

NETWORK INTERFACE DEVICE S2250/S3250



YOUR NETWORK. OUR CONNECTION.

KEY FEATURES AND BENEFITS

Designed to demarc the edge of your network, the S2250/S3250 devices offer advanced packet performance metering and service creation directly from customer premises and cell-sites. With a full range of Ethernet rates and interfaces, the comprehensive S2250/S3250 family fits your network from end-to-end.

SERVICE ASSURANCE FUNCTIONALITY

Performance Monitoring

High-precision, hardware assisted, latency + jitter-free demarcation, monitoring and measurement of latency, jitter, frame loss and continuity, including 1-way performance validation with microsecond resolution.

Multi-flow, multi-service, multi-site performance assurance enables real-time SLA assurance over any network. Supports point-to-point, multipoint & mesh topologies, unicast & multicast testing.

In-Service Throughput Testing

Verify the throughput of EVCs in-service, without affecting customer traffic. the S2250/S3250 units generate & analyze traffic flows up to full wire-speed at both layer 2 & 3.

Intelligent Loopbacks

In-service layer 1-2-3-4 loopbacks per-flow, defined by VLAN, Service-Level, MAC / IP addresses or any combination of layer 2-4 header criteria. Units respond to in-band loop-up commands from most third-party Ethernet test sets and monitoring systems, as well as via Y.1731 standards.

Per-Flow Statistics

Real-time statistics of live traffic at layer 1-2-3-4 (per VLAN, Ether-type, ToS, CoS, MAC, IP, etc.).

Tapping & Monitoring

Single or dual monitor ports providing filtered, real-time access to unidirectional or bidirectional traffic.



SERVICE CREATION & TRAFFIC CONTROL

Service Mapping

Create E-Line, E-LAN & E-Tree services directly at the demarc point -service mapping applies C/V-LAN tags (selective push) and/or configurable service class to traffic meeting detailed layer 2,3 & 4 criteria.

Bandwidth Policing

Limit upstream and downstream CIR/EIR by filtering criteria or for all traffic. Facilitates Carrier Ethernet service provisioning and on-demand/incremental service upgrades.

Wire-speed Filtering

Filter wirespeed traffic at layer 1-2-3-4 (L2CP, BDPU, per VLAN, Ether-type, Protocol type, MAC, IP, User Defined).

General Functionality

Jumbo Frames Support: All functions supports Jumbo Frames up to 10,240 bytes at all rates (10/100/1000 Mbps).

3 -Way Redundant Power: Units can be powered using 5VDC, or dual -48V feeds, all mutually redundant.

SNMP v1 & v2c: Support SNMP v1 and v2c for monitoring, alarms, OSS integration and unit configuration.

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SPECIFICATIONS

• Loopback Functionality

- Layer 1, Layer 2 (MAC Swap), Layer 3 (IP Swap), Layer 4 (TCP/UDP Port Swap)
- Automatically reacts to in-band loopback requests sent from popular 3rd party Ethernet test-sets, as well as 802.3ah / Y.1731 OAM loopback commands.
- Loopback on specific VLANs, source/destination MAC/IP address(es), Ethertype, protocol type, service class, or any logical combination.
- Loopback on specific MAC/IP source and/or destination address

• Thru-Traffic Per-flow statistics

- Stats per VLAN, per Ethertype, per ToS, per CoS, per MAC, per IP, etc.
- Stores up to 7 days of local and remote historical packet statistics in user configurable history buckets (typically set from 1-15 minutes).
- Monitor up to 16 concurrent flows

• Dual Monitor Access Ports providing individual access to both signal directions, combined access to both directions and intelligent filtering.

