA Server license (no limitations)

POLQA - Server license - Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks – Dongle license required.

VQT006a VQT w/ POLQA only, small license for one / two nodes

POLQA Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks; Dongle license required

VQT006 VQT w/ POLQA Server license (no limitations)

POLQA - Server license - Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks – Dongle license required.

VQT006a VQT w/ POLQA only, small license for one / two nodes

POLQA Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks; Dongle license required

VQT006b VQT w/ POLQA only, medium license for up to 5 nodes

POLQA Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks; Dongle license required

VQT006c VQT w/ POLQA only, large license for up to 10 nodes

POLQA Next Generation Voice Quality Testing for Fixed, Mobile, and IP based Networks; Dongle license required

VQT009 Speech-to-Text Conversion

Transcribe short speech files into text. Easy to access transcribed text via file, API or database. Includes 100,000 transcriptions, more at additional cost; requires internet connectivity for cloud based processing

VQT009S Speech-to-Text Conversion (Extended Annual)

Extended (Annual) VQT009 Speech-to-Text Conversion Software Upgrades & Comprehensive Support. Software enhancements and support for subsequent one year increments

VQT Network Management Options

VQT208 Indoor (Underground) Tracking System

Provides location and timing information with voice quality for underground (non-GPS) areas.

VQT030 Network Command Center

This provides a Multi-Node Command and Control Center for VQuad™ System.

VQT040 VQT WebViewer™

This allows accessing the VQT results using a Web portal. Includes MS Access database.

VQT041 VQT Web Viewer w/ Oracle Database (Perpetual License)

For accessing VQT results using a Web portal. Includes Oracle 11g Standard Edition One (Perpetual License for Unlimited Users/Nodes) User/Node is defined as any end-node that receives data from or creates data for the Oracle DB, including human users)

VQuad™ Software, Dual UTA HD, and Accessories

VQT010 VQuad™ Basic Software

The software allows automatic sending and recording of voice files for Wireless, Analog, VoIP, and TDM interfaces. Includes CLI for remote operations.

<http://www.gl.com/vquad.html>

VQT241 Dual Universal Telephony Adapter (UTA) with RTD and OWD

Hardware required with VQuad™ software for transmitting and receiving voice files to perform Voice Quality Analysis. Provides multiple interfaces for connecting to any telephony network.

VQT251 Dual UTA HD

Next generation Dual UTA with FXO Wideband support

VQT242 Dual UTA - Bluetooth Option

Permits Bluetooth interface to mobile phones (or other Bluetooth device). Can be used for call control and transmitting and receiving voice files through Bluetooth enabled devices.



DUAL UTA

VQT245 Dual UTA - 4-Port TTL Option

TTL Triggers – 4 Ports, for PTT Key/UnKey, Audio Send/Detected

VQT252 Dual UTA HD – Bluetooth Option

Dual wideband Bluetooth interfaces, antennas

VQT252x Dual UTA HD – Bluetooth Option Upgrade

Dual wideband Bluetooth interfaces to existing Dual UTA HD (unit must be shipped back to GL for upgrade)

VQT011 Dual UTA - Software Development ToolKit (SDK)

Includes Dual UTA – Software Development ToolKit (SDK) with documentation for custom software development applications.

VQT204 Real-time GPS location and timing option for Dual UTA

Provides Garmin GPS receiver and custom cable for interfacing to Dual UTA. Location and one pulse-per-second timing are both available.

VQT209 Dual UTA Audio / PTT 600ohm to 50ohm Adapter

Includes RJ45 to RJ45 for connecting to Dual UTA and Dual UTA HD

VQT442 Dual UTA Mobile Audio Cable for Smartphones

Connects Dual UTA Tx / Rx audio to 3.5mm jack - enabled Smartphones. Includes optional polarity adapter.

Voice Quality Testing Products



VQT461 Dual UTA HD Smartphone ACC Cable

Connects Dual UTA HD PTT (RJ45) to 3.5mm jack-enabled Smartphones. The Smartphone ACC (Automated Call Control) cable provides voice path along with automated call control using the VQuad PTT functionality. Automated Place Call can be supported using the Android Google Voice and IOS Siri applications

VQT443 Cell phone Adapter Cable

Custom, adapts VQT442 to 2.5mm 3-wire plug.

VQT446 Dual UTA Custom PPT Audio Cable

For Dual UTA (VQT241), custom RJ45 PTT Cable.

VQT449 Dual UTA Audio /PTT Interface Cable (RJ-45 to W425)

Custom RJ-45 to W425 (Dual WECO 310). Connects Dual UTA to FAA Voice Switch / Plug Termination

VQT449X Dual UTA HD Audio/PTT Interface Cable (Mini XLR to W425)

Custom Mini XLR to W425 (Dual WECO 310). Connects Dual UTA HD to FAA Voice Switch / Plug Termination.

VQT448 Dual UTA Audio/PTT Interface Cable (RJ45 to LEMO), includes both Left and Right cables

Custom RJ45 to LEMO LEFT and RJ45 to LEMO RIGHT (includes both cables). Connects Dual UTA to FAA Voice Switch / Plug Termination

VQT448X Dual UTA HD Audio/PTT Interface Cable (Mini XLR to LEMO), includes both Left and Right cables

Custom Mini XLR to LEMO LEFT and Mini XLR to LEMO RIGHT (includes both cables). Connects Dual UTA HD to FAA Voice Switch / Plug Termination.

VQT451 Dual UTA HD Mini XLR PTT Adapter Cable

Adaptor for converting Dual UTA (VQT241) RJ45 cable to Dual UTA HD (VQT251) Mini XLR cable

VQT452 Dual UTA HD Custom PTT Audio Cable

For Dual UTA HD (VQT251), custom Mini XLR PTT Cable

VQuad™ Probe

VQT270 VQuad™ Probe with Dual UTA

Self contained unit for unattended testing includes VQuad™, Dual UTA, and PC with failsafe operation. PC portion includes two GBit Ethernet and four external USB interfaces

VQT280 VQuad™ Probe HD with Dual UTA HD

Self-contained unit for unattended testing includes VQuad, Dual UTA HD, and PC with failsafe operation. PC portion includes two GBit Ethernet and four external USB interfaces

VQT281 VQuad™ Probe HD without Dual UTA HD

Self-contained unit for unattended testing includes VQuad and PC with failsafe operation. PC portion includes two GBit Ethernet and four external USB interfaces

VQT285 VQuad™ Probe HD Upgrade

Upgrade existing VQuad and Dual UTA HD into a single self-contained unit for unattended testing. Includes PC with fail-safe operation and support for adding customer Dual UTA HD. PC portion includes two GBit Ethernet and four external USB interfaces

VQT274 VQuad Probe (HD) Watchdog Service

Connects to the VQuad Probe HD via USB and provides a portable 10" monitor with touchscreen access. Includes virtual keyboard

