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NORTEL

Technical Bulletin Nortel Business Communications Manager

Power supply and power consumption information for Business Communications Manager 50, 200/400 and 450

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 is available on four Base Unit hardware platforms — the Business Communications Manager 50, Business Communications Manager 200,

Business Communications Manager 400 and Business Communications Manager 450. The Business Communications Manager 200 can accommodate two Media Bay Modules (MBMs) used to connect to Nortel digital telephones, analog telephones and telephone lines. The Business Communications Manager 400 can accommodate four MBMs, and if an expansion cabinet is used with the Business Communications Manager 400, a total of 10 MBMs can be used. Similar to Business Communications Manager 400, the Business Communications Manager 450 can also accommodate

up to 10 MBMs — four of them in the main unit and six in the Expansion unit. The Business Communications Manager 450 can support up to 300 digital or IP telephones. The Business Communications Manager 50 can be expanded with up to two Business Communications Manager 50 expansion cabinets — each with the ability to accommodate one MBM. The Business Communications Manager 200 and 400 platforms have integrated support for up to 90 IP Telephones and the Business Communications Manager 50 has integrated support for up to 32 IP Telephones.

Business Communications Manager 50, 200/400 (running software version 3.5 or higher) and 450 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 shut-down 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.

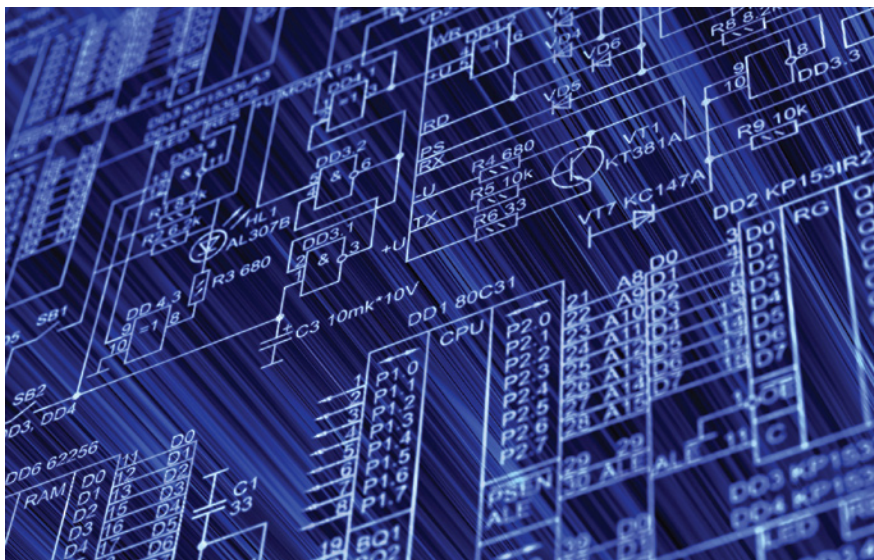


Table 1. BCM 50 runtime APC Smart UPS is supported on Business Communications Manager

UPS	Battery packs	Any load
SURTA1500RMXL2U	None	3 hr
SURTA1500RMXL2U	One – SURTA48RMXLBP	10 hr 7 min
SURTA1500RMXL2U	Two – SURTA48RMXLBP	17 hr 43 min
SURTA1500RMXL2U	Three – SURTA48RMXLBP	25 hr 35 min
SURTA1500RMXL2U	Four – SURTA48RMXLBP	33 hr 41 min

Table 2. Business Communications Manager 50 Expansion runtime – two cabinets

UPS	Battery packs	Any load
SURTA1500RMXL2U	None	3 hr
SURTA1500RMXL2U	One – SURTA48RMXLBP	10 hr 7 min
SURTA1500RMXL2U	Two – SURTA48RMXLBP	17 hr 43 min
SURTA1500RMXL2U	Three – SURTA48RMXLBP	25 hr 35 min
SURTA1500RMXL2U	Four – SURTA48RMXLBP	33 hr 41 min

Table 3. Business Communications Manager 200 runtime

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL2U	None	1 hr 52 min	41 min
SURTA1500RMXL2U	One – SURTA48RMXLBP	6 hr 24 min	2 hr 27 min
SURTA1500RMXL2U	Two – SURTA48RMXLBP	11 hr 14 min	4 hr 21 min
SURTA1500RMXL2U	Three – SURTA48RMXLBP	16 hr 14 min	6 hr 19 min
SURTA1500RMXL2U	Four – SURTA48RMXLBP	21 hr 23 min	8 hr 20 min