- Up to 100Mbps of traffic can be monitored from each port

• Fast Fault Propagation, <50 ms on all interfaces, client & network ports

• Link Loss Return

• OAM Functionality

- IEEE 802.3ah Ethernet OAM
- IEEE 802.1ag Service Layer OAM (Connectivity Fault Management)
- ITU-T Recommendation Y.1731

• Dying Gasp (via 802.3ah or SNMP traps)

• VLAN Tagging/De-tagging and VLAN Stacking (.1Q in .1Q)

• Integrated Copper TDR cable integrity testing

• Optical Digital Diagnostics (SFF-8472) with threshold crossing alerts via SNMP traps

• Jumbo Frames support for all features (up to 10,240 bytes)

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SPECIFICATIONS

Performance Assurance

- **Continuous in-service monitoring of Layer 2 & 3 SLA parameters**
 - One-way and Round-Trip Latency (Delay)
 - One-way and Round-Trip Jitter (Delay Variation)
 - One-way Packet Loss
 - Continuous End-to-End path continuity check
 - Availability (SES)
 - IGMP Group join / leave delays
- **High Precision measurements: 1 μ s resolution**
- **Large-scale performance assurance works in multiple topologies:**
 - Point-to-Point
 - Multipoint-to-Multipoint
 - Mesh
- **Assures SLAs per VLAN/per CoS/per ToS/per EVC**
- **SLA monitoring – up to 100 simultaneous instances**
- **User settable SLA threshold crossing alerts using SNMP traps**
- **Testing & Traffic Generation**
- **Wire-speed Traffic Generator and Analyzer**
 - Layer 2 or Layer 3 (IP)
- **In-Service Traffic Generator and Analyzer**
 - Layer 2 or Layer 3 (IP)
 - Unidirectional or Bidirectional
 - Seamless operation, does not affect customer traffic
 - Up to full service or Wire-speed 1 or 2 test streams

Service Mapping

- **Create E-Line, E-LAN & E-Tree Ethernet Virtual Circuits**
- **Identify traffic flows based on frame characteristics**
 - Source or destination MAC or IP addresses, masks
 - Ethertype, Port(s), DSCP, IP Precedence or PCP
 - Customer & Providers VLAN ID (C and S Tags)
- **Applies one or more actions**
 - S-VLAN tagging (selective push)
 - CoSmapping (set C/S-VLAN tag priority based on DSCP, IP Precedence or PCP, Drop Eligibility)
 - Bandwidth Policing (based on DSCP, IP Precedence or PCP values)
- **Bandwidth Policing**
 - Limit upstream and downstream CIR/EIR by filtering criteria or for all traffic. Allows enforcement of MEF-compliant services
 - Regulate up to 15 flows
- **Traffic Filtering & Per-Flow Statistics**
 - Through Traffic Wire-Speed Filtering (L2CP, BPDU, per-VLAN, Ethertype, Protocol type, MAC, IP, User Defined)
 - Define policies for up to 16 flows

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SPECIFICATIONS

Hardware

- Inline transparent performance for all packet sizes:
 - Throughput: wire-speed (1000 Mbps at 100% utilization)
 - Intrinsic Pass-through Traffic Latency: < 3.3 μ s
 - Intrinsic Pass-through Traffic Jitter: < 0.1 μ s
 - Intrinsic Latency for Intelligent Loop back: < 0.8 μ s
 - Intrinsic Jitter for Intelligent Loopback: < 0.1 μ s
- High-accuracy, hardware-assisted performance measurements with 1 μ s resolution.
- Integrated Management
 - SNMP v1, v2c Sets & Gets
 - Radius Authentication
 - Secure Web GUI via SSL
 - Secure CLI via SSH
 - Management VLAN
 - 802.3ah EFM OAM
 - Configuration import/export
 - FTP, TFTP, HTTP, HTTPS
 - NTP Client (or source)
 - Remote and Local Syslog
 - DNS Client
 - DHCP Client
 - In-band remote management over the Ethernet customer line via network & client-side interface

Power

- External AC/DC adapter (120-240Vac auto-sensing, 50-60Hz), 5VDC input to unit
- Dual (A/B) -48Vdc Central Office Supply inputs
- Power Consumption: 5-8 watts
- Cooling: convection cooled (no fans)

Physical Specifications

- 1.60" H x 5.34" W x 5.80" D
- 625 g or 1.37 lb
- MTBF 52-66 years (at 25 degree C ambient)

Regulatory and Certification

- IEC 60950
- MTBF > 53 yrs(4)
- FCC Part 15 Class A
- NEBS Level 3
- Industry Canada CS-03
- MEF9 Service Certification
- CE Mark
- MEF14 Traffic Management

Environmental

- Standard operating temperature: -5 to +65°C
- Storage temperature: -40 to +70°C
- Operating/storage humidity: 5-95% RH non-condensing

Warranty

- 1 year hardware and software

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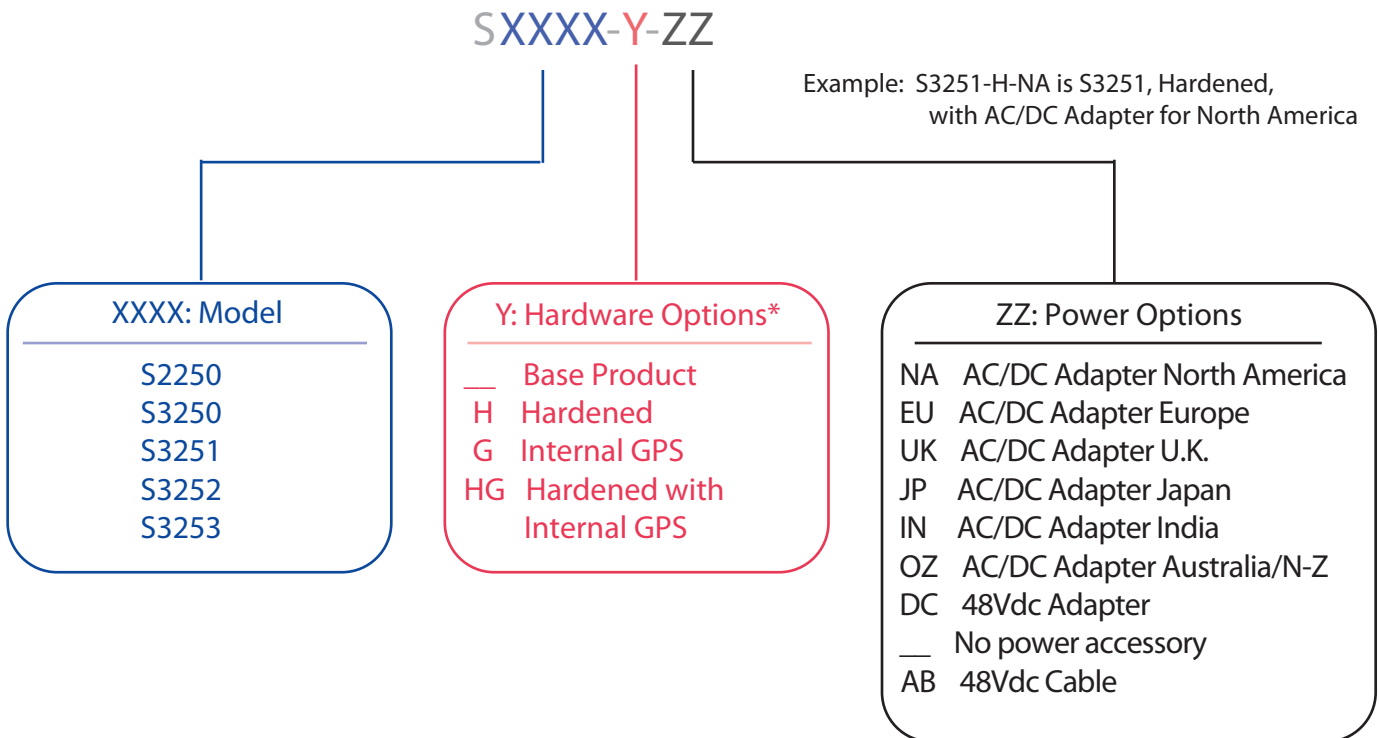
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ORDERING GUIDE

Model	Description
S2250	10/100/Mb/s Demarcation Device
S3250	10/100/1000 Mb/s Demarcation Device
S3251	10/100/1000 Mb/s Unit with enhanced multi-flow processing & statistics
S3252	10/100/1000 Mb/s Unit with advanced traffic shaping & packet processing functionality
S3253	4 SFP port version of the S3252

SXXXX-Y-ZZ

Example: S3251-H-NA is S3251, Hardened, with AC/DC Adapter for North America



***Please Note:**

Hardware Options H, G and HG are only available on S3251, S3252, and S3253 models