

continuity

As networks become more strategic and mission-critical to businesses, network reliability requirements increase. Increased numbers of wiring closet switches are being deployed in enterprises. As a result, redundancy of power to those switches is required since the network is critical for business. Power sags, surges, and blackouts threaten network uptime and interrupt business activity. This creates the need for uninterruptible power to switches.

BayStack 10 Power Supply Unit (PSU) (Figure 1) is a scalable, redundant power supply (RPS) and uninterruptible power supply (UPS) solution that provides redundancy and power protection to existing and future network devices including BayStack 450, 460, 470, 5510, 380, and Business Policy Switches, BayStack hubs, and router products. BayStack 10 PSU is ideal for new and existing mid-tier and enterprise customers that need RPS/UPS functionality in a single chassis.

The BayStack 10 PSU is a standard 19" rack-mountable chassis that is 3 EIA/TIA standard rack units (3U) in height and has slots for the RPS and/or UPS modules. The modular design of the BayStack 10 PSU allows the chassis to accept up to four power supply (RPS) modules. The RPS modules are available in two ratings—200W for BayStack 460, 470, 5510, 380, and Business Policy Switches, and 136W for BayStack 450 Switches and other BayStack devices such as hubs and routers that support RPSU (Redundant Power Supply Unit) connector. RPS modules may be purchased separately, and installed into the BayStack 10 PSU chassis as needed.

If the UPS capability is not a requirement, then an SNMP (Simple Network Management Protocol) Controller Module must be installed as a minimum. If the UPS capability is a requirement, then UPS/SNMP Controller module and its associated battery pack must be installed. The SNMP Controller module and the UPS/SNMP Controller module are mutually exclusive.

Product Brief

Nortel Networks BayStack 10 Power Supply Unit

BayStack 10 benefits

- Convenience of scalable redundant power supply and UPS system in a single chassis
- Redundant power supply modules provide redundant power
- UPS module provides battery backup power to multiple devices
- SNMP Controller module manages and provides performance information

Figure 1. BayStack 10 Power Supply Unit



Features and benefits

Continuous operation

With the BayStack 10 PSU, continuous operation is achieved by having redundancy for the power supplies of BayStack Switches. In addition, the UPS module ensures continuous AC power to the network devices in the event of AC mains failure, power sag, surges, or blackouts.

The BayStack 10 PSU is a superior redundant power solution for continuously supplying power to the switch during a power supply failure from primary to secondary power or vice versa without causing the switch to reboot. In addition, the BayStack 10 PSU can simultaneously supply power to all switches connected to the BayStack 10 PSU.

Scalability and modularity

Up to four RPS modules fit into the rear of the BayStack 10 PSU chassis. The optional UPS and its associated battery pack module fit into the front of the chassis. The scalability feature protects customers' investment by letting them acquire these modules as their needs grow.

Hot swappable

The RPS modules that plug in to the BayStack 10 PSU are hot-swappable. The whole unit remains operational during the replacement of the failed module or adding a new module. This ensures the network remains operational during replacement or addition of new modules.

Redundant Power Supply (RPS) modules

You can provide DC power for up to four different network devices such as BayStack 460, 470, and 5510 Switches, using the power supply modules in the RPS section of the BayStack 10 PSU (Figures 2 and 3). The RPS modules support over-current and over-voltage protection.

The RPS modules are available in either a 136 watt (+12V, -12V, and +5V output) module or 200 watt (-48V output) module. The 200 W RPS module is suited for BayStack 460, 470, 5510, 380, and Business Policy Switches, whereas the 136 W RPS module can be used for BayStack 450 Switches and other BayStack devices (refer to Table 1. Compatibility information). Power cables are included with the RPS modules and are used to connect the BayStack 450 switch or other devices to the RPS module. For the switches that use the 200 W module, a DC-to-DC module needs to be purchased that plugs in to the rear of the switch. The DC-to-DC module is then connected to the 200 W RPSU using the power cable.

SNMP Controller module

If only the RPS capability is needed, then the SNMP Controller module must be installed (Figure 2). This module includes an RS-232 console port and an RJ-45 10BASE-T Ethernet port for use in configuring and managing the BayStack 10 PSU.

