



## Product Brief

### Nortel Business Ethernet Switch 100 Series

Information technology is an integral tool for businesses of all sizes. In today's competitive environment, small and medium businesses (SMBs) need to focus on delivering the products and services that will make them successful in their market while maintaining a competitive advantage, reducing operating expenses and increasing employee productivity. SMBs are looking for a robust yet simple network infrastructure that offers support for wireless and IP communications technologies such as voice over wireless/IP, Unified Messaging, collaboration, video, Customer Relationship Management and mobility. The Nortel Business Ethernet Switching family provides the building blocks for creating a data information infrastructure that supports these technologies and the business requirements of the small and medium business.

The Nortel Business Ethernet Switch (BES) 100 family is comprised of four products with the following port configurations:

- BES110-24T: 24 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports
- BES110-48T: 48 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports
- BES120-24T PWR: 24 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports + PoE on ports 1 - 12
- BES120-48T PWR: 48 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports + PoE on ports 1 - 24

All four products come in a standard 1U form factor and are rack-mountable. They also include support for a recessed reset button as well as a DB9 Console port for local management access.

#### Key highlights

- > Convergence-ready
- > Easy-to-use
- > Cost-effective

#### Simplified installation

Through support for Auto-negotiation of speed and duplex mode, Auto-MDI/MDIX, easy to read LEDs, as well as a default IP address or BootP for automatic IP address allocation across the network, installing and gaining initial connectivity to desktop PCs, printers and other networked devices is made easy.



## Solutions-based management using Nortel Business Element Manager

The Nortel SMB product portfolio offers a unique management experience through the Nortel Business Element Manager (BEM), which enables the management of all Nortel SMB products within a single platform. Support within the Business Element Manager for the Business Ethernet Switch 100 allows the network manager to configure and manage the switch. This intuitive, task-oriented interface simplifies network management.

## Reduce costs with Power over Ethernet (PoE)

The Business Ethernet Switch 100 family comes equipped with support for Power over Ethernet (PoE) on the

BES120-24T PWR as well as the BES120-48T PWR. These products have the capability to provide power to PoE devices such as Voice over IP (VoIP) handsets or wireless access points, and dependant on the number of attached devices, can supply up to 15.4W of power per port.

## Convergence-ready functionality

Quality voice calls is something most people consider table stakes, if not a birthright. Prioritization of the data on the network is essential in order to ensure that mission-critical applications such as voice are delivered in a timely manner and treated differently than non-time sensitive data. The Business Ethernet Switch is able to put traffic into different priority queues by reading a packet's 802.1p or DSCP prioritization

value, ensuring that data is properly classified. Servicing each of the priority queues can be done by either using Weighted Round Robin or Strict Priority Queuing.

## Complete SMB solution

Nortel provides an end-to-end solution for the small and medium business that allows you to build networks that fit your needs. Figure 1 below shows how the Business Ethernet Switch 120-24T PWR can be used in conjunction with the Nortel Business Secure Router 222 for access to the Internet, the Nortel Business Access Point 120 for wireless connectivity, the Nortel Business Communication Manager 50 for voice integration and the Business Element Manager which can manage your entire Nortel SMB network from a single management station within the network.

