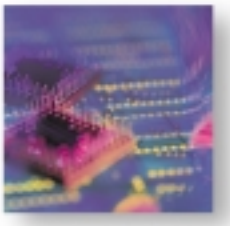


POS OC-48c SmartMetrics™ Modules

POS-3504As/POS-3504Ar

Product Overview

The SmartBits® POS-3504As and POS-3504Ar SmartMetrics modules are scalable performance analysis modules capable of simulating the millions of client/server sessions and control protocols required to fully test Packet over SONET/SDH systems. With the POS-3504As and POS-3504Ar, you can quickly measure all of the key metrics, including true load capacity, latency, and IP frame sequencing using repeatable, industry-standard tests.

Key Applications & Benefits

- Evaluates key performance parameters of POS routers under typical or extreme traffic load conditions.
- Qualifies POS routers during development, quality assurance, and final regression testing.
- Dramatically improves the time to market and reduces the risk of failure at the customer site.
- For network service providers, stresses and commissions high-speed POS networks prior to actual deployment.

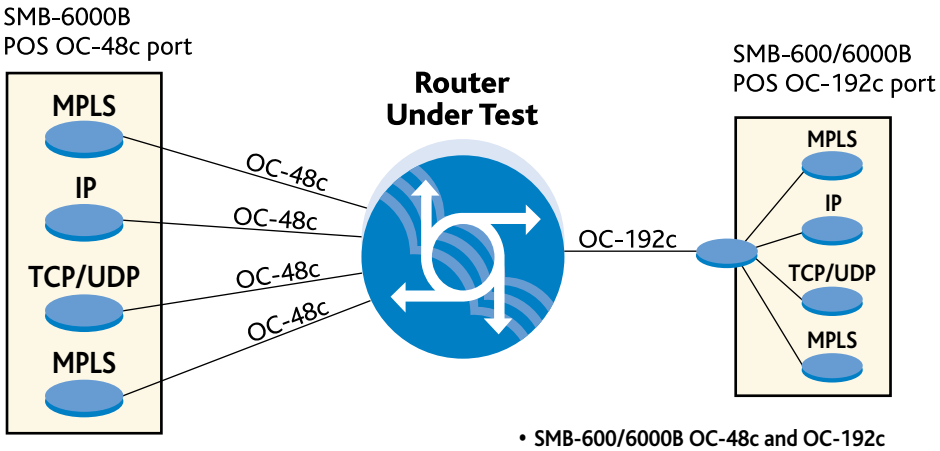
Specifications

- Line Rate
  - 2.488 Gbps line rate (2.396 Gbps) transmit SPE bandwidth
- Port Density
  - 1 port per POS-3504As or POS-3504Ar module
- Framing
  - SONET OC-48c or SDH STM-16 framing
  - Internal/external transmitter clock selection
  - SONET/SDH error generation and analysis
- Transmit Characteristics
  - L2 Encapsulation: PPP or Cisco HDLC encapsulation
  - Rate-based or gap-based transmission scheduling
  - Interframe gap (IFG): min 3.34 nanoseconds; max 21.88 milliseconds
  - Interburst gap (IBG): min. 13.4 nanoseconds; max. 1.79 seconds
  - Background frame (16 KB Buffer) data fill pattern: user-specified or random (global setting)
  - Error generation: CRC, IP checksum, data integrity
  - Payload scrambling enabled under user control ($x^{43}+1$)
  - Traffic shaping through random frame length, inter-frame gap, and frame content settings
- Per Stream Features
  - Generates up to 512 independent IP streams (peer-to-peer) and analyzes up to 21,845 streams at any given time.
  - Frame length: from 42 bytes to 16,384 bytes. The frame length includes the 4-byte PPP header and the frame payload, but does not include the FCS. Capable of generating back-to-back frames separated by a single flag.
  - Optional MPLS label stack encapsulation within PPP frames.
  - VFD 1, VFD 2: from 1 to 6 bytes (specifiable), anywhere in a packet; static, increment, decrement, random. Cycle: max. 16,777,215; increment and decrement modes only. Stutter: max. 4,095; increment and decrement modes only.
  - VFDs 1, 2 are bit-maskable, IP subnet-aware, and can be cascaded.
  - IP header checksum generation according to VFDs and/or background.
  - Testing capabilities include sequence tracking per stream, latency over time, latency per stream, and latency variation.

