



Powerware

Powerware® 9320 10-60 kVA, Modular, Online UPS

Product Focus

10-60 kVA



Powerware 9320-C03



Powerware 9320-C02

Features

- **High Availability** - each module is a self-contained unit; there is no system - level single point-of-failure
- **High Reliability** - DPA, distributed parallel architecture, offers up to N+2 redundancy
- **High Performance** - modular, scalable double conversion online design ensures continuous uptime
- **Low Input THD and High Power Factor** - ensure the lowest installation costs, minimizing input breaker and wire size
- **Service & Support** - provides around-the-clock service, support and on-site maintenance programs with Powerware product professionals

Power density, flexibility and reliability are the key components of the ideal power solution for critical IT applications, and the Powerware 9320 offers all three in a modular, scalable UPS. The Powerware 9320 is designed to provide redundancy as well as the ability to increase system capacity as your needs change by using 10 or 20 kVA modules in a single cabinet.

The Powerware 9320 family includes two models, the Powerware 9320-C02 and the Powerware 9320-C03. The 9320-C03 offers the advantage of longer battery runtimes, growth of system capacity up to 60 kVA and up to N+2 redundancy. The 9320-C02 has a space-saving design that features the batteries in the cabinet, for applications where space is at a premium.

The Powerware 9320 Advantage – Power Density

- More power per square foot
- Frees up valuable data center space

In crowded data centers, saving space means saving money on costly expansion. New computing architecture, including rackable blade-style servers that enable multiple functions to be housed in a single high-density system, is paving the way for more efficient and logically organized data centers. The Powerware 9320 is ideally designed for the imminent change in data center infrastructure because it mirrors the same concept by providing a high kVA per square foot ratio.

Powerware 9320

The Powerware 9320 Advantage – Redundancy

- No single point-of-failure
- Automatic load-sharing eliminates transfer time should a UPS module need service
- Redundancy is built in throughout the system

The UPS exists to ensure system availability, providing a level of protection against the damaging effects of power anomalies, and enough backup time to allow critical systems to ride through the anomaly, be transferred to alternate power or gracefully shut down in the event of an outage. If something should happen to prevent the UPS from functioning, your critical systems would be at risk. And in the technology-dependent world of IT, that is unacceptable.

As a part of its advanced design, the Powerware 9320 features the unique Distributed Parallel Architecture (DPA) for redundancy and increased capacity. In a DPA system, each module operates as a completely independent unit and includes UPS logic and parallel intelligence, reducing points-of-failure. Each module has its own output disconnect so it can be isolated from the rest of the system for service, or the internal bypass can be used to isolate all modules at once. UPS power modules are hot-swappable so adding or replacing modules is done easily. The Powerware 9320-C03 can be paralleled with up to three modules, offering up to N+2* redundancy.

By providing up to N+2 redundancy, the Powerware 9320 is the state-of-the-art UPS for protecting your critical systems.

*N+2, failure of two modules will not change operational mode of UPS

The Powerware 9320 Advantage - Flexibility

Scalability is an important part of any advanced power management solution. Additional power modules can easily be added to the Powerware 9320 without having to take the system offline, and without putting the protected load at risk. Up to three hot-swappable 10 or 20 kVA modules can be installed in one cabinet for up to 60 kVA of UPS protection. If your current load requirement is only 20 kVA, you could install the cabinet with one 20 kVA power module, then plan for additional power modules as your critical load requirement increases. This gives the Powerware 9320 a great deal of flexibility, ideal for changing power needs.



BATTERY RUNTIMES (IN MINUTES)

Internal battery strings	9320-C02/10	9320-C02/20	9320-C02/40
	10 kVA	20 kVA	40 kVA
One string	8	N/A	N/A
Two strings	21	8	N/A
Three strings	35	15	N/A
Four strings	50	21	8