Table 4. Business Communications Manager 400 runtime

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL2U	None	1 hr 2 min	30 minutes
SURTA1500RMXL2U	One – SURTA48RMXLBP	3 hr 36 min	1 hr 51 min
SURTA1500RMXL2U	Two – SURTA48RMXLBP	6 hr 20 min	3 hr 17 min
SURTA1500RMXL2U	Three – SURTA48RMXLBP	9 hr 11 min	4 hr 46 min
SURTA1500RMXL2U	Four – SURTA48RMXLBP	12 hr 6 min	6 hr 18 min

Table 5. Business Communications Manager 400 redundant feature options runtime

UPS	Battery packs	Typical load	Heavy load
SURTA1500RMXL2U	None	41 min	24 min
SURTA1500RMXL2U	One – SURTA48RMXLBP	2 hr 27 min	1 hr 28 min
SURTA1500RMXL2U	Two – SURTA48RMXLBP	4 hr 21 min	2 hr 37 min
SURTA1500RMXL2U	Three – SURTA48RMXLBP	6 hr 19 min	3 hr 49 min
SURTA1500RMXL2U	Four – SURTA48RMXLBP	8 hr 20 min	5 hr 2 min

The Intelligent APC UPS interface feature allows for the graceful shut-down of Business Communications Manager 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 Business Communications Manager two minutes before the battery is discharged.

The ability to initiate graceful shut-down of the Business Communications Manager when the UPS battery is almost depleted is only provided on Business Communications Manager 50/200/400/450. A halt shutdown is supported on Business Communications Manager 1000 if equipped with release 2.5 or higher.

APC Smart UPS is supported on Business Communications Manager 3.5, 3.6 and 3.7 through the UPS serial cable interface. The Business Communications Manager 4.0, 50 and 450 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 Business Communications Manager connection.

Based on the power requirements of the Business Communications Manager, the suggested APC system for most Business Communications Manager applications is the APC Smart-UPS RT (SURTA1500RMXL2U). It is a rack-mounted unit that comes with the ability to supply 1500VA/1050W. It can be expanded with additional battery packs (SURTA48RMXLBP) to provide additional runtime. Up to four additional battery packs can

Table 6. BCM400 Expansion Cabinet runtime

UPS	Battery packs	Typical load	Heavy load
SURTA1500RML2U	None	1 hr 2 min	30 min
SURTA1500RML2U	One – SURTA48RMLBP	3 hr 36 min	1 hr 51 min
SURTA1500RML2U	Two – SURTA48RMLBP	6 hr 20 min	3 hr 16 min
SURTA1500RML2U	Three – SURTA48RMLBP	9 hr 11 min	4 hr 46 min
SURTA1500RML2U	Four – SURTA48RMLBP	12 hr 6 min	6 hr 18 min

Table 7. Business Communications Manager 400 Expansion Cabinet runtime with redundant feature options

UPS	Battery packs	Typical to heavy load
SURTA1500RML2U	None	41 min
SURTA1500RML2U	One – SURTA48RMLBP	2 hr 27 min
SURTA1500RML2U	Two – SURTA48RMLBP	4 hr 21 min
SURTA1500RML2U	Three – SURTA48RMLBP	6 hr 19 min
SURTA1500RML2U	Four – SURTA48RMLBP	8 hr 20 min

Table 8. Business Communications Manager 450 Base Unit runtime with standard power supply

UPS	Battery packs	Typical load	Heavy load
SURTA1500RML2U	None	2 hr	1 hr 10 min
SURTA1500RML2U	One – SURTA48RMLBP	6 hr 24 min	3 hr 45 min
SURTA1500RML2U	Two – SURTA48RMLBP	11 hr 14 min	6 hr 30 min
SURTA1500RML2U	Three – SURTA48RMLBP	16 hr 14 min	9 hr 20 min
SURTA1500RML2U	Four – SURTA48RMLBP	21 hr 23 min	12 hr 15 min

Table 9. Business Communications Manager 450 Base Unit runtime with redundant power supply option

UPS	Battery packs	Typical load	Heavy load
SURTA1500RML2U	None	1 hr 45 min	1 hr 5 min
SURTA1500RML2U	One – SURTA48RMLBP	6 hr 15 min	3 hr 40 min
SURTA1500RML2U	Two – SURTA48RMLBP	11 hr	6 hr 25 min
SURTA1500RML2U	Three – SURTA48RMLBP	16 hr	9 hr
SURTA1500RML2U	Four – SURTA48RMLBP	21 hr	12 hr

Table 10.