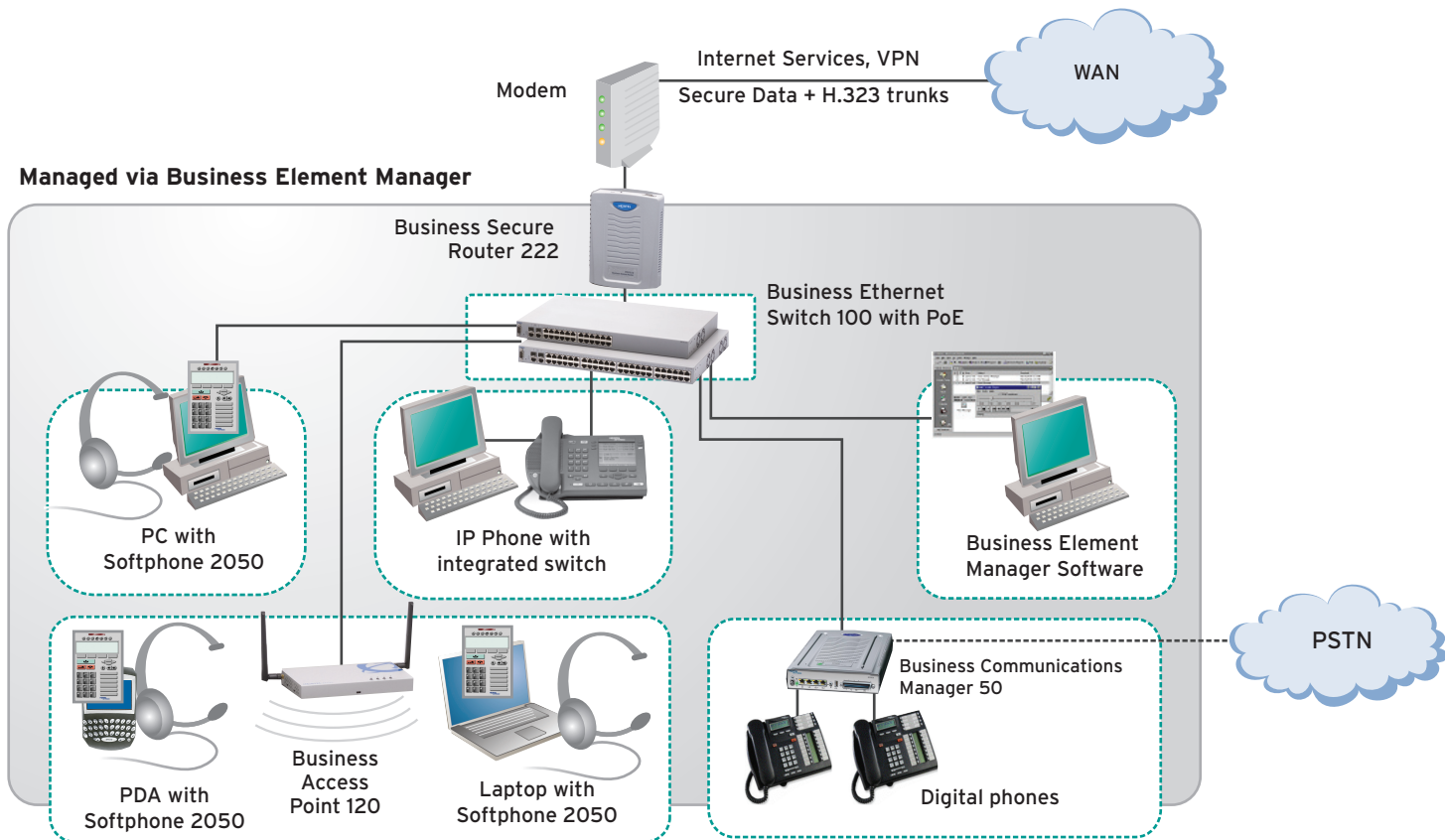


Figure 1. Manage your entire Nortel SMB network.

## Feature specifications

### Hardware features

- Switch fabric: 8.8 Gbps on 24 port, 13.6 Gbps on 48 port
- Forwarding rate: 10.2 Mpps on 48 port, 6.6 Mpps on 24 port
- 64M Flash
- 8M RAM
- 8,000 MAC address table size
- Power over Ethernet
- 4 hardware queues per port
- Auto-Negotiation
- Auto-MDI/MDIX
- Reset button

### Layer 2 features

- 32 port-based VLANs
- 802.3ad Link Aggregation: 6 aggregations, 4 ports per aggregation
- Spanning Tree/Rapid Spanning Tree (802.1D/802.1w)

### Security

- Intrusion control per port
- Destination address filtering

### Traffic control

- Packet Classification based on 802.1p and DSCP markings
- Weighted Round Robin or Strict Priority Queuing for queue servicing
- 802.1ab core for network topology discovery
- Broadcast/multicast packet storm control

### Management

- IGMP snooping ( v1/v2)
- Default IP address
- Support for the Business Ethernet Management
- SNMPv1/v2
- SNTp
- 4 groups of RMON (Ethernet statistics (Group 1), History (Group 2), Alarms (Group 3) and Events (Group 9))

## Technical specifications

### Physical specifications

BES110-24T	Weight: 8.5 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 12.17 in (30.9 cm)
BES110-48T	Weight: 10.5 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 14.53 in (36.9 cm)
BES120-24T PWR	Weight: 9.4 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 12.17 in (30.9 cm)
BES120-48T PWR	Weight: 11.6 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 14.53 in (36.9 cm)

### Network protocol and standards compatibility

- IEEE 802.3 10BASE-T (ISO/IEC 8802-3, Clause 14)
- IEEE 802.3u 100BASE-TX (ISO/IEC 8802-3, Clause 25)
- IEEE 802.3u Autonegotiation on Twisted Pair (ISO/IEC 8802-3, Clause 28)
- IEEE 802.3x (Flow Control on the Gigabit Uplink ports)
- IEEE 802.3z (Gigabit)
- IEEE 802.1d MAC Bridges (ISO/IEC 10038)
- IEEE 802.1p (Prioritizing)
- IEEE 802.1Q (VLAN Tagging)
- IEEE 802.1D (Spanning Tree Protocol)
- IEEE 802.3ad LACP
- IEEE 802.1w (Rapid Spanning Tree Protocol)
- IEEE 802.3af (Power over Ethernet)
- IEEE 802.1AB (Link Layer Discovery)