Runtimes at full resistive load .8PF

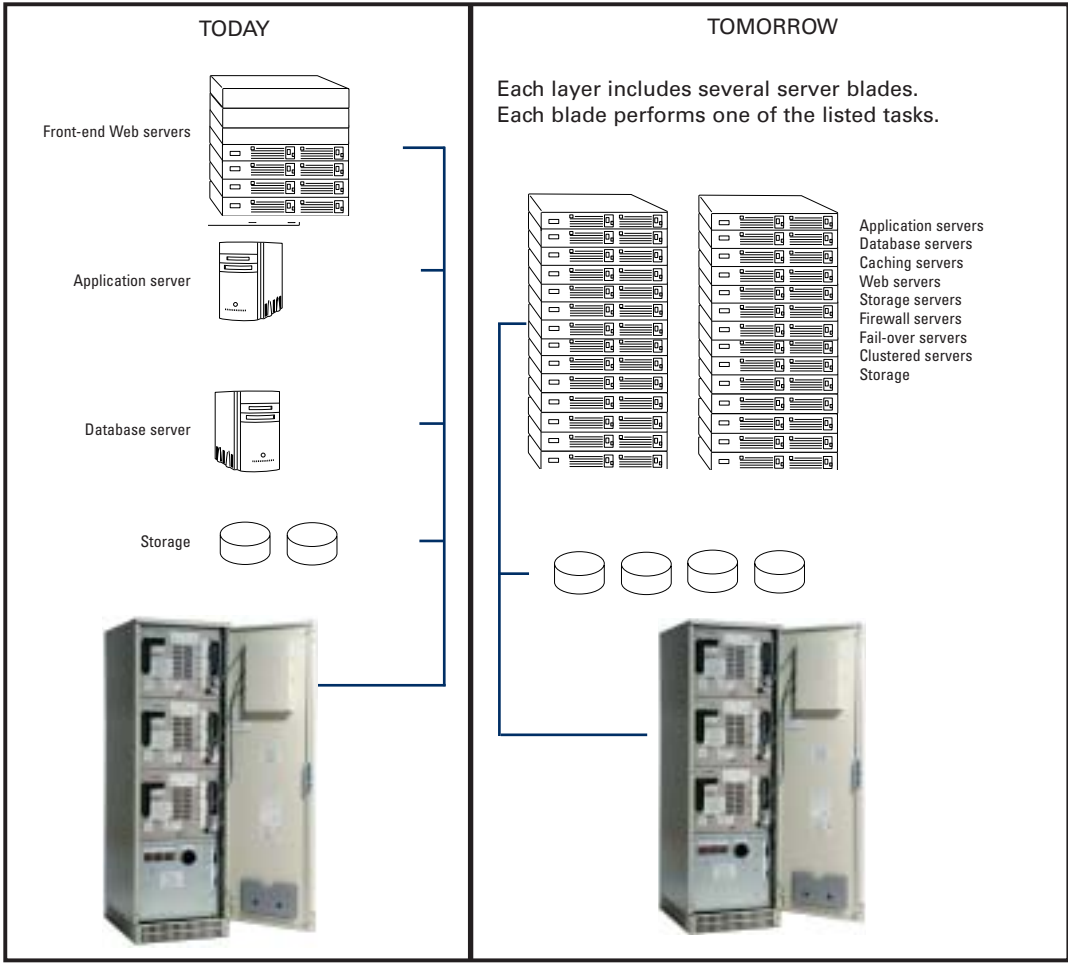
The changing landscape of the data center

Data center architects and IT managers constantly are working to increase the functionality and scope of the data center. To that end, they are seeking ways to maintain scalability, improve performance and reduce total cost of ownership. The attainment of these benefits

lies in several new technology directions, including blade servers, grid computing, and ultimately, virtual servers.

As the function and design of the data center continues to change, the allocation of UPS-protected power will change as well. This is especially important during the next few years

as IT managers migrate their critical applications to these new servers, providing a mix of old and new technology co-existing in the same data center. Because it mirrors computing trends with its scalable, modular design, the Powerware 9320 is the ideal solution for the evolving data center.



Server blade architecture will eventually morph today's multi-tiered networks into dense, interchangeable blade networks. Each blade will perform a specific task or act as a fall-over or clustered server. This is an example of how technology innovation is driving change in the structure of the data center and how Eaton leads the way in power infrastructure adaptation.

