

# S2250/S3250

## Network Interface Device



### 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.

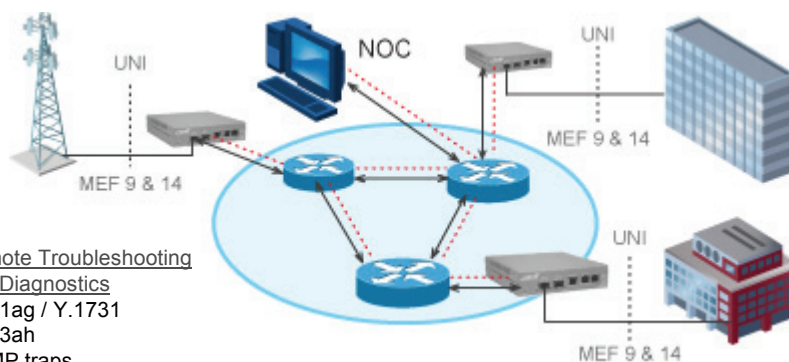
#### Per-Flow Statistics

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

#### Tapping & Monitoring

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

### Complete End-to-End Visibility



#### Remote Troubleshooting and Diagnostics

802.1ag / Y.1731  
802.3ah  
SNMP traps  
Provider Visibility & Control

### 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 (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 wire speed traffic at layer 1-2-3-4 (L2CP, BDPU, per VLAN, Ethertype, 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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<h3>Specifications</h3> <p><b>Loopback Functionality</b></p> <ul style="list-style-type: none"> <li>• Layer 1, Layer 2 (MAC Swap), Layer 3 (IP Swap), Layer 4 (TCP/UDP Port Swap)</li> <li>• 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.</li> <li>• Loopback on specific VLANs, source/destination MAC/IP address(es), Ethertype, protocol type, service class, or any logical combination.</li> <li>• Loopback on specific MAC/IP source and/or destination address</li> </ul> <p><b>Thru-Traffic Per-flow Statistics</b></p> <ul style="list-style-type: none"> <li>• Stats per VLAN, per Ethertype, per ToS, per CoS, per MAC, per IP, etc.</li> <li>• Stores up to 7 days of local and remote historical packet statistics in user configurable history buckets (typically set from 1-15 minutes).</li> <li>• Monitor up to 16 concurrent flows</li> </ul> <p><b>Dual Monitor Access Ports</b> providing individual access to both signal directions, combined access to both directions and intelligent filtering.</p> <ul style="list-style-type: none"> <li>• Up to 100Mbps of traffic can be monitored from each port</li> </ul> <p><b>Fast Fault Propagation, &lt;50 ms</b> on all interfaces, client &amp; network ports</p> <p><b>Link Loss Return</b></p> <p><b>OAM Functionality</b></p> <ul style="list-style-type: none"> <li>• IEEE 802.3ah Ethernet OAM</li> <li>• IEEE 802.1ag Service Layer OAM (Connectivity Fault Management)</li> <li>• ITU-T Recommendation Y.1731</li> </ul> <p><b>Dying Gasp (via 802.3ah or SNMP traps)</b></p> <p><b>VLAN Tagging/De-tagging and VLAN Stacking (.1Q in .1Q)</b></p> <p><b>Integrated Copper TDR cable integrity testing</b></p> <p><b>Optical Digital Diagnostics (SFF-8472) with threshold crossing alerts via SNMP traps</b></p> <p><b>Jumbo Frames support for all features (up to 10,240 bytes)</b></p>	<h3>Performance Assurance</h3> <p><b>Continuous in-service monitoring of Layer 2 &amp; 3 SLA parameters</b></p> <ul style="list-style-type: none"> <li>• One-way and Round-Trip Latency (Delay)</li> <li>• One-way and Round-Trip Jitter (Delay Variation)</li> <li>• One-way Packet Loss</li> <li>• Continuous End-to-End path continuity check</li> <li>• Availability (SES)</li> <li>• IGMP Group join / leave delays</li> </ul> <p><b>High Precision measurements: 1 µs resolution</b></p> <p><b>Large-scale performance assurance works in multiple topologies:</b></p> <ul style="list-style-type: none"> <li>• Point-to-Point</li> <li>• Multipoint-to-Multipoint</li> <li>• Mesh</li> </ul> <p><b>Assures SLAs per