VQT273 VQuad Probe Watchdog Service

Background service for VQuad Probe, auto reboot Probe if Windows becomes inactive or VQuad software is non-responsive. Normal shutdown of VQuad will not cause reboot (i.e. VQuad Probe maintenance or software upgrade)

VQT271 VQuad™ Probe without Dual UTA

Self contained unit for unattended testing includes VQuad™ and PC with failsafe operation. PC portion includes 2 gigabit Ethernet and 4 external USB interfaces

VQT275 VQuad™ Probe Upgrade

Upgrade existing VQuad™/Dual UTA into a single self contained unit for unattended testing. Includes PC with failsafe operation. PC portion includes two GBit Ethernet and four external USB Interfaces

VQT279 VQuad™ Probe Rackmount kit

Attaches to VQuad Probe to allow VQuad™ Probe to be mounted to a 19' Rack

VQT022 VQuad™ Fax Emulation (2 simultaneous ports)

VQT022a VQuad™ Fax Emulation (8 simultaneous ports)

Fax Emulation using Dual UTA interfaces (FXO and 4wire); fax rates from 1200 bps to 33.6 kbps; multiple Dual UTAs possible
For more information, please visit <https://www.gl.com/vquad.html>

Echo Measurement Utility

Analyzes echo return loss (ERL) and echo path delay (EPD) for 2Wire Analog, VoIP, T1 E1, and Mobile networks. PKB070 is included

VQT290 VHandi—Hand Portable FXO call with VQT

Hand portable unit for manually and automatically generating FXO calls with support for VQT and path confirmation. Works with VQuad™ and VQT WebViewer™. Includes one FXO port and one Ethernet port for transferring results and degraded voice files to Central System.

VQT035 Voice Recorder (FXO RJ11 Hardware Tap / 2-Wire Capture Software)

Used for capturing Audio from RJ11 connections for GL Insight Fax / Modem Analysis, requires Dual UTA or USB T1E1 unit; includes FXO RJ11 Hardware Tap.



Self Contained VQuad™ Probe™

Voice Quality Testing Products

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VQuad™ NetTest

VQT600 VQuad™ NetTest Data Server Solution

Data Quality Measurements including TCP measurements, UDP capacity, VoIP, Route, HTTP, FTP, and DNS; Only one VQT600 required to support entire solution including up to 2500 instances of VQuad™ and or Apple / Android mobile devices

VQT601 Mobile Device Controller (MDC)

Apple / Android Mobile Device Apps
Remote Control of Apple and Android mobile devices from VQuad™ Script; Apple and Android apps are available at "no charge" (NetQCheck)

VQT610 Target Data Server (100 Mbps)

Used in conjunction with VQuad™ / Apple / Android NetTest; provides detailed measurement statistics; many can be deployed simultaneously



Automated Testing of VoIP (SIP) Interface, Digital VoIP Phones, VoIP Soft-phones using Dual UTA

VQT611 Target Data Server (1 Gbps)

Used in conjunction with VQuad / Apple / Android NetTest; provides detailed measurement statistics; many can be deployed simultaneously

VQT620 GL NetTest VQT - Android app license (supports 4 rooted Android phones per license)

Requires Rooted Android phone along with VQT601 (MDC) and VQuad for automated control; supports automated Call Control and ability to Send/Record NB/WB voice directly from app for VQT POLQA Analysis

VQT650 Video Application Controller (VAC)

VAC includes VAC Server (Linux) and VAC companion software (Windows); Does not include 2 PCs

VQT661 VAC Windows/Linux Agent, single license

Windows/Linux Agent, single license, 5 Mbps

VQT662 VAC Windows/Linux Agent, single license

Windows/Linux Agent, single license, 10 Mbps

VQT663 VAC Windows/Linux Agent, single license

Windows/Linux Agent, single license, 50 Mbps

VQT671 VAC Android Agent, single license

Android Agent, single license, 5Mbps

Voice Band Analyzer and Other Options

VBA032 Voice Band Analyzer

Analyze voice band parameters e.g. speech level, echo, noise, etc. required for CDR032, requires dongle. PKB070 is included.

VBA033 2-Wire Echo Analysis for VBA

Analysis of echo on two-wire captures

VBA035 E-model Analog Algorithm Option

2-wire voice band analysis option to VQT WebViewer™ application. Requires VBA032.

VBA036 Traffic Analysis for VBA

Analysis of voiceband traffic such as tones, fax, and call progress signals, required for CDR032

VBA038 FaxScan™ for PCM

Demodulates Voice band Fax Signals (PCM) & then Decodes T.30 Fax Images

PKV104 FaxScan™ for SIP and Fax over IP (T.38)

Decodes Fax Images from PCAP files

SA048 Goldwave Software

Accessory software for creating and viewing audio files. Desirable for VQuad™ but required for VQT002 and VQT004

mTOP™ Integrated Test Platforms

Refer to [mTOP™ Platforms](#) page for more details.

For more information, please visit <https://www.gl.com/test-tools-in-rack-based-platforms.html#mtop-vquad>

VQT / VQuad™ Support

VQT900 Extended (2nd Year) VQT Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increments.

VQT005S Extended (Annual) VQT POLQA Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increments for all permutations of POLQA products

EMU037S Extended (Annual) EMU037 Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increments

VQT030S Extended (Annual) VQT030 Command Center Software Upgrades & Comprehensive Support

VQT040S Extended (Annual) VQT040 VQT WebViewer™ Software Upgrades & Comprehensive Support

VQT041S Extended (Annual) VQT041 WebViewer (with Oracle Database) Software Upgrades & Comprehensive Support

VQT022S Extended (Annual) VQT022 VQuad™ Fax Software Upgrades & Comprehensive Support

Voice Quality Testing Products

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VQT600S Extended (Annual) VQT600 NetTest Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increments – for VQT600 and VQT601 combination

***** End of Voice Quality Testing Products Section *****

VQT601S Extended (Annual) VQT601 NetTest Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increments – for VQT601only

VQT610S Extended (Annual) VQT610 NetTest Target Server Hardware Warranty

Hardware Warranty for VQT610

VQT611S Extended (Annual) VQT611 NetTest Target Server GB Hardware Warranty

Hardware Warranty for VQT611

VQT270S Extended (Annual) VQT270 VQuad™ Warranty + Dual UTA / VQuad Probe Hardware Warranty

Hardware and Software Warranty for VQT270, Includes Dual UTA and VQuad Software Upgrades and Comprehensive Support

VQT271S Extended (Annual) VQT271 VQuad™ Warranty + VQuad Probe Hardware Warranty

Hardware and Software Warranty for VQT271

VQT273S Extended (Annual) VQuad Probe HD Watchdog Service Support and Upgrades

VQuad Probe HD Watchdog Service Support for VQT273

VQT280S Extended (Annual) VQT280 VQuad Warranty + Dual UTA HD / VQuad Probe HD Hardware Warranty

Hardware and Software Warranty for VQT280, Includes Dual UTA HD and VQuad Software Upgrades and Comprehensive Support.

VQT650S Extended (Annual) VAC Server Software Upgrades & Comprehensive Support

Software enhancements and support for subsequent one year increment

VQT661S Extended (Annual) VAC 5Mbps Agent Software Upgrades & Comprehensive Support

VQT662S Extended (Annual) VAC 10Mbps Agent Software Upgrades & Comprehensive Support

VQT663S Extended (Annual) VAC 50Mbps Agent Software Upgrades & Comprehensive Support

VQT671S Extended (Annual) VAC 5Mbps Android Agent Software Upgrades & Comprehensive Support

VQT901 Reinstatement of Interrupted Support

Software enhancements and comprehensive support for one year.

VQT902 Extended (Annual) VQuad™ Software Upgrades & Comprehensive Support

Includes upgrade from AFT.

VQT903 Extended Dual UTA or Dual UTA HD Hardware Warranty (2nd Year)

For Dual UTA (VQT241, VQT251).

VQT910 VQuad™ / VQT Training

Software and hardware training.

Ethernet / IP/ VoIP Products

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Ethernet / IP/ VoIP Products

Simulation Products

ETH100 PacketCheck™ (Software Based)

Allows 10 / 100 / 1000 Ethernet Interface Testing with BERT testing at MAC, IP, and UDP layers; uses PC NIC (requires dongle), on GSA

ETH200 Dual PacketCheck™

Two PacketChecks.

<http://www.gl.com/packetcheck.html>

PXE100 PacketExpert™

Quad Port 10/ 100/ 1000 Wirespeed Packet Analyzer and Emulator, two with 10/100/1000 electrical, two electrical or optical 1 G, w/ RFC 2544, MPLS, Q-in-Q, and VLAN testing. Also MAC, IP, and UDP BERT Testing with Smart Loopback; SFPs extra and available (see below)

<http://www.gl.com/packetexpert.html>



PacketExpert™

PXG100 PacketExpert 10G/1G™

Quad Port – Two with 10/100/1000 Electrical, Two Optical 1G / 10G, with BERT, RFC 2544, and Smart Loopback, SFPs extra and available (see below)



PacketExpert™ 10G/1G

PXX100 PacketExpert 40G/100G (Coming Soon)

Quad Port – Two 40G/100 Gig QSFP28 Optical Interfaces, Two 10G SFP+ Optical Interfaces, BERT, RFC 2544, and Smart Loopback, QSFP28 and SFP+ are extra and available



PacketExpert™ 40G/100G

PXX105a Wirespeed Record/Playback– 40G

40/100G- Wirespeed Ethernet frame capture & playback with timestamp & filter – up to 2 ports simultaneously

PXX105b Record/Playback- 100G

100G – up to 90% Ethernet frame capture & playback with timestamp & filter – up to 2 ports simultaneously

PXX106 ExpertSAM – 40G/100G

40G/100G Single Port test to validate service-level agreements (SLAs) as per ITU-T Y.1564

PXX107 PacketBroker – 40/100 G

40G and 100G Non-intrusive Wirespeed Ethernet Tap w/ advanced filtering for deep packet analysis

PXX108 Multi-Stream UDP/TCP Traffic Generator and Analyzer 40G/100G

ExpertTCP test methodology, based on the RFC 6349 to measure TCP throughput, RTT and optimal window size. For 40G & 100G capability to Generate and Analyze up to 16 UDP streams of traffic of various packet lengths

PXG101 PacketExpert 10G™ Tablet (Coming Soon)

Touchscreen Handheld PacketExpert 10G™, w/ Rechargeable Battery includes PXG100, SFPs extra and available (see below)



PacketExpert™ Tablet Inspired–10G

Ethernet / IP/ VoIP Products



PXE104 PacketExpert™ - SA (4 Port)

Quad (4) Port PacketExpert™ w/ Embedded Single Board Computer (SBC). SBC Specs: Intel Atom CPU, 4GB RAM, Windows 7, MSATA SSD, 4 USB Ports If options, then x 1.



PacketExpert™ Rackmount -1G

PXG104 PacketExpert™ 10G - Rackmount

Rackmount enclosure of PXG100 w/ Embedded Single Board Computer (SBC), Power Supply, SBC Specs: Intel Atom CPU, 4GB RAM, Windows 7/32, MSATA SSD, 4 USB Ports. SFPs extra and available.



PacketExpert™ Rackmount -10G

PXE112 PacketExpert™ - SA (12 Port)

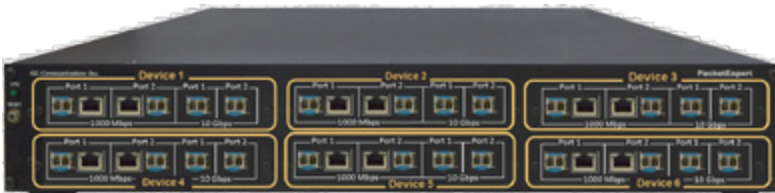
12 Port PacketExpert™ w/ Embedded Single Board Computer (SBC). SBC Specs: Intel Atom CPU, 4GB RAM, Windows 7, MSATA SSD, 4 USB Ports. 19" 1U Rackmount Enclosure. (If options, then x 3)



PacketExpert™ -SA (12 port)

PXE124 PacketExpert™ - SA (24 Port)

24 Port PacketExpert™ w/ Embedded Single Board Computer (SBC). SBC Specs: Intel Atom CPU, 4GB RAM, Windows 7, MSATA SSD, 4 USB Ports. 19" 2U Rackmount Enclosure. (If options, then x 6)



PacketExpert™ -SA (24 port)

mTOP™ Integrated Test Platforms

Refer to [mTOP™ Platforms](#) page for more details

For more information, please visit <https://www.gl.com/test-tools-in-rack-based-platforms.html#mtop-ethernet-optical-tdm>

PXE105 Wirespeed Record / Playback – 1G

Wirespeed Ethernet frame capture and playback - up to 4 ports Simultaneously

PXG105 Wirespeed Record / Playback – 10/1G

10G - Wirespeed Ethernet frame capture & playback with timestamp & filter – up to 4 ports Simultaneously

PXE106 ExpertSAM – 1G

Single Port test to validate service-level agreements (SLAs) as per ITU-T Y.1564

PXG106 ExpertSAM – 10G

10G - Single Port test to validate service-level agreements (SLAs) as per ITU-T Y.1564

PXE107 PacketBroker - 1G

Non-intrusive Wirespeed Ethernet Tap w/ advanced filtering for deep packet analysis

PXG107 PacketBroker - 10G/1G

10G and 1G Non-intrusive Wirespeed Ethernet Tap w/ advanced filtering for deep packet analysis

PXE108 Multi-Stream UDP/TCP Traffic Generator and Analyzer

ExpertTCP test methodology, based on the RFC 6349 to measure TCP throughput, RTT and optimal window size. Also includes capability to Generate and Analyze up to 12 UDP streams of traffic of various packet lengths

PXG108 Multi-Stream UDP/TCP Traffic Generator and Analyzer 10G/1G

ExpertTCP test methodology, based on the RFC 6349 to measure TCP throughput, RTT and optimal window size. Also includes (1G Only). For 1G & 10G capability to Generate and Analyze up to 16 UDP streams of traffic of various packet lengths

IPNetSim™ (IP Network Simulator)

IPN506 IPNetSim™ Option for PXG100 (1G and 10G)

Imparts packet delay, errors, loss, duplication, reordering, throttling on two electrical 10/100/1000 copper or two optical 1 GigE, or two 10 GigE optical; up to 16 unique bidirectional streams for 1G; up to 4 unique bidirectional streams for 10G; available with rack option – see MT001



PacketExpert™ Rackmount -10G

For more details, click on <https://www.gl.com/wan-link-emulation-ipnetsim.html>

Ethernet / IP/ VoIP Products



IPN507 IPNetSim™ Option for PXN100 (1G and 10G)

IRequires PXN100 basic hardware & software;

Imparts packet delay, errors, loss, duplication, reordering, throttling on two electrical 10/100/1000 copper or two optical 1 GigE, or two 10 GigE optical; up to 16 unique bidirectional streams for 1G; up to 4 unique bidirectional streams for 10G; available with rack option – see MT001, only one per rack

IPN505 IPNetSim 1G Tablet (Coming Soon)

Touchscreen handheld, w/ Rechargeable Battery, includes IPNetSim 1G-MultiStream, uses PXG100 platform; optional SFPs or SFP+s

IPN701 IPNetSim™ Handheld (Coming Soon)

Portable Handheld IP Impairment with multi stream

IPN702 Remote Options for IPN701 (Coming Soon)

IPN900 Extended Hardware Warranty

Extended hardware warranty beyond 1 yr.

PKS100 PacketGen™ (includes PacketScan™)

A complete VoIP Simulation and Analysis software; includes PKV100 PacketScan™ Software, Base PacketGen™ w/SIP Core, and RTP SoftCore (w/ 1 or 2 dongles).
<http://www.gl.com/packetgen.html>

PKG100 PacketGen™

Includes VoIP Simulation software only. Base PacketGen™ w/SIP Core, and RTP SoftCore (w/ dongles).

PCD103 Optional Codec - AMR - Narrowband

AMR Codec - Narrowband

PCD107 Optional Codec - AMR - Wideband

AMR Codec - Wideband

PCD104 Optional Codec - EVRC

EVRC Codec

PCD105 Optional Codec - EVRC-B

EVRC-B Codec

PCD106 Optional Codec - EVRC-C

EVRC-C Codec

PCD108 Optional Codec - EVS

EVS Codec

PCD109 Optional Codec - OPUS

OPUS Codec

PKS101 SIP Core (additional)

2nd and Additional Instances (w/ dongle)

RTP Traffic Options (Requires MAPS Signaling Software)

PKS102 RTP Soft Core (additional)

2nd and Additional Instances (w/ dongle)

PKS103 RTP luUP Softcore

RTP Voice Traffic Generation over luUP ; requires PKS102 and PCD103 – Used in UMTS Network at luCS Interface

PKS200 RTP Pass Through Fax Emulation

RTP T.30 Pass-Through Fax Emulation, requires one of the licenses below, (w/dongle):

PKS202 2 Fax Port Licences

PKS203 8 Fax Port Licences

PKS204 30 Fax Port Licences

PKS205 60 Fax Port Licences

PKS206 20 Fax Port Licences

PKS211 T.38 Fax Simulation

T.38 Fax Simulation over UDPTL (up to 120 channels)

PKS107 RTP EUROCAE ED137B

RTP Traffic Generation as per ED-137B - Interoperability Standards for VoIP ATM (Air Traffic Management) Components - PKS102 required

PKS108 RTP Voice Quality Measurements

RTP Based Voice Quality (MOS and R-Factor) measurement for the received stream – PKS102 required

PKS106 RTP Video Traffic Generation

RTP Video Traffic Generation – up to 500 simultaneous video streams using H.264 codecs. Requires PKS102 RTP Software

PCDxxx See descriptions of Voice Codexs under PacketScan™

Two Codec licenses required – one for PacketGen™ + PacketScan™

RTP Toolbox

PKB100 RTP ToolBox™

Provides VoIP / RTP Simulation and Analysis with SIP signaling (w/ dongle)

<http://www.gl.com/rtptoolbox.html>

PKB105 G.168 Echo Canceller Test Compliance Suite

Supports manual G.168 Echo Canceller Test Compliance Procedures and Codec Files (w/dongle to enable GLCView); includes PKB070.

PKB110 Client / Server for RTP Toolbox™

Remote Control of RTP Traffic over IP Networks, uses TCP/IP (w/ dongle), requires PKB100; w/ C++ Client, w/ TCL Client

MAPS™ (Message Automation & Protocol Simulation) Protocol Simulation and Conformance Tool for IP

<http://www.gl.com/signaling-and-traffic-simulator.html>

PKS109 MAPS™ High Density RTP Generator

High Density RTP Call Generator w/ 4x1GigE Network Appliance, emulates greater than 20,000 endpoints; requires companion MAPS PKSXXX signalling product; includes PKS102; for other traffic options e.g. fax, codecs, video, refer “RTP Traffic Options” section; SFPs optional.

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MAPS™ HD

PKS111 MAPS™ Remote Controller

MAPS GUI client to control single or multiple MAPS instances

PKS112 Message Session Relay Protocol for MAPS SIP

MSRP protocol emulation for supporting session based instant messaging capability over SIP; sessions requires PKS120

PKS170 CLI Support for MAPS

CLI Support for MAPS Products, includes TCL, Java, Python, and C#

PKS118 MAPS™ SIP for ED137 Radio

MAPS SIP for ED137 Radio Emulation. Emulates Air-to-Ground calls in Air Traffic Management defined by EUROCAE Working Group 67, volume discounts available for 2,3,4,5 units (includes PKS102 and PKS107); Not included, but required platform - Win 7/64, i7,8 GB, Gigabit NIC, with Administrative Level Privilege to Install and Run Application, USB Port Dongle

PKS119 MAPS™ SIP for ED137 Telephone

MAPS SIP for ED137 Telephone Emulation. Emulates Ground-to-Ground calls in Air Traffic Management defined by EUROCAE Working Group 67, volume discounts available for 2,3,4,5 units (includes PKS102); Not included, but required platform - Win 7/64, i7,8 GB, Gigabit NIC, with Administrative Level Privilege to Install and Run Application, USB Port Dongle

PKS120 MAPS™ SIP

SIP Protocol Emulation; For traffic options refer "[RTP Traffic Options](#)" section;

PKS121 SIP Conformance Test Suite

SIP Conformance Test Scripts, includes PKS120

PKS126 MAPS™ SIP-I

SIP – I Protocol Emulation, Similar to MAPS SIP but can carry ISUP content as MIME body; For traffic options refer "[RTP Traffic Options](#)" section;

PKS127 MAPS™ SIP-IMS

Additional SIP Features for IMS Support

PKS122 MAPS™ Megaco

Megaco Protocol Emulation, For traffic options refer "[RTP Traffic Options](#)" section;

PKS123 Megaco Conformance Test Suite

Megaco Conformance Test Scripts, requires PKS122

PKS124 MAPS™ – MGCP Protocol Emulation with Conformance

Test Suite

Provides MGCP Protocol Emulation (Bulk Calling); optional PKS102 for traffic emulation, requires PKS125

PKS149 MAPS™ – Skinny Emulation

Emulation of Skinny Signaling for Cisco VoIP Phones and Routers - SCCP - Skinny Call Control Protocol; For traffic options refer "[RTP Traffic Options](#)" section;

PKS130 MAPS™ SIGTRAN SS7 Over IP

SIGTRAN Protocol Emulation – SS7(ISUP) over M3UA, M2UA and M2PA IP transport layers; optional xx610 and xx620 for TDM traffic generation (refer [TDM Hardware & Software Products](#)); TDM Fax emulation supported (Optional - Refer [XXFTQ](#)) (refer [TDM Hardware & Software Products](#))

PKS135 MAPS™ SIGTRAN ISDN over IP

SIGTRAN Protocol Emulation – ISDN over IUA IP transport layer; optional xx610 and xx620 for TDM traffic generation (refer [TDM Hardware & Software Products](#)); TDM Fax emulation supported (Optional - Refer [XXFTQ](#)) (refer [TDM Hardware & Software Products](#))

PKS136 MAPS™ SIGTRAN SS7 INAP

SIGTRAN Protocol Emulation – SS7 INAP (CS1 and CS2) over M3UA, and M2PA IP transport layers

PKS152 MAPS™ – SIGTRAN ANSI MAP

SIGTRAN Protocol Emulation - IS-41 over IP on B, C, E, F, H, Q, and N interfaces

PKS300 MAPS™ Multi-Interface MGC

Media Gateway Controller Emulation with SIGTRAN, MGCP, and Megaco interfaces; includes MAPS licenses for ISUP SIGTRAN (PKS130) for SG and MGCP (PKS124) or Megaco (PKS122) licenses for MG simulation; Does not include RTP Licenses*;

PKS132 MAPS™ MAP Over IP

Mobile Application Part (MAP) Protocol Emulation over M3UA, and M2PA IP transport layers; interfaces supported -- B, C, D, E, F, G, H, Gc, Gr, Gf and Gd

PKS147 MAPS Lb Interface Emulator

Emulates BSC & SMLC over Lb Interface

PKS148 MAPS SLs Interface Emulator

Emulates MME & E-SMLC over SLs Interface

PKS153 MAPS luPC Interface Emulator

Emulates SRNC & SMLC over luPC Interface

PKS151 MAPS™ CAP Emulation over IP

Customized Application for Mobile Network Enhanced Logic – CAMEL Application Part (CAP) over M3UA, and M2PA IP transport layers

PKS155 MAPS™ BICC Emulation

BICC Protocol Emulation, optional PKS102 for traffic emulation over M3UA and M2PA IP transport layer; For traffic options refer "[RTP Traffic Options](#)" section

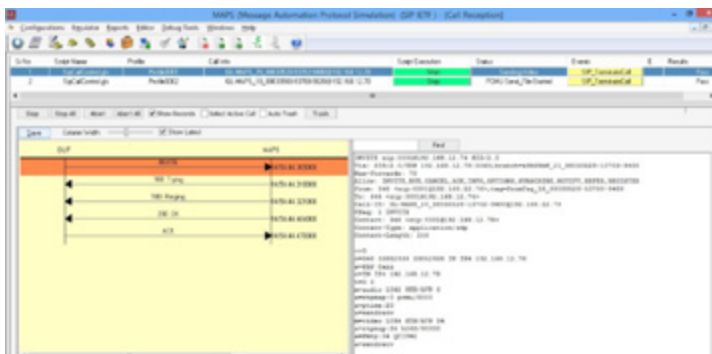
PKS134 MAPS™ Abis Emulator over IP

BSC to BTS Abis Emulation over TCP transport layer; For traffic options refer "[RTP Traffic Options](#)" section

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- PKS137 MAPS™ GSM A Emulation over IP**
BSC to MSC A interface emulation over M3UA IP transport layer; For traffic options refer "[RTP Traffic Options](#)" section
- PKS131 MAPS™ Gb Emulator over IP for BSC & SGSN**
Gb interface emulation between BSC & SGSN; For traffic options refer "[GTP Traffic Options](#)" section
- PKS139 MAPS™ Diameter Emulation**
Emulates Diameter protocol (Supports S6a, Cx, Rx, Gx, Sh, S13 etc interfaces over TCP and SCTP transport layer)
- PKS140 MAPS™ LTE - S1 Interface Emulator**
MAPS LTE – S1 Interface Emulation, between eNodeB and MME; For traffic options refer "[GTP Traffic Options](#)" section
- PKS142 MAPS™ LTE - eGTP Emulation (S5/S8 S11 Interfaces)**
MAPS LTE – eGTP Emulation (S5 / S8 and S11 Interfaces), between SGW and PGW or between MME and SGW; For traffic options refer "[GTP Traffic Options](#)" section
- PKS141 MAPS™ LTE – X2AP Emulation**
X2AP Interface Emulation between eNodeBs
- PKS146 MAPS™ SGs Interface Emulation**
SGs Interface Emulation support for CS fallback features
- PKS143 MMS Server**
MMS Server – 10 simultaneous messages / min
- PKS144 Central Control Center for GSM**
Central Control Center for GSM Networks
- PKS145 MSC / BSC Media Gateway**
Media Gateway (within BSC or MSC) for conversion b/w E1 and IP
- PKS160 MAPS™ UMTS - luCs and luh Interface Emulation**
luCs and luh Interface Emulation, between RNC and MSC or between HNB-GW and HNB; For CS (Circuit Switch) traffic options refer "[RTP Traffic Options](#)" section; For PS (Packet Switch) traffic options refer "[GTP Traffic Options](#)" section
- PKS164 MAPS™ UMTS - lups Interface Emulation**
MAPS UMTS – LuPs Interface Emulation, between RNC and SGSN; For traffic options refer "[GTP Traffic Options](#)" section
- PKS166 MAPS™ UMTS - GnGp Interface Emulation**
MAPS UMTS – Gn Interface Emulation; For traffic options refer "[GTP Traffic Options](#)" section



MAPS™ Call Reception

- BTS001_S Real BTS GSM Cell for 2G and 2.5 G**
Real BTS hardware with Abis over IP; up to 8 Tx/Rx channels (approx)
- BTS001_B Real Node B for 3G Systems**
Real Node B hardware for 3G systems (approx.)
- BTS001_E Real eNodeB for 4G (LTE) Systems**
Real eNodeB hardware for 4G (LTE) systems (approx..)

GTP Traffic Options

- ETH101 Mobile Traffic Core - GTP**
Generates and Verifies User Mobile Data Traffic over GTPv1 and GTPv2 (Used with UMTS and LTE) (for simulated HTTP traffic generation over GTP)
- ETH102 Mobile Traffic Core - Gateway**
Emulate SGSN / SGW (GTP to GTP) and GGSN / PDN-GW (GTP to IP) (acts as a real gateway)
- ETH103 MobileTrafficCore for Gb Interface**
Generates and verifies hundreds to thousands of sessions of http, ftp, etc. user mobile data traffic over GPRS Gb interface (for simulated HTTP traffic generation over IP)

Data Traffic Generators

- PKS172 PacketLoad™ 4 x 1Gig, Data Traffic Generator**
Data Traffic Generator - 1U Rack Appliance, 4 x 1Gbps, Wirespeed TCP/ HTTP Statefull Traffic Generator with 445 K Transactions / Sec, 20M+ Concurrent TCP Flows, HTTP Payload Control using Custom Payload Files, PCAP Replay.
Emulates Mobile Infrastructure Test Traffic with GTP-U Encapsulation while 10K+ Subscribers Add/Delete per Second along with MAPS System.



PacketLoad™-1G

- PKS174 PacketLoad™ 4 x 10Gig, Data Traffic Generator**
Data Traffic Generator - 2U Rack Appliance, 4 x 10Gbps, Wirespeed TCP/ HTTP Statefull Traffic Generator with 2M+ Transactions/Sec, Up to 100M Concurrent TCP Flows, HTTP Payload Control using Custom Payload Files, PCAP Replay.
Emulates Mobile Infrastructure Test Traffic with GTP-U Encapsulation while 10K+ Subscribers Add/Delete per Second along with MAPS System.

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PacketLoad™-10G

For more details, click on <https://www.gl.com/packetload-high-density-traffic-simulation-using-maps.html>

Accessories for Optical and Ethernet Products

IPN1310a SFP Transceiver for OC-3/STM-1 and OC-12/STM-4 Optical, LC, Single-Mode, 1310nm

Generic SFP for Optical, Duplex LC Connector SM, 1310nm, IR (Intermediate Range, 15 km).

IPN850a SFP Transceiver for OC-3/STM-1 and OC-12/STM-4 Optical, LC, Multi-Mode, 850nm/850 nm or 1310 nm

Generic SFP for Optical, Duplex LC Connector, MM, 850nm/850 nm or 1310 nm, SR (Short Range, 550m)

SA019a Fiber Optic Cable, Single-Mode, Duplex LC to LC, 2m

2m FO Jumper, 9/125 SM, Duplex LC-LC, Ø2mm

SA019b Fiber Optic Cable, Single-Mode, Duplex LC to SC, 2m

2m FO Jumper, 9/125 SM, Ø2mm

SA019c Fiber Optic Cable, Multi-Mode, Duplex LC to LC, 2m

2m FO Jumper, 50/125 MM, OM3 (10G), Ø2mm

SA019d Fiber Optic Cable, Multi-Mode, Duplex LC to SC, 2m

2m FO Jumper, 50/125 MM, OM3 (10G), Ø2mm

SA019st Fiber Optic T-tap, Duplex LC, Single-Mode

Fiber Optic T-tap for Non-Intrusive Monitoring, Duplex LC Connectors, 9/125 SM, 70/30 split, includes one SA019a; requires

SA019sc Fiber Optic Analyzer Cable, Single-Mode, Duplex LC to Dual Duplex LC, 3m

3m FO Jumper, 9/125 SM, Duplex LC-Dual Duplex LC, Ø3mm, Special Analyzer Cable for use with SA019st

SA019mt Fiber Optic T-tap, Duplex LC, Multi-Mode

Fiber Optic T-tap for Non-Intrusive Monitoring, Duplex LC Connectors, 50/125 MM, 70/30 split, includes one SA019c; requires one SA019sm

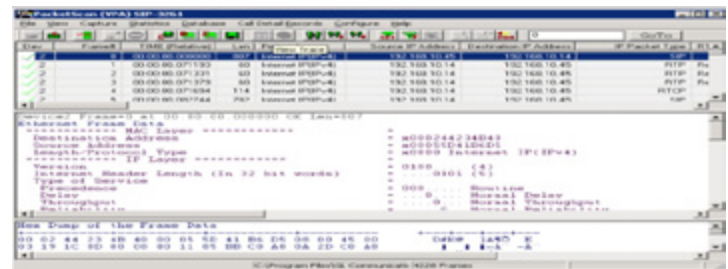
SA019mc Fiber Optic Analyzer Cable, Multi-Mode, Duplex LC to Dual Duplex LC, 3m

3m FO Jumper, 50/125 MM, Duplex LC-Dual Duplex LC, Ø3mm, Special Analyzer Cable for use with SA019mt

Packet Analyzers

PKV100 PacketScan™ (Online and Offline)

This is a real-time VoIP analysis software (w/ dongle) Includes decodes for transport (TCP,UDP, IP), Signaling (SIP, Megaco, MGCP, Diameter), and media (RTP, RTCP, Fax, Video). Supported Codecs include G.711, G.726, G.729 A/B, GSM, iLBC, Speex, G.722.2, G.711 / G.726 Appendix 2 Additional Protocol Decode Support for – SIGTRAN, GSM over IP, UMTS over IP, and LTE available with purchase of licenses. <http://www.gl.com/packetscan-all-ip-packet-analyzer.html>



PacketScan™

PKV110 IMS Protocol Decodes (Optional with PacketScan™)

IMS (IP Multimedia Subsystem) protocol decodes

PKV120 PacketScan HD™ w/4 x 1GigE

High Density IP Traffic Analyzer w/ 4x1GigE Network Monitoring Appliance ; includes PKV100 Online (not Offline) for temporary audio codec support; available in portable platform – call, SFPs optional

PKV120p PacketScan HD™ w/4 x 1GigE - Portable

High Density IP Traffic Analyzer w/ 4x1GigE Network Monitoring Portable Version; includes PKV100 Online for temporary audio codec support; includes 4 SM Optical SFPs, 4 MM Optical SFPs, 4 Electrical SFPs, 4 MM Optical Cables, 4 SM Optical Cables, 4 RJ-45 Ethernet Cables, and Pelican Case

PKV122 PacketScan HD™ w/2 x 10GigE

High Density IP Traffic Analyzer w/ 2x10GigE Network Monitoring Appliance; includes PKV100 Online (not Offline) for temporary audio codec support; available in portable platform – call, SFPs optional

PKV122p PacketScan HD™ w/2 x 10GigE - Portable

High Density IP Traffic Analyzer w/ 2x10GigE Network Monitoring Portable Version; includes PKV100 Online for temporary audio codec support; includes 2 SM Optical SFP+s, 2 MM Optical SFP+s, 2 MM Optical Cables, 2 SM Optical Cables, and Pelican Case

PKV124 PacketScan HD™ w/2 x 40GigE

High Density IP Traffic Analyzer w/ 2x40GigE Network Monitoring Appliance; includes PKV100 Online (not Offline) for temporary audio codec support; available in portable platform – call, SFPs optional

PKV125 PacketScan HD™ w/1 x 100GigE

High Density IP Traffic Analyzer w/ 1x100GigE Network Monitoring Appliance; includes PKV100 Online (not Offline) for temporary audio codec support; available in portable platform – call, SFPs optional

PKV123 PacketRecorder HD™ & PacketRePlay HD™

High Density IP Traffic Recorder & RePlay Appliance with 4x1 Gbps or 2x10 Gbps Ethernet Interfaces - optional applications for PKV120 and PKV122

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- PKV121 PacketScan FB™**
File Based IP Traffic Analyzer Server for near real-time processing of traces
- PKV301 LAN Switch w/ Mirror Port**
NetGear GS105E - 5 Port 10/100/1000LAN switch with mirror port
- PCDxxx See descriptions of Codecs under PacketScan™**
Two Codec licenses required – one for PacketGen™ + PacketScan™
- PKV103 IP Based GSM and UMTS Analyzer**
(Optional with PacketScan™)
Decodes GSM & UMTS protocols over IP transport (w/dongle to enable GSM & UMTS analysis, require PKV100)
- PKV105 SIGTRAN Analyzer (Optional with PacketScan™)**
Provides IP decode of SS7 and ISDN signaling (w/dongle to enable SIGTRAN, requires PKV100).
- PKV106 Offline SIGTRAN Analyzer (Optional w/ PacketScan™ Offline)**
Decodes/Analyzes pre-captured SIGTRAN files (w/dongle to enable Offline Analyzer, requires PKV101).
- PKV107 LTE Analyzer (Optional w/ PacketScan™)**
Analysis/Decode of broadband wireless 4G protocols (w/ dongle to enable LTE, optional with PKV101 Offline PacketScan™ and PKV170 NetSurveyorWeb™)
- PKV108 Offline LTE Analyzer (Optional w/ PacketScan™ Offline)**
Decodes/Analyzes pre-captured LTE files (w/dongle to enable Offline Analyzer, optional with PKV101 Offline PacketScan™ and PKV170 NetSurveyorWeb™ base software for LTE Decode/Analysis)
- Network Monitoring Software Options**
- PKV169 Network Surveillance Lite Software**
Probe Level WebServer for all Protocol analyzers (T1 E1, OC-3/STM-1, OC12/ STM-4, T3 E3, and PacketScan™), can be used only Probe PC itself; includes Oracle 11g Express Edition; requires respective real-time protocol analyzer licenses on the Probe PC based on the protocol selection
- PKV170 Network Surveillance Base Software (Perpetual License, Un limited Users/Nodes) – Includes Standard Server-Grade Computing Platform**
Centralized Database Engine and Client – works with Protocol Analyzers, includes Oracle 11g Standard Edition One and Standard Server-Grade Computing Platform; requires the respective modules and offline protocol analyzer licenses based on the protocol selection (all on the NetSurveyorWeb™ System).
- PKV175 T1 E1 Physical Line Monitoring Option for Network Surveillance**
Provides T1 E1 Physical Layer Status with Network Surveillance Solution
- PKV172 ISDN Call Detail Record (CDR) Option for Network Surveillance**
Provides ISDN CDR option for Network Surveillance Base Software – At central site - requires OLV100; At probe level requires respective protocol analyzer software and hardware.
- OLV100 Offline / Remote ISDN Analyzer**
Decode / Analyze ISDN option for Network Surveillance Base Software
- OLV120 Offline / Remote SS7 Analyzer**
Decode / Analyze SS7 option for Network Surveillance Base Software
- PKV173 SS7/SIGTRAN Call Detail Record (CDR) Option for Network Surveillance**
Provides SS7 (ISUP and MAP) /SIGTRAN CDR option for Network Surveillance Base Software - At central site - requires OLV120 for SS7 or requires PKV106 for SIGTRAN; At probe level requires respective protocol analyzer software and hardware.
- PKV106 Offline / Remote SIGTRAN Analyzer**
Decode / Analyze SIGTRAN option for Network Surveillance Base Software
- PKV092 CAS Call Detail Records (CDR) Option for Network Surveillance**
Provides CAS CDR option for Network Surveillance Base Software – requires PKV170 and OLV092
- OLV092 Offline/Remote CAS Analyzer**
Decode/Analyze CAS Option for Network Surveillance Base Software – requires PKV170 and PKV092
- PKV174 GSM (TDM or IP) & TRAU Call Detail Record (CDR) Option for Network Surveillance**
Provides GSM (TDM and IP) & TRAU (TDM) CDR option for Network Surveillance Base Software - At central site - requires OLV150 for GSM and requires OLV153 for TRAU, OR requires PKV109 for GSM IP; At probe level requires respective protocol analyzer software and hardware.
- OLV150 Offline / Remote GSM Analyzer**
Decode / Analyze GSM option for Network Surveillance Base Software
- OLV153 Offline / Remote TRAU Analyzer**
Decode / Analyze TRAU option for Network Surveillance Base Software
- PKV176 Provides VoIP Protocol (SIP, MGCP, Megaco etc.) CDR option for Network Surveillance Base Software**
equires SIP, Megaco, MGCP, H323, RTP Specific Software at Probe Level; requires PKV170 and PKV101
- PKV101 Offline / Remote PacketScan Analyzer**
Requires SIP, Megaco, MGCP, H323, RTP Protocol Decodes at Central Site (w/ dongle) - requires PKV170 and PKV176
- PKV177 Provides UMTS Protocol (luCS and luPS) CDR option for Network Surveillance Base Software**
Requires UMTS luCS, UMTS luPS Specific Software at Probe Level; requires PKV109 at the central site.
PKV109 Offline IP Based GSM and UMTS Analyzer (Optional with PacketScan™)

Decode / Analyze UMTS option for Network Surveillance.
Optional with PKV101 Offline PacketScan™ and PKV170 Network Surveillance Base Software for GSM and UMTS Decode / Analysis;
- PKV178 Provides LTE Protocol CDR option for Network Surveillance Base Software**
Requires LTE Specific Software at Probe Level; requires PKV108 at the central site

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PKV108 Offline LTE (Long Term Evolution) Analyzer (Optional with PacketScan™)

Decode / Analyze LTE option for Network Surveillance Base Software

PKV171 Network Surveillance Agent Toolkit

Documentation, sample code (C++), and technical support for real-time connection to probes

PKV201 PacketShark™

GbE Packet Capture, Filter & Aggregation Tap
Refer to [Ethernet / IP Handheld Products](#) for more details.

PKV202 Remote Option

VBA032 Voice Band Analyzer

Analyze voice band parameters e.g. speech level, echo, noise, etc.
– requires PC and dongle

VoIP Miscellaneous Tools

PKA001 600 ohm to Sound Card Transformer/Adapter

Adapts Sound Card Interface to 600 Ohms.

PKA006 VoIP Hub for testing and configuration purposes

Useful for connecting multiple PacketGens™ and PacketScans™

SA051 2U 19" Rackmount Kit for PXE104

One Hardware Kit for Rackmounting One PXE104. 19" Rackmount Kit occupying 2U

SA052 Sensoray 48-Channel Digital I/O

Sensoray 48-Channel Digital I/O Interface with termination board and power supply

SA052-H Sensoray Pod

Sensoray Pod (Harris part # for SA052)

PKS150a TDM / VoIP Gateway w/ Single T1 E1

PKS150b TDM / VoIP Gateway w/ Dual T1 E1

PKS150c TDM / VoIP Gateway w/ Quad T1 E1

Gateways with TDM and VoIP Interfaces – supports T1 E1 PRI ISDN, Megaco, SIP, H.323, T.38 Fax, and Modem.

PKX002 Packet Series Configuration, Setup, Testing (per day)

Exclusive of travel

PKX003 Software, Hardware Warranty and Support

Warranty and Comprehensive Support for Hardware and Software = 10% of PO – All Packet Ethernet Products

PKX104 Interrupted One Year Software Upgrade Extensions

Warranty and Comprehensive Support for Hardware and Software = 12% of PO – All Packet Ethernet Products

PKX100 VoIP Training (per day, exclusive of travel)

VoIP Training (PacketGen™, PacketScan™, RTP Toolbox™, PacketCheck™, IPNetSim™, MAPS™).

PKX101 Professional Services (per day, exclusive of travel)

Development or Testing Services (per day)

***** Ethernet/ IP/ VOIP Products Section *****

PC Platforms

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PC Platforms



SA005d Notebook PC
Notebook PC – HP i7



SA005p Portable Lunchbox PC
Portable, Xeon



SA005e Mini-Tower (Desktop) PC- i7
PC w/o Monitor or Keyboard



SA005r Rack PC, 2U, Xeon - Standard
Rack mount PC w/o Monitor



SA005G MaxVision PC
Portable, Briefcase size PC (2 Exp. Slots)



SA005s Rack PC, 2U, Xeon - Super
Rack mount PC w/o Monitor

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SA005z Rack PC, 1U, Xeon
Rack mount PC w/o Monitor

SA005m Rack PC, 1U, Xeon
Rack mount PC w/o Monitor

SA005n Rack PC, 1U, Xeon
Rack mount PC w/o Monitor



DP004 Pentium Tower PC (without monitor)
>1 Ghz; > 1 GB RAM



SA005 KVM
Rack Mount KVM console



DP001 Portable Pentium Lunchbox PC
>1 Ghz; > 1 GB RAM



SA012C Shipping Case for Notebook PC (Sa005d)
Shipping Case for FAA and ATT



DP005B 19" Pentium Rackmount PC
>1 Ghz; > 1 GB RAM

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mTOP™ Integrated Test Platforms

Refer to [mTOP™ Platforms](#) page for more details.

For more information, please visit <https://www.gl.com/test-tools-in-rack-based-platforms.html>

SA012 Lunchbox PC Shipping Case w/ Built-in Cart

Special PC Hard Shell Shipping Case

SA012c Shipping Case for Notebook PC (SA005d)

Shipping Case for FAA and ATT

SA022 Extended 1 Yr. Software Upgrades and

Hardware Warranty, and Comprehensive Support for Basic and Optional Software

Warranty and Comprehensive Support for Hardware and Software = 10% of PO – All T1 E1 Products; includes PC

**** End of PC Platforms Section ****

mTOP™ Platforms

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mTOP™ Platforms

MT001 mTOP™ 1U Rack Mount Enclosure w/o SBC

1U 19" Rack Mount Enclosure w/Rails, Multiple Interface TDM/Optical/ Packet w/Single Board Computer (SBC) (Specs: 240 GB SSD, 8GB RAM, i3 Equivalent, Win 10/64), USB 3.0 Hub, ATX Power Supply, Can house any combination of three (3) USB based units - PacketExperts, tProbes, Dual UTAs, and LightSpeeds

MT002 mTOP™ 1U Rack Mount Enclosure w/o SBC

w/o SBC, but for use with MT001 for Daisy Chain or other Rack PCs

MT003 mTOP™ 2U Rackmount Enclosure w/SBC

2U 19" Rack Mount Enclosure w/Rails, Multiple Interface TDM/Optical/ Packet w/Single Board Computer (SBC) (Specs: 240 GB SSD, 8GB RAM, i3 Equivalent, Win 10/64), USB 3.0 Hub, ATX Power Supply, Can house any combination of three (3) USB based units - PacketExperts, tProbes, Dual UTAs, T3/E3 units and LightSpeeds

MT004 mTOP™ 2U Rack Mount Enclosure w/o SBC

w/o SBC, but for use with MT003 for Daisy Chain or other Rack PCs

For more information, please visit <https://www.gl.com/test-tools-in-rack-based-platforms.html>

Following mTOP™ units are available:

mTOP™ VQuad™ Dual UTA HD (3x DUAL UTA HD)
 mTOP™ T1 E1, and T3E3 Testers
 mTOP™ Multi-Port Ethernet
 mTOP™ Ethernet-Optical-TDM Testers
 mTOP™ T1 E1 FXO FXS Tester
 mTOP™ T1 E1 Datacom Tester

Please contact for more information.



mTOP™ VQuad™ Dual UTA HD (6x DUAL UTA HD)



2U mTOP™ with T3/E3 and T1/E1 Test Tools



mTOP™ 2U 24-Port PacketExpert™



mTOP™ 2U T3 E3 PacketExpert™ LightSpeed1000™



mTOP™ T1 E1 FXO FXS Tester



mTOP™ tProbe™ T1 E1 w/Datacom Tester

***** End of mTOP™ Platforms *****

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