SPECIFICATIONS

System Information

Powerware 9320-C02 and 9320-C03

Technology	Online, double - conversion					
Design	Modular, expandable for redundancy or capacity					
Parallel Topology	Distributed parallel with de-centralized logic control					
Bypass Topology	Distributed parallel with de-centralized bypass system					
	Using 10 kVA modules			Using 20 kVA modules		
	Model 10	Model 20	Model 30 ¹	Model 20	Model 40	Model 60 ¹
	10 kVA/8 kW	20 kVA/16 kW	30 kVA/24 kW	20 kVA/16 kW	40 kVA/32 kW	60 kVA/48 kW
Input						
Input voltage	VAC	208Y/120				
Input voltage range 100% load	V (%)	208 (+15/-20)				
Input voltage range 75% load	V (%)	208 (+15/-30)				
Maximum UPS input battery discharged	kW (A)	11 (30)	21 (60)	32 (90)	21 (60)	43 (121) 64 (183)
Input current distortion	%	<10				
Input power factor		> 0.98 @ 100% load / > 0.95% @ 50% load				
Input frequency	Hz	40-80				
Output						
Output voltage	VAC	208Y/120				
AC output	A	28	56	83	56	111 167
Frequency	Hz	60				
Output power factor		0.8				
Output waveform		Sine-wave				

SPECIFICATIONS

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Powerware 9320-C02 and 9320-C03

Output voltage tolerance

- Static	%							< 1.5
- Load step (0-100%, 100-0%)	%							< 4
- Distortion with linear load	%							< 2
- Distortion with non-linear load (EN50091)	%							< 4
Load step recovery (0-100%, 100-0%)	msec							< 20
Permissible unbalanced load	%							100
AC output (@ 10 min. overload)	A	31	62	91	62	124	186	
AC output (@ 30 sec. overload)	A	42	84	125	84	167	250	
AC output overload on bypass (150% continuous)	A	42	84	125	84	167	250	
AC output overload on bypass (200% for 1 min.)	A	56	112	166	112	222	334	
AC output overload on bypass (1000% for 10ms)	A	280	560	830	560	1110	1670	

Battery

Nominal voltage	VDC							336 (+/- 168)
Max charger ripple (20 kHz)	mV							<100
Discharge current (nominal)	A	27	54	80	54	107	161	
Internal runtime, minimum battery configuration 50/100%	Min.	20/8	20/8	N/A	20/8	20/8	N/A	
Number of cells							X168	

Environmental

System efficiency @ rated load and voltage

100%/75%/50%/25% linear load (cos Ø= 0.8 Ind.)	%							92/92/91/88
100%/75%/50%/25% linear load (resistive cos Ø=1)	%							91/91/90/88
Maximum heat dissipation	kBTU/Hr	2.7	5.4	8.1	5.4	10.8	16.2	
	kcal/Hr	680	1360	2040	1360	2720	4080	
Audible noise on line with 100% load@1 m. all sides	dBA	57	57	57	60	60	60	
Audible noise on line with 75% load@1 m. all sides	dBA	50	50	50	52	52	52	
Cooling							Forced Air	
Ambient temperature for UPS (0-1000 meters @100% load)	°C							0 – 40
Relative air-humidity (non-condensing)	%							5 - 95

Physical Dimensions

Width	In (mm)							21.7 (550)
Height	In (mm)							71 (1800)
Depth	In (mm)							29.6 (750)
Weight installed w/minimum runtimes 9320-C02 ²	lbs (kg)	507 (230)	703 (319)	N/A	805 (365)	1197 (543)	N/A	
Weight installed 9320-C03	lbs (kg)	329 (149)	342 (155)	558 (253)	341 (155)	470 (213)	598 (271)	

Communications Interface³

Intelligent communication interface	Unit accepts one optional Powerware "X-Slot" form communications card						
Available communication options	Building management through Modbus RTU; Alarm management & computer shutdown; Remote notification through N/O-N/C Form C dry contacts						
Basic communication interface	Voltage-free contacts/DB25M Connector; N/O "On Generator" connection; N/C Remote EPO connection						

Standards

Safety	UL1778 Listed						
EMI suppression	Meets FCC Regulation 47, Part 15, for Class A Devices						
Performance	Meets IEC 62040-3						

Maintenance requirements

Accessibility for maintenance	Front only						
Individual UPS module size (W x H x D)	In (mm)10 and 20 kVA 19(483) x 15.75(400) x 26.6(675)						
Individual UPS module weight	lbs (kg)10 kVA = 115 (52), 20 kVA = 126 (57)						

1. Models 30 and 60 only available with 9320-C03 cabinet 2. Add additional 183 lbs. (83 kg) for each additional battery string 3. Expanded communications options available
These specifications subject to change without notice; please reference www.powerware.com for latest information.

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