SmartBits Division
26750 Agoura Road
Calabasas, CA
91302 USA
Tel: 818-676-2300
Fax: 818-676-2700

Sales
USA: 800-927-2660
EMEA: +33 1 6137 2250
Asia: +852 2166 8382

www.spirentcom.com



- **SMB-600/6000B OC-48c and OC-192c ports support a variety of technologies including MPLS, IP, and TCP/UDP.**

SPIRENT Communications

- User-selectable Frame Check Sequence (FCS) of 16- or 32-bit.
- Data integrity validation of L3/L4 payload.
- Unicast, broadcast, and multicast traffic effects can be analyzed.

- Frame-based Transmit Modes
  - Continuous: constant frame transmit
  - Single burst: up to 4 billion packets in a single burst
  - Multiburst: up to 4 billion repetitive bursts with user-defined delay between bursts
  - Continuous Multiburst: runs multiburst mode continuously
- Frame-based Receive Modes
  - IP Header checksum and data integrity check
  - Per-stream statistics mode: QoS based on addressing, protocol type, port number, and frame priorities
  - Over-time statistics mode: statistics can be maintained for all incoming frames within the specified timeframe
  - Latency histograms for latency distribution
  - Sequence tracking per stream
- Capture Mode
  - Full line-rate (2.488 Gbps) capture and analysis
  - 16 MB capture buffer per port
  - Frame Length: 9 to 16,384 bytes
  - Frame selection: entire frame (up to 16 KB), slice of a frame beginning at offset 0 (programmable number of 64-byte slices), or signature field
  - Pre-capture filtering on: all valid frames, frames with or without a signature field, only signature field, received trigger, CRC errors, data integrity errors, and IP checksum errors
- Triggers
  - Two triggers of variable length
  - Trigger combinations: Trigger 1 only, Trigger 2 only, Triggers 1 and 2, Trigger 1 or 2
- Management Frame Transmit and Receive
  - Support for PPP and ICMP
  - Minimum management frame size: 9 bytes containing a CRC-32
- SONET/SDH Statistics
  - Section BIP-8
  - Line BIP-384
  - Line FEBE
  - Path BIP-8
  - Path FEBE
- Counters / CounterWidth / Rates (32-bit)
  - Transmitted and received frames — 64-bits
  - Transmitted and received bytes — 64-bits
  - Signature Frames (Rx and Tx) — 64-bits
  - CRC errors (Rx) — 64-bits
  - IP Header Checksum Errors (Rx) — 64-bits — X
  - Triggers (Rx and Tx) — 64-bits
  - Latency (Rx and Tx) — 32-bits — X

- Raw Tags
  - In the Raw Tags test, frames are stored and sent to the application without any calculations or filtering performed on the stream tags received. Up to 64K of records can be stored. Module transmit time, receive time, and delta (in mSec) are recorded per tag.

Supported Applications

- SmartWindow™
- SmartLib™ Programming Library
- ScriptCenter™
- SmartFlow™
- SmartVoIPQoS™
- SmartMulticastIP™

Interface Specifications

The POS-3504As and POS-3504AR modules are compliant with RFC's 1661, 1662, and 2615, which specify Packet Over SONET (POS) interface requirements. Each SONET interface conforms to ANSI T1.105 and ITU-T G.707 specifications. Each port presents an SC-duplex fiber connector suitable for use with existing single-mode fiber cabling.

Requirements

- The POS-3504As and the POS-3504AR modules each require one slot in an SMB-600 or SMB-6000B chassis.
- An IBM or compatible Pentium™ PC running Windows® 98/2000/NT, with mouse and color monitor.

	POS-3504As	POS-3504AR
Number of ports per module	1	1
Reach	Single mode; 2–15 kilometers	Single mode; 2–15 kilometers
Wavelength	1310nm	1550nm

Ordering Information

POS-3504As

OC-48c/STM-16, 1-port, single mode, 1310nm, SmartMetrics module

POS-3504AR

OC-48c/STM-16, 1-port, single mode, 1550nm, SmartMetrics module

SUS-SMB

12-month Software Update Support Service (includes firmware support)

SmartBits Division
26750 Agoura Road
Calabasas, CA
91302 USA
Tel: 818-676-2300
Fax: 818-676-2700

Sales
USA: 800-927-2660
EMEA: +33 1 6137 2250
Asia: +852 2166 8382

www.spirentcom.com

SPIRENT Communications

P/N 360-1038-001 Rev D, 2/02