	Typical load		Heavy load	
	Watts	BTU/Hr	Watts	BTU/Hr
Base Unit BCM450 — Standard w/o CEC*	119	406	191	652
Base Unit BCM450 — Redundant PS w/o CEC*	133	454	205	700
Base Unit BCM400 Standard *	135	460	173	590
Base Unit BCM400 Redundant *	174	593	226	771
BCM200 **	104	355	142	484
Base Unit BCM50	52	177	N/A	N/A
Expansion Unit Standard PS ***	106	361	223	760
Expansion Unit Redundant PS ***	140	477	230	784
BCM50 Expansion Unit (each)	24	82	36	123

Note: The actual power consumption will vary depending on the level of system activity, as well as the actual parts your Business Communications Manager product was built with, and the Media Bay module that is installed. The values given in Table 10 should be considered typical and worst case values for steady state operation, as they were measured using a typical MBM complement, and the most demanding combinations of Media Bay Modules permitted by the product documentation.

* Typical Load is configured with four G4x16 MBMs/ Heavy Load is configured with two DSM32 and two GASM8 MBMs.

** Typical Load is configured with two G4x16 MBMs/ Heavy Load is configured with two GASM8 MBMs.

*** Typical Load is configured with two G4x16 MBMs, one GATM8 and three GASM8/ Heavy Load is configured with two DSM32 and four GASM8 MBMs.

be added. An alternative to the APC Smart UPS is the APC Back-up UPS RS (Back-UPS RS 1500VA). The APC Back-up UPS cannot be monitored and managed through the LAN network, but it does support a direct monitoring and management connection to the Business Communications Manager through the USB interface (for Business Communications Manager 450, 50 and 4.0) or Serial interface (for Business Communications Manager 3.7 and earlier). The APC Back-up UPS can be expanded with one additional battery pack. Only Business Communications Manager 50, 450 and 4.0 support to control the APC Back-UPS RS through USB. For Business Communications Manager 3.7 and earlier, a patch is available to add the functionality. APC products are not supplied by Nortel, but are available from most Nortel partners.

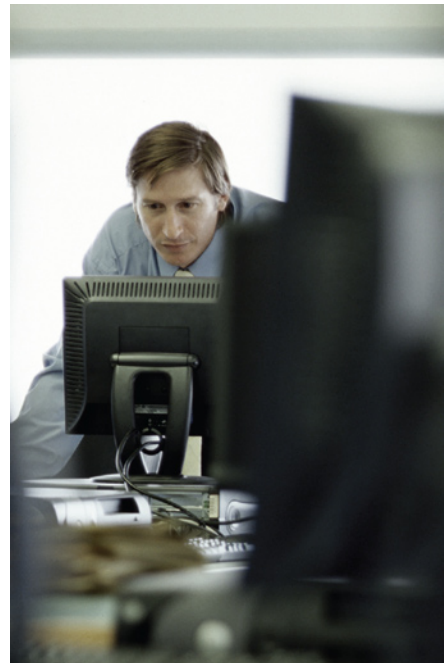
Note:

All data was compiled using equipment running at 120 VAC, 60 Hz. Data given in the Tables 1-9 should be used as a guide only. Actual runtime will depend on the age of the batteries in the UPS and battery packs connected as well as the actual equipment connected to the Business Communications Manager. 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.

Business Communications Managers 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 Business Communications Manager will depend greatly on the amount of telecom activity, as well as the MBMs and options installed. The data in Tables 1 to 9 shows expected UPS runtime under typical and heavy load for the Business Communications Manager 50, 50 Expansion cabinet, 200, 400, 450 and Expansion cabinet. Note that the Business Communications Manager 400 and Expansion cabinet

can be ordered with redundant feature options including redundant power supply, redundant chassis fans and redundant hard drives. The Business Communications Manager 450 can be equipped with a redundant power supply.

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 Business Communications Manager models under different load conditions are listed in Table 10.



A promotional banner for TRC Telecom Resource Corporation. On the left is the TRC logo in blue and yellow, with the text 'TELECOM RESOURCE CORPORATION' and 'trcnetworks.com' below it. To the right of the logo, the text reads: 'Have A Question? Need More Info? Call Us: 416 398 4448 Toll Free: 877 390 1166'. On the far right of the banner is a small portrait of a smiling man in a suit.

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