VLAN/per CoS/per ToS/per EVC</b></p> <p><b>SLA monitoring – up to 100 simultaneous instances</b></p> <p><b>User settable SLA threshold crossing alerts using SNMP traps</b></p> <p><b>Testing &amp; Traffic Generation</b></p> <p><b>Wire-speed Traffic Generator and Analyzer</b></p> <ul style="list-style-type: none"> <li>• Layer 2 or Layer 3 (IP)</li> </ul> <p><b>In-Service Traffic Generator and Analyzer</b></p> <ul style="list-style-type: none"> <li>• Layer 2 or Layer 3 (IP)</li> <li>• Unidirectional or Bidirectional</li> <li>• Seamless operation, does not affect customer traffic</li> <li>• Up to full service or Wire-speed 1 or 2 test streams</li> </ul> <p><b>Service Mapping</b></p> <p><b>Create E-Line, E-LAN &amp; E-Tree Ethernet Virtual Circuits</b></p> <p><b>Identify traffic flows based on frame characteristics</b></p> <ul style="list-style-type: none"> <li>• Source or destination MAC or IP addresses, masks</li> <li>• Ethertype, Port(s), DSCP, IP Precedence or PCP</li> <li>• Customer &amp; Providers VLAN ID (C and S Tags)</li> </ul>	<p><b>Applies one or more actions</b></p> <ul style="list-style-type: none"> <li>• S-VLAN tagging (selective push)</li> <li>• CoSmapping (set C/S-VLAN tag priority based on DSCP, IP Precedence or PCP, Drop Eligibility)</li> <li>• Bandwidth Policing (based on DSCP, IP Precedence or PCP values)</li> </ul> <p><b>Bandwidth Policing</b></p> <ul style="list-style-type: none"> <li>• Limit upstream and downstream CIR/EIR by filtering criteria or for all traffic. Allows enforcement of MEF-compliant services</li> <li>• Regulate up to 15 flows</li> </ul> <p><b>Traffic Filtering &amp; Per-Flow Statistics</b></p> <ul style="list-style-type: none"> <li>• Through Traffic Wire-Speed Filtering (L2CP, BPDU, per-VLAN, Ethertype, Protocol type, MAC, IP, User Defined)</li> <li>• Define policies for up to 16 flows</li> </ul> <p><b>Hardware</b></p> <p><b>Inline transparent performance for all packet sizes:</b></p> <ul style="list-style-type: none"> <li>• Throughput: wire-speed (1000Mbps at 100% utilization)</li> <li>• Intrinsic Pass-through Traffic Latency: &lt; 3.3 µs</li> <li>• Intrinsic Pass-through Traffic Jitter: &lt; 0.1 µs</li> <li>• Intrinsic Latency for Intelligent Loop back: &lt; 0.8 µs</li> <li>• Intrinsic Jitter for Intelligent Loopback: &lt; 0.1 µs</li> </ul> <p><b>High-accuracy, hardware-assisted performance measurements with 1µs resolution.</b></p> <p><b>Integrated Management</b></p> <ul style="list-style-type: none"> <li>• SNMP v1, v2c Sets &amp; Gets</li> <li>• Radius Authentication</li> <li>• Secure Web GUI via SSL</li> <li>• Secure CLI via SSH</li> <li>• Management VLAN</li> <li>• 802.3ah EFM OAM</li> <li>• Configuration import/export</li> <li>• FTP, TFTP, HTTP, HTTPS</li> <li>• NTP Client (or source)</li> <li>• Remote and Local Syslog</li> <li>• DNS Client</li> <li>• DHCP Client</li> <li>• In-band remote management over the Ethernet</li> </ul>
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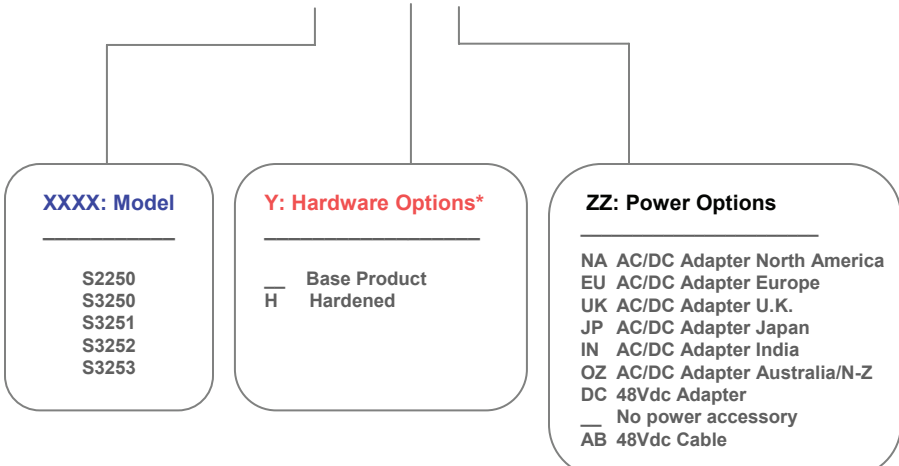


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Transition Networks Inc. offers networking connectivity solutions that make networks perform better, faster and more reliably while helping companies leverage their existing networking infrastructure.

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Specifications	Ordering Guide												
<p><b>Power</b></p> <ul style="list-style-type: none"> <li>External AC/DC adapter (120-240Vac auto-sensing, 50-60Hz), 5VDC input to unit</li> <li>Dual (A/B) -48Vdc Central Office Supply inputs</li> <li>Power Consumption: 5-8 watts</li> <li>Cooling: convection cooled (no fans)</li> </ul> <p><b>Physical Specifications</b></p> <ul style="list-style-type: none"> <li>1.60" H x 5.34" W x 5.80" D</li> <li>625 g or 1.37 lb</li> <li>MTBF 52-66 years (at 25 degree C ambient)</li> </ul> <p><b>Regulatory and Certification</b></p> <ul style="list-style-type: none"> <li>IEC 60950</li> <li>MTBF &gt; 53 yrs(4)</li> <li>FCC Part 15 Class A</li> <li>NEBS Level 3</li> <li>Industry Canada CS-03</li> <li>MEF9 Service Certification</li> <li>CE Mark</li> <li>MEF14 Traffic Management</li> </ul> <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>Standard operating temperature: -5 to +65°C</li> <li>Storage temperature: -40 to +70°C</li> <li>Operating/storage humidity: 5-95% RH non-condensing</li> </ul> <p><b>Warranty</b></p> <ul style="list-style-type: none"> <li>1 year hardware and software</li> </ul>	<p>Example: S3251-H-NA is S3251, Hardened, with AC/DC Adapter for North America</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>MODEL</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>S2250</td> <td>10/100/Mb/s Demarcation Device (5 Copper Interfaces)</td> </tr> <tr> <td>S3250</td> <td>10/100/1000 Mb/s Demarcation Device (3 copper + 2 SFP Interfaces)</td> </tr> <tr> <td>S3251</td> <td>10/100/1000 Mb/s Unit (3 copper + 2 SFP Interfaces) with enhanced multi-flow processing &amp; statistics</td> </tr> <tr> <td>S3252</td> <td>10/100/1000 Mb/s Unit (3 copper + 2 SFP Interfaces) with advanced traffic shaping &amp; packet processing functionality</td> </tr> <tr> <td>S3253</td> <td>4 SFP port version of the S3252 (1 Copper + 4 SFP Interfaces)</td> </tr> </tbody> </table> <div style="text-align: center; margin-top: 20px;"> <p><b>SXXXX-Y-ZZ</b></p>  <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 30%;"> <p><b>XXXX: Model</b></p> <hr/> <p>S2250 S3250 S3251 S3252 S3253</p> </div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 30%;"> <p><b>Y: Hardware Options*</b></p> <hr/> <p>— Base Product H Hardened</p> </div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 30%;"> <p><b>ZZ: Power Options</b></p> <hr/> <p>NA AC/DC Adapter North America EU AC/DC Adapter Europe UK AC/DC Adapter U.K. JP AC/DC Adapter Japan IN AC/DC Adapter India OZ AC/DC Adapter Australia/N-Z DC 48Vdc Adapter — No power accessory AB 48Vdc Cable</p> </div> </div> </div> <p><b>*Please Note:</b> Hardware Option H is only available on the S3251, S3252 and S3253 models. Operating temperature for hardened models is -40°C to 65°C.</p>	MODEL	DESCRIPTION	S2250	10/100/Mb/s Demarcation Device (5 Copper Interfaces)	S3250	10/100/1000 Mb/s Demarcation Device (3 copper + 2 SFP Interfaces)	S3251	10/100/1000 Mb/s Unit (3 copper + 2 SFP Interfaces) with enhanced multi-flow processing & statistics	S3252	10/100/1000 Mb/s Unit (3 copper + 2 SFP Interfaces) with advanced traffic shaping & packet processing functionality	S3253	4 SFP port version of the S3252 (1 Copper + 4 SFP Interfaces)
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