



## Technical Bulletin

### Nortel Business Communications Manager

#### Power supply and power consumption information

Business Communications Manager (BCM) is an integrated communications system designed for enterprise branch offices and small to medium-sized businesses and is capable of delivering both IP-enabled and pure-IP solutions. Business Communications Manager integrates KSU/PBX capabilities, voice over IP (VoIP) gateway functions, and Quality of Service (QoS) data routing features in a single system. Business Communications Manager 3.0 and higher is available on two Base Unit hardware platforms — the BCM200 and 400. The BCM200 can accommo-

date two Media Bay Modules (MBMs) used to connect to Nortel digital telephones, analog telephones and telephone lines. The BCM400 can accommodate four MBMs, and if an expansion cabinet is used with the BCM400, a total of 10 MBMs can be used. The BCM50 can be expanded with up to two BCM50 expansion cabinets — each with the ability to accommodate one MBM. The BCM200 and BCM400 platforms have integrated support for up to 90 IP Telephones and the BCM50 has integrated support for up to 32 IP Telephones.

BCM200/400 running software version 3.5 or higher and the BCM50 support an interface to American Power Conversion (APC) Uninterruptible Power Supplies (UPS), allowing continued operation of telecom equipment during short power outages and a graceful shutdown during longer outages. APC is a global leader in power availability solutions, sets the standard in its industry for quality, innovation and support, and is already the product of choice for many of Nortel's partners and customers.

The Intelligent APC UPS interface feature allows for the graceful shutdown of BCM under power fail situations and the ability to provide a warning message under these shutdown conditions. Specifically, the APC UPS is configured to shut down the BCM two minutes before the battery is discharged.

The ability to initiate graceful shutdown of the BCM when the UPS battery is almost depleted is only provided on BCM50/200/400. A halt shutdown is supported on BCM1000 if equipped with release 2.5 or higher.



**Table 1. BCM 50 runtime**

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL	None	3 hr	1 hr 2 min
SURTA1500RMXL	One – SURTA48RMXLBP	10 hr 7 min	3 hr 36 min
SURTA1500RMXL	Two – SURTA48RMXLBP	17 hr 43 min	6 hr 20 min
SURTA1500RMXL	Three – SURTA48RMXLBP	25 hr 35 min	9 hr 11 min
SURTA1500RMXL	Four – SURTA48RMXLBP	33 hr 41 min	12 hr 6 min

**Table 2. BCM 50 Expansion runtime – two cabinets**

UPS	Battery packs	Any load
SURTA1500RMXL	None	3 hr
SURTA1500RMXL	One – SURTA48RMXLBP	10 hr 7 min
SURTA1500RMXL	Two – SURTA48RMXLBP	17 hr 43 min
SURTA1500RMXL	Three – SURTA48RMXLBP	25 hr 35 min
SURTA1500RMXL	Four – SURTA48RMXLBP	33 hr 41 min

**Table 3. BCM 200 runtime**

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL	None	1 hr 52 min	41 min
SURTA1500RMXL	One – SURTA48RMXLBP	6 hr 24 min	2 hr 27 min
SURTA1500RMXL	Two – SURTA48RMXLBP	11 hr 14 min	4 hr 21 min
SURTA1500RMXL	Three – SURTA48RMXLBP	16 hr 14 min	6 hr 19 min
SURTA1500RMXL	Four – SURTA48RMXLBP	21 hr 23 min	8 hr 20 min

**Table 4. BCM400 runtime**

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL	None	1 hr 2 min	30 minutes
SURTA1500RMXL	One – SURTA48RMXLBP	3 hr 36 min	1 hr 51 min
SURTA1500RMXL	Two – SURTA48RMXLBP	6 hr 20 min	3 hr 17 min
SURTA1500RMXL	Three – SURTA48RMXLBP	9 hr 11 min	4 hr 46 min
SURTA1500RMXL	Four – SURTA48RMXLBP	12 hr 6 min	6 hr 18 min

**Table 5. BCM400 redundant feature options runtime**

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL	None	41 min	24 min
SURTA1500RMXL	One – SURTA48RMXLBP	2 hr 27 min	1 hr 28 min
SURTA1500RMXL	Two – SURTA48RMXLBP	4 hr 21 min	2 hr 37 min
SURTA1500RMXL	Three – SURTA48RMXLBP	6 hr 19 min	3 hr 49 min
SURTA1500RMXL	Four – SURTA48RMXLBP	8 hr 20 min	5 hr 2 min

**Table 6. BCM400 Expansion Cabinet runtime**

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL	None	1 hr 2 min	30 min
SURTA1500RMXL	One – SURTA48RMXLBP	3 hr 36 min	1 hr 51 min
SURTA1500RMXL	Two – SURTA48RMXLBP	6 hr 20 min	3 hr 16 min
SURTA1500RMXL	Three – SURTA48RMXLBP	9 hr 11 min	4 hr 46 min
SURTA1500RMXL	Four – SURTA48RMXLBP	12 hr 6 min	6 hr 18 min

APC Smart UPS is supported on BCM 3.5, BCM 3.6 and BCM 3.7 through the UPS serial cable interface. The BCM50 and BCM 4.0 are connected to the APC Smart UPS through a USB interface.

