

Uninterruptible Power Supplies



Protect systems from power outages and brownouts

Power outages and brownouts can severely disrupt information processing and result in data loss. UPSs enable processing to continue during short outages and let you shut down systems in an orderly fashion during long outages. A UPS also shields your equipment from voltage surges and reductions by maintaining voltage within acceptable limits.

You can purchase UPSs in a variety of capacities. Vendors use a VA (volts × amperes) rating to indicate the amount of power the UPS can deliver. For this Buyer's Guide, vendors supplied information about products intended to support one or two desktop PCs (up to 700VA), small server farms (up to approximately 5KVA), large server farms (up to approximately 15KVA), and data centers (three-phase models with capacities up to 25KVA).

Make sure the capacity of the UPS you choose exceeds your requirements by at least 20 percent—more, if you plan to add servers or desktop systems. Because PCs and servers can present different power loads to the UPS, the wattage rating should be your primary concern when making a purchase. To estimate how long your equipment can operate on UPS power, ask about the product's battery life and consider the typical duration of power outages in your area.

All UPS systems employ batteries and feature power-inverter circuitry. Online UPSs first rectify the commercial AC power to DC, then use the inverter circuitry to provide AC power to your computers. This process provides better output voltage regulation and purer power than line-interactive models. Online UPSs can also switch from commercial to battery power with no transfer time, while line-interactive models typically take from 4ms to 8ms to make the changeover (only the most sensitive scientific equipment would be affected by such a short interval). Keep in mind that online units typically cost more than line-interactive models.

If uptime is a crucial concern, you might consider a UPS with redundant batteries and power circuitry. Because UPSs sit idle most of the time, a failed battery might go unnoticed until it's too late. Some redundant UPSs also let you scale up their power handling and

battery runtime capacities as you add new servers.

You need to also consider the management software included with the UPS. When power fails, UPSs communicate the loss of power through the server's serial or USB port to the management software running on the server. The software notifies the administrator of the power failure through email or pager and also notifies users so that they can save their data. When battery power drops to a predetermined level, the software begins to close applications and shut down servers in an orderly fashion. Some UPS management programs will let you specify the amount of time needed for each application to close before the server shutdown process begins. Other management applications let you remotely shut down servers to conserve battery runtime and keep crucial applications running as long as possible.

Finally, inspect the vendor's warranty and onsite service options. In a few years you'll need to replace the UPS's batteries. This process can be labor-intensive because the batteries typically are large and heavy. Securing an onsite service agreement from the vendor will free your IT staff for more important tasks.

—Mark Weitz

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Editor's Note: The Buyer's Guide summarizes vendor-submitted information. To find out about future Buyer's Guide topics or to learn how to include your product in an upcoming Buyer's Guide, go to <http://www.winnetmag.com/buyersguide>. To view previous Buyer's Guides on the Web, go to <http://www.winnetmag.com/articles/index.cfm?departmentid=118>.

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Contact Information

Alpha Technologies
360-647-2360
800-421-8089
<http://www.alpha.com>

Product Name

ALI Plus (600VA)

Price

\$309

Description

Microprocessor-controlled, pure sine wave, line-interactive UPS with automatic voltage regulation

Contact Information	Product Name	Price	Description
Alpha Technologies (continued)	Alpha Galaxy (10KVA to 30KVA)	Contact vendor for pricing	Three-phase double-conversion model with an ultra high-availability design; features power factor correction, pure sine wave, zero transfer time, and generator-friendly technology
	CFR (600VA to 15KVA)	\$1250 to \$11,459	Features switched parallel resonant-conversion technology that enhances the ferroresonant transformer's natural isolation, surge, and spike-rejection characteristics
	Pinnacle (1KVA to 3KVA)	\$669 to \$1959	Double-conversion model; features advanced Digital Signal Processor (DSP), power factor correction, pure sine wave, and zero transfer time
American Power Conversion 401-789-5735 800-877-4080 http://www.apc.com	APC Back-UPS Pro USB	Starts at \$129	Protects your computer, Internet connection, and all your peripherals; features high-performance surge suppression and intelligent battery backup; continuously conditions the power coming to your computer and instantly switches your computer to emergency battery backup power during brief power outages
	APC Silcon UPS (20KW Three Phase)	Contact vendor for pricing	Single unit composed of modular components provides the foundation of building and scaling near-continuous power systems with a flexible range of power capacities
	Smart-UPS (700VA to 5KVA)	\$459 to \$2899	Supplies network-grade battery backup; stores data and shuts down your network OS before the battery is fully discharged; SmartSlot internal accessory slot lets you install optional accessories to enhance UPS performance
	Symmetra Power Array MasterFrame (12KVA N+1 configuration)	\$14,999	Single unit composed of modular components; provides the foundation for building and scaling near-continuous power systems with a flexible range of power capacities
Controlled Power Company 248-528-3700 800-521-4792 http://www.controlledpwr.com	LT700	Contact vendor for pricing	Conditions power coming from the electric utility to provide clean, regulated power with a pure sine wave
	UltraUPS (3KVA and 5KVA)	Contact vendor for pricing	True online double-conversion UPS; provides highly regulated, high-frequency digitized power; features an Advanced Battery Management (ABM) system that automatically determines the precise charge and discharge rate to maximize runtimes and battery life; special circuitry eliminates hazardous electromagnetic interference (EMI) and radio frequency interference (RFI) associated with bypass systems; available in modular rack or stack configurations
I-Bus/Phoenix 858-503-3000 888-307-7892 http://www.ibus.com	IBP Rack UPS Line (1KVA to 3KVA)	Starts at \$599	Protects multiple servers; offers several levels of power protection in each UPS; includes ANSI C62.41 CAT B Surge protection to safeguard the UPS and connected equipment from high-voltage surges and transients; EMI and RFI filtering protects against data corruption from electrical noise; automatic voltage regulation feature regulates output voltage to protect servers from brownouts and high-voltage conditions without going to battery; automatically switches to battery during loss of input voltage

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Powerware 919-872-3020 800-554-3448 http://www.powerware.com	Powerware 9120 (700VA to 3KVA)	Starts at \$630	Protects networks, Web servers, telecommunications, and other crucial applications; features true double-conversion online technology, ABM that doubles battery service life, hot-swappable batteries, and an intuitive LCD that provides realtime updates of crucial parameters
	Powerware 9170 (3KVA to 18KVA)	Starts at \$2800	Available in 3-, 6-, 9-, and 12 configurations; features N + x redundancy
	Powerware 9330 (10KVA to 40KVA)	Starts at \$22,000	Patented double-conversion online UPS; one module can support servers, telecommunications, process control, and other essential applications; features a compact footprint with 12 minutes of battery runtime and Powerware Hot Sync wireless paralleling for redundancy and capacity
	Powerware 3115 (300VA to 650VA)	Starts at \$130	Power protection for PCs, network nodes, point-of-sale (POS) systems, and computer peripherals; includes power management software with monitoring and shutdown capabilities, user-replaceable batteries, and a triple power warranty
Liebert 614-888-0246 800-777-9222 http://www.liebert.com	PowerSure ProActive (700VA)	\$250	Provides the voltage regulation of a line-interactive unit and the stepped-wave power of an offline unit when on battery; provides at least 5 minutes of backup at full load
	GXT 2U (3KVA)	Starts at \$2150	Provides a nominal voltage range of 120 Volts Alternating Current (VAC) at a frequency of 40Hz to 70Hz; features autosensing for full load battery backup of at least 5 minutes in a 2U (3.5") package; an optional battery cabinet is available for extended runtime
	Nfinity (12KVA)	Starts at \$11,500	Online UPS designed with N + x parallel redundancy to provide fault-tolerant protection
MGE UPS SYSTEMS 714-557-1636 800-523-0142 http://www.mgeups.com	Comet EXtreme (4.5KVA to 12KVA)	Starts at \$6000	Customizable rack or tower protection for networks, telecommunications, wireless services, business-to-business (B2B), e-commerce, customer relationship management (CRM), and data-mining applications; provides online double-conversion technology for maximum uptime and battery performance
	Galaxy 3000 (10KVA to 30KVA)	Starts at \$17,800	Features online technology, network-based power management, and a compact footprint
	Pulsar <i>ellipse</i> (300VA to 1200VA)	\$160	Compact, lightweight power protection for PCs, workstations, and small servers; incorporates Human Interface Device (HID) protocol for fast communications; supports Windows 2000 and Windows Me
	Pulsar Esprit (1.4KVA to 13.5KVA)	Starts at \$1480	Protects as many as two network servers for more than 10 hours; incorporates true redundancy, total power availability, expandable battery options, and a suite of monitoring and communications features

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ONEAC 847-816-6000 800-327-8801 http://www.oneac.com	Desk Power (300VA to 650VA)	\$119 to \$249	Standby power protection for desktop applications; can be mounted horizontally, vertically, or on the wall; features a data port to protect fax, modem, and LAN transmissions; offers USB or serial communications ports; includes MopUPS EXPRESS software for UPS shutdown
	EDP Series (10KVA to 500KVA)	\$21,500 to \$98,500	Online double-conversion isolated power protection for data centers, entire facilities, and mission-critical applications; three-phase UPS employs ONEAC MopUPSPROFESSIONAL software for UPS management, fault alerts, and controlled system shutdown
	ON Series (200VA to 5KVA)	\$362 to \$14,548	Power-conditioned, line-interactive protection for distributed business networks; includes ONEAC MopUPSPROFESSIONAL software for UPS management, fault alerts, and controlled system shutdown; features user-serviceable hot-swap batteries; some models also include hot-swap control modules; you can add batteries for unlimited runtime; available in rack-mount, wall-mount, and tower models
	Sinergy Series (700VA to 10KVA)	\$699 to \$10,999	Online double-conversion isolated power protection for distributed business networks; includes MopUPSPROFESSIONAL software for UPS management, fault alerts, and controlled system shutdown; available in rack-mount and tower models
Tripp Lite 773-869-1111 http://www.tripplite.com	SmartPro 700 USB UPS System	\$175	Provides line-interactive battery backup for USB-enabled PCs and workstations; features three UPS/surge and three surge-only outlets and a USB communication port; includes PowerAlert Software to facilitate an unattended shutdown and provide network-power management; optional insurance covers connected equipment
	SmartOnLine 10KVA UPS System	\$7500	Protects equipment with true online operation; lets you expand runtimes indefinitely with external battery packs; includes PowerAlert Software and three communication ