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OC-192/STM-64 Transmitter

gnubi's™ SONET/SDH transmitters and receivers are ideal cost-effective, multi-channel solutions for an equipment manufacturer's production and verification labs in the metro and long haul markets.

Expandable Multiple Rate Testing

Unlike other test equipment, gnubi's SONET/SDH test products give you the flexibility to create the test applications that you need now and the expandability to grow with your testing needs in the future. You can mix the OC-192/STM-64 Transmitter with other test modules in a single chassis for multiple rate testing.

Simultaneous Multi-port Testing

With the OC-192/STM-64 transmitter, you can install as many as 8 modules for simultaneous multi-port testing. Using EPXam™ tools such as Group Manager, Test Controls, or Script Runner, control multiple instances of the same test simultaneously. Or conduct different tests at the same time.

EPX2000 Transmitter

The EPX2000 Transmitter supports OC-192 or STM-64 signal generation with selectable payload mappings. It is designed for all of gnubi's chassis models. You can easily switch between SONET and SDH protocols without powering down the test system.

Payload Generation and Overhead Insertion

The EPX2000 Transmitter provides complete SONET/SDH payload generation and overhead insertion. Features include SONET/SDH alarm and error insertion, trace message insertion, pointer manipulation, K1/K2 byte manipulation, and K1/K2 message encoding.

Easy to Use

You can start testing quickly and easily with the EPXam graphical user interface. Other ease-of-use features include saving and restoring configurations, connecting remotely with a web browser, scripting, and sharing test resources with others.

With Checkpoint/Resume, recovering from a power failure is easy. Module setup and test data are saved at intervals that you can define. When the system is restarted after a power failure, tests are resumed with minimal data loss.

Upgradable

As new features are developed for gnubi's test modules, download the upgrades from our website. Visit www.gnubi.com to learn about the latest features and upgrades.



Features

- Transmit at 9.953 GHz
- Selectable payload mappings
- SONET/SDH payload generation and overhead insertion
- Checkpoint/Resume
- Test multiple rates and protocols within a single chassis
- SONET/SDH runtime switching
- Full-featured graphical and command-line user interfaces
- Multi-user, remote access via web browser

Applications

- Production, validation, and metro market applications that test multiple rates and channels
- WDM traffic loading
- Add/drop multiplex and demultiplex
- Transmit BERT

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Specifications

OC-192/STM-64 Transmitter

Model	EPX2000	OC-192/STM-64 Transmitter
Installation	All gnubi chassis models; uses two slots	
Signal Rates	SONET	OC-192 (9.953 GHz)
	SDH	STM-64 (9.953 GHz)
Optical Interface	Output	1310 nm: P_0 = -2 dBm typical (SR-1/I-64.1), P_0 = 4 dBm typical (IR-1/S-64.1), P_0 = 6 dBm typical (LR-1/L-64.1)
		1550 nm: P_0 = -2 dBm typical (SR-2/I-64.2), P_0 = 1 dBm typical (IR-2/S-64.2b)
		ITU grid, 80 Channels (50 GHz between channels): P_0 = -5 dBm
	Connectors	LC, SC, ST, or FC; SMA User Trigger and Clock Trigger connectors
Timing References	EPX100 Clock Module	BITS input, external input, internal
	As Received	Recovered clock from OC-192/STM-64 Receiver
	Internal	On-board oscillator (+/- 20 ppm)
Payload Mappings	SONET	Framed: STS-192c, STS-48c, STS-12c, STS-3c, STS-1 Unframed: Optical BERT input with NRZ encoding
	SDH	Framed: VC-4-64c, VC-4-16c, VC-4-4c, VC-4, VC-3 Unframed: Optical BERT input with NRZ encoding
Alarm Insertion	SONET	LOS, LOF, SEF, AIS-L, RDI-L, LOP, AIS-P, Path Unequipped, RDI-P, LPS
	SDH	LOS, LOF, OOF, MS-AIS, MS-RDI, AU-AIS, AU-LOP, HP Unequipped, HP-RDI, LSS
Error Insertion	SONET	Physical (Random), Section (B1), Line (B2), REI-L, Path (B3), REI-P, Payload Bit Errors
	SDH	Physical (Random), Regenerator Section (B1), Multiplex Section (B2), MS-REI, Path (B3), HP-REI, Test Sequence Errors
	Rates	Insert a single error or insert at 1E-3 to 1E-14 rates
Data Patterns	PRBS	True and Inverted: 2^7-1, 2^{15}-1, 2^{20}-1, 2^{23}-1, 2^{31}-1
	Other	Fixed 8-bit or 16-bit user word
Overhead Insertion	SONET/ SDH	Transport overhead (except B1, B2, H1, H2, H3), path overhead (except B3)
Trace Messages	SONET	64-byte J0 section and J1 path trace message insertion
	SDH	16-byte J0 trace message insertion, 16- or 64-byte J1 trace message insertion
Pointer	Increment, decrement, move with NDF, move without NDF, and set pointer values	
K1/K2 Values and Messages	User-defined K1, K2 byte values K1/K2 message encode: K1 Request, K1 Channel, K2 Operation, K2 Architecture, K2 Channel	
User Trigger	Synchronized to transmit clock, 50 Ohm, AC-coupled, software controlled	
		Framed: Trigger pulse at start of frame or trigger pulse at start/stop of event (LOS, LOF, AIS-L or B2 error injection per GR-253 section 5.3.3)
		Unframed: Trigger pulse at start of 2^7-1 PRBS
Clock Trigger	Synchronized to transmit clock, 622.08 MHz nominal (serial data rate divided by 16), AC coupled, software controlled	
Compliance	SONET	GR-1377 eye mask, jitter
	SDH	ITU-T G.957 eye mask, jitter
Operating Temperature	0 to 40° Celsius, non-condensing	
Warranty and Service	Standard	1 year parts and labor
	Extended	Service Plan available

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