Both the serial interface and APC's PowerChute Plus management software are integrated with the Unified Manager UPS configuration software and the UPS status monitor software. The serial interface supports only one UPS to BCM connection.

Based on the power requirements of the BCM, the suggested APC system for most BCM applications is the SURTA1500RMXL. It is a rack mounted unit that comes with the ability to supply 1400VA/1050W. It can be expanded with additional battery packs (1 – SURTA48RMXLBP) to provide additional run time. Up to four additional battery packs can be added. APC products are not supplied by Nortel, but are available from most Nortel partners.

BCMs can be configured with a variety of feature options, MBMs and telephone sets, resulting in very different power consumption profiles. Power consumption will also depend a great deal on the level of activity on telephone sets, telephone lines and LAN connections. The length of time that a UPS will be able to sustain the operation of a BCM will depend greatly on the amount of telecom activity, as well as the MBMs and options installed. The data in Tables 1 to 7 shows expected UPS run time under typical and heavy load for the BCM200, BCM400, BCM400 expansion cabinet, BCM50 and BCM50 expansion cabinet. Note that the BCM400 and its expansion cabinet can be ordered with redundant feature options including redundant power supply, redundant chassis fans and redundant hard drives.

**Table 7. BCM400 Expansion Cabinet runtime with redundant feature options**

UPS	Battery Packs	Typical to Heavy Load
SURTA1500RML	None	41 min
SURTA1500RML	One – SURTA48RMLBP	2 hr 27 min
SURTA1500RML	Two – SURTA48RMLBP	4 hr 21 min
SURTA1500RML	Three – SURTA48RMLBP	6 hr 19 min
SURTA1500RML	Four – SURTA48RMLBP	8 hr 20 min

**Notes:** All data was compiled using equipment running at 120 VAC, 60 Hz. Data given in the tables above should be used as a guide only. Actual runtime will depend on the age of the batteries in the SURTA1500RML and the age of SURTA48RMLBP batteries connected as well as the actual equipment connected to the BCM. Customers may wish to test their UPS solution in the evening when their telecom equipment is not in use to get a better idea of their expected runtime. Observe all recommended APC maintenance schedules.

**Table 8.**

	Typical watts	Heavy watts	Typical BTU/Hr	Heavy BTU/Hr
<b>Base Unit BCM400 Standard</b>	135	407	460	1390
<b>Base Unit BCM400 Redundant</b>	238	470	815	1600
<b>BCM200</b>	87	281	300	960
<b>Base unit BCM50</b>	50	163	170	560
<b>Expansion Unit Standard PS</b>	235	544	800	1860
<b>Expansion Unit Redundant PS</b>	302	386	1030	132
<b>BCM50 Expansion unit (each)</b>	22	35	75	120

**Notes:** All values should be considered approximate. Actual heat output will depend on equipment installed and actual level of activity.

The BCM400 and an Ethernet Switch 460 (formerly BayStack) supporting Power over Ethernet with the maximum configuration consume approximately 940 Watts, not including any external 48 V power supply connected to the Ethernet Switch 460. The SURTA1500RML can support up to 900 Watts for 11 minutes during a power outage. If additional battery packs are added, the run time can be extended as shown above.

Very often, IT rooms even in small business settings are cooled with air conditioners to help prolong the life of the equipment inside. In order to help properly calculate the size of air conditioner needed, the heat output data of different BCM models under different load conditions are listed in Table 8.

**In the United States:**

Nortel  
35 Davis Drive  
Research Triangle Park, NC 27709 USA

**In Europe:**

Nortel  
Maidenhead Office Park, Westacott Way  
Maidenhead Berkshire SL6 3QH UK

**In Canada:**

Nortel  
195 The West Mall  
Toronto, Ontario M9C 5K1 Canada

**In Asia:**

Nortel  
United Square  
101 Thomson Road  
Singapore 307591  
Phone: (65) 6287 2877

**In Caribbean and Latin America:**

Nortel  
1500 Concorde Terrace  
Sunrise, FL 33323 USA

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