UPS/SNMP Controller module

If UPS or UPS and RPS capabilities are needed, then the UPS/SNMP Controller module is required. The UPS/SNMP Controller module includes the battery pack and fits into the front of the chassis (Figure 3). The UPS module provides uninterrupted power, SNMP control and management, and performance monitoring. If the utility power source is interrupted, the UPS battery provides continuous AC power for up to four devices.

The UPS/SNMP Controller module includes four IEC (International Electrotechnical Commission) power receptacles (Figure 3) for connecting the BayStack Switches or other devices to the UPS using the included IEC cables. The UPS module is available in two versions: the 110 Volt North American version supporting 110 Volt and the International version supporting 230 Volt. However, the UPS support is not available for Japan; only RPS support is provided for Japan.

Figure 2. BayStack 10 PSU with RPS-only support

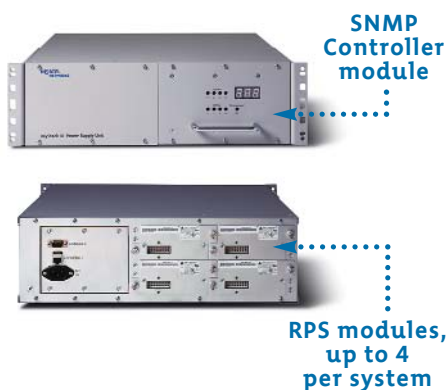
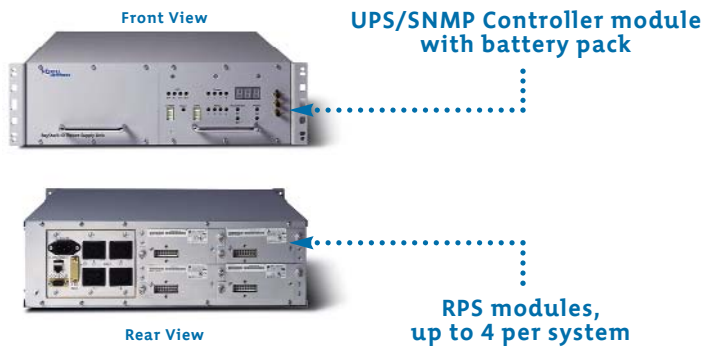


Figure 3. BayStack 10 PSU with RPS and UPS support



Manageability

The BayStack 10 PSU may be remotely configured, managed, or reset using an SNMP MIB browser. Software built into the SNMP Controller module uses the SNMP standard to manage and provide performance information about the unit. As a minimum configuration, BayStack 10 PSU must be ordered with SNMP Controller module or a UPS/SNMP Controller module.

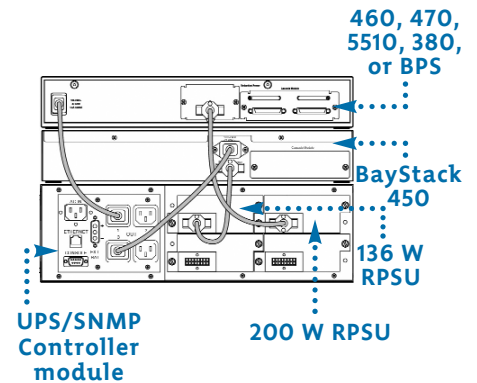
LEDs and error code indicators

The front panel of the SNMP or UPS module includes LEDs for monitoring system power, RPSU power, and fan operation. In addition, an LED panel is provided that indicates error information obtained by SNMP.

How to connect?

Figure 4 shows an example of how the network devices such as BayStack 470 and BayStack 450 are connected to the BayStack 10 PSU.

Figure 4. How to connect BayStack 10 PSU to BayStack network devices



The BayStack 10 PSU – How to choose?

If you need power redundancy (RPS) and protection against power sags, brown outs, and power surges (UPS), then order ...

- BayStack 10 PSU – AA0005?08 with appropriate power cord
- UPS/SNMP module (includes battery pack)
 - AA0005011 for North America use or
 - AA0005012 for International use (support for Japan not available)
- For RPS capability
 - For each BayStack 450, hub, or a router, order a 136 W RPSU (AA0005009)
 - For each BayStack 470, 5510, 380, or Business Policy Switch, order a 200 W RPSU (AA0005010) and an appropriate DC-to-DC converter
 - For each BayStack 460 Switch, order a 200 W RPSU (AA0005010) and the 2-pin connector (AL2018008)

If you only need power redundancy (RPS), then order ...

- BayStack 10 PSU— AA0005?08 with appropriate power cord
- SNMP Controller module (AA0005014)
- For RPS capability
 - For each BayStack 450, hub, or a router – order a 136 W RPSU (AA0005009)
 - For each BayStack 470, 5510, 380, or Business Policy Switch, order a 200 W RPSU (AA0005010) and an appropriate DC-to-DC converter
 - For each BayStack 460 Switch, order a 200 W RPSU (AA0005010) and the 2-pin connector (AL2018008)

* The seventh character (?) of the switch order number must be replaced with the proper code to indicate desired product nationalization:

"A" – No power cord included;

"B" – Includes European "Schuko" power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden;

"C" – Includes power cord commonly used in the United Kingdom and Ireland;

"D" – Includes power cord commonly used in Japan;

"E" – Includes North American power cord;

"F" – Includes Australian power cord, also commonly used in New Zealand and the People's Republic of China.



Table 1. Compatibility information

Network devices	Other accessories required	Choose RPS (order code)
BayStack 460-24T-PWR Switch	Need a 2-pin connector (AL2018008)	200 W (AA0005010)
BayStack 470 Switches	Need a DC-to-DC converter (AL1904005)	
BayStack 5510 Switches	Need a DC-to-DC converter (AL1904007)	
BayStack 380 Switches	Need a DC-to-DC converter (AL1904006)	
Business Policy Switch	Need a DC-to-DC converter (AL1904006)	
BayStack 410/450 Switches	None required	136 W (AA0005009)
BayStack 102 and 105 Hubs		
BayStack 500 Token Ring Hubs		
BayStack ARN Router		

Table 2. Technical specifications

Item	Description
<i>Interfaces</i>	Standard AC wall plug— NEMA 5-15 P (AC in) DC connector Console (RS-232) connector Ethernet (RJ-45) port
<i>Electrical specifications</i>	
Input requirements	
Input voltage	North America: 100 V to 120 V; Europe: 230 V
Input frequency range	North America: 57 to 63 Hz; Europe: 47 to 53 Hz
Input current	12.0 Amps, rms, max
Inrush current	150 Amps peak maximum at cold start for a 1/2 cycle at any rated input voltage decaying to the nominal value within 100 milliseconds
Leakage current	0.5 mA to 3.0 mA maximum for any input voltage
Output requirements	
Output voltage and current	
<i>136W power supply module</i>	<i>200W power supply module</i>
Output: -12, +12, +5 V DC	Output: -48V DC
Current (max.): 0.5, 2.5, 20 Amp	Current (max.): 4.2 Amp
Set point adjustment	
120 V AC, +/- 3 V AC (or 208 V AC or 220 V AC or 240 V AC +/-6 V AC) under half load with batteries fully charged	
Output over voltage	
AC outputs over voltage protected (OVP). The output OVP trip level preset to 135 V AC +/- 5 V AC, or 238 V AC, 250 V AC or 270 V AC +/- 10 V AC.	

Table 2. Technical specifications (continued)

Item	Description
Hold-up time	
The output shall remain within its error band for three minutes minimum for fully loaded UPS, from a complete line loss. See the RPS specifications for the RPS Hold-up time.	
Transfer time	
Less than 5 ms, phase locked to the utility waveform	
UPS voltage and current for North American version	
Input	100/120 V AC, 12 A, 60 Hz
Output	120 V AC, 12 A, 60 Hz, 1400 VA, 1000 W, pf: 0.7
UPS voltage and current for International version	
Input	230 V AC, 7 A, 50 Hz
Output	230 V AC, 7 A, 50 Hz, 1400 VA, 1000 W.
Physical specifications	
17.25 x 18.5 x 5.25 inches	
Environmental specifications	
Operating temperature	0° to 40° C
Storage temperature	-25° C to 70° C
Operating relative humidity	5% to 85% relative humidity, non-condensing
Storage temperature humidity	95% maximum relative humidity, non-condensing
Operating altitude	Up to 10,000 feet above sea level
Storage altitude	Up to 30,000 feet above sea level
Cooling, forced air	2X30 CFM, 80 mm fans
Electromagnetic compatibility	
EN55022/CISPR 22, Class A	
EN55024/CISPR 24	
ICES—003, Class A verified (Canada)	
BSMI—Class A (Taiwan)	
ACA, AS/NZ 3548, Class A (Australia)	
FCC Part 15 Class A (US)	
Safety agency approvals	
UL 1778, UL/C-UL 1950	
IEC 950/EN 60950, EN50091-1, CB certificate and report with all national deviations	
TCA AS/NZS 3260	
CCIB/GB4943, GB9254	
KNITQ	
JET	
PSB	
NOM-019-SCFI	
GOST	
IRAM	
Shock/vibration	
IEC 721-3-3, 3M3; IEC 721-3-1, 1M3	

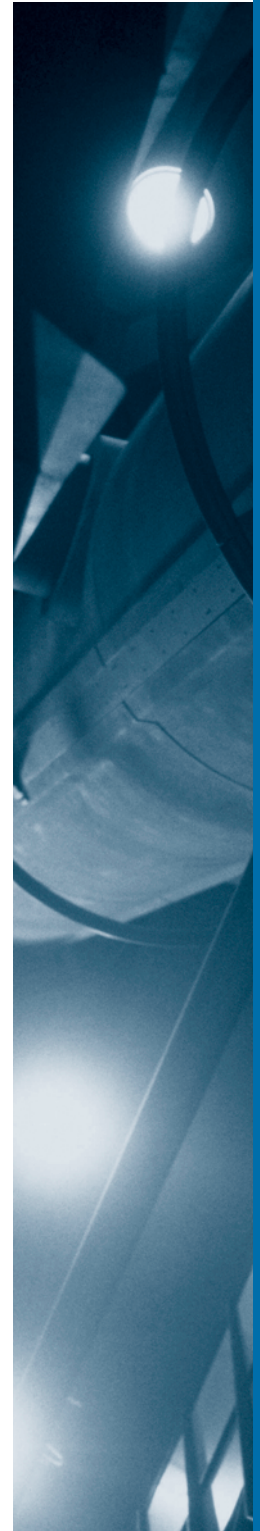


Table 3. Ordering information

Order Number	Description	Comments
AA0005A08	BayStack 10 Power Supply Unit. No power cord	
AA0005B08	BayStack 10 Power Supply Unit. Includes European Schuko power cord	
AA0005C08	BayStack 10 Power Supply Unit. Includes power cord used in the UK and Ireland	
AA0005D08	BayStack 10 Power Supply Unit. Includes power cord used in Japan	For RPSU only. UPS not supported
AA0005E08	BayStack 10 Power Supply Unit. Includes North American power cord	
AA0005F08	BayStack 10 Power Supply Unit. Includes Australian power cord, also used in New Zealand and the PRC	
Power Supply Modules		
AA0005009	BayStack 10 136 W Redundant Power Supply module, includes output cable	For BayStack 450/410 Switch, hubs or router
AA0005010	BayStack 10 200 W Redundant Power Supply module, includes output cable	For BayStack 460, 470, 5510, 380, or BPS Switch. Each 470, 5510, 380, or BPS Switch requires an appropriate -48 V DC-to-DC converter
SNMP Controller module (One required per BayStack 10 system)		
AA0005011	UPS/SNMP Controller module, North America, includes 6 ft. IEC/IEC cable	For 110 Volt use
AA0005012	UPS/SNMP Controller module, European, includes 6 ft. IEC/IEC cable	For 230 Volt use
AA0005014	BayStack 10 SNMP Controller module	For RPSU use only
Battery Pack Module		
AA0005013	UPS/Battery Pack Module	
Connector and cables		
AL2018008	2-Pin Connector used when connecting a BayStack 10 and a BayStack 460.	
AA0011030	Spare/replacement cable between BayStack 10 200W RPSU module and DC module of the BayStack switch.	

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