## Technical specifications (continued)

<b>Safety Agency Approvals to the latest release of the following standards</b>	<ul style="list-style-type: none"><li>• IEC 60950, CB report and certificate with all national deviations</li><li>• UL 60950</li><li>• CSA 22.2 No. 60950950</li><li>• EN 60950</li><li>• UL-94-V1 flammability requirements for PC board</li><li>• NOM-019</li></ul>
<b>RFC support</b>	RFC 1493 (Bridge MIB); RFC 2863 (Interfaces Group MIB); RFC 2665 (Ethernet MIB); RFC 2737 (Entity MIBv2); RFC 2819 (RMON MIB); RFC 1271 (RMON); RFC 1157 (SNMP); RFC 3412 (SNMP Message Processing); RFC 791 (IP); RFC 792 (ICMP); RFC 793 (TCP); RFC 783 (TFTP); RFC 826 (ARP); RFC 768 (UDP); RFC 951 (Bootp); RFC 2236 (IGMPv2); RFC 1112 (IGMPv1); RFC 1945 (HTTP v1.0); RFC 894 (IP over Ethernet); RFC 2674 (Q MIB); RFC 2578 (LDAPv2); RFC 3621 (PoE MIB); RFC 2579 (SMIPv2); RFC 3411 (SNMP Frameworks); RFC 2011 (MIB-II); RFC 2021 (RMON MIBBase v2 using SMIPv2); RFC 3413 (SNMP Applications); RFC 3415 (VACM for SNMP); RFC 3418 (MIB for SNMP); RFC 2933 (IGMP MIB); RFC 3584 (Co-existence of SNMP v1, v2, and v3); RFC 3291 (Textual Conventions for Internet Network Addresses); RFC 2213 (Integrated Messaging Services MIB); RFC 3289 (Differentiated Services MIB)
<b>Environmental</b>	<ul style="list-style-type: none"><li>• Operating temperature: 0° to 40°C (32° to 104°F)</li><li>• Storage temperature: -40° to 70°C (-40° to 158°F)</li><li>• Operating humidity: 10 to 95% maximum relative humidity, noncondensing</li><li>• Storage humidity: 5 to 95% maximum relative humidity, noncondensing</li><li>• All BES100 products are RoHS compliant to the 5/6 compliance standard</li></ul>
<b>Electrical</b>	<ul style="list-style-type: none"><li>• Input voltage (AC version): 100 to 240 VAC @ 50 to 60 Hz</li><li>• Input power consumption (AC version): Non-PoE: 45 W maximum PoE: 250 W maximum</li><li>• Input current (AC version): Non-PoE: 0.8 A @ 100 VAC, 0.4A @ 240 VAC PoE: 2.9A @ 100 VAC, 1.1A @ 240VAC</li><li>• Maximum thermal output: Non-PoE: 154 BTU/hour PoE: 853 BTU/hour</li><li>• Calculated MTBF @ 25°C:<ul style="list-style-type: none"><li>- BES110-24T: 207,314 hrs</li><li>- BES 110-48T: 150,730 hrs</li><li>- BES120-24T PWR: 144,883 hrs</li><li>- BES120-48T PWR: 114,208 hrs</li></ul></li></ul>
<b>EMC Agency Approvals to the latest release of the following standards</b>	<ul style="list-style-type: none"><li>• CISPR 22, Class A</li><li>• CISPR 24, Class A</li><li>• US: CFR47, Part 15, Subpart B, Class A</li><li>• Canada: ICES-003, Issue 3, Class A</li><li>• Australia/New Zealand. AS/NZS 3548, Class A</li><li>• Japan: VCCI, class A</li><li>• Taiwan: CNS 13438, Class A</li><li>• Europe: EN55022, Class A and EN55024</li><li>• EN61000-3-2, EN61000-3-3</li><li>• EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11</li></ul>

Nortel is a recognized leader in delivering communications capabilities that enhance the human experience, ignite and power global commerce, and secure and protect the world's most critical information. Serving both service provider and enterprise customers, Nortel delivers innovative technology solutions encompassing end-to-end broadband, Voice over IP, multimedia services and applications, and wireless broadband designed to help people solve the world's greatest challenges. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at [www.nortel.com](http://www.nortel.com).

For more information, contact your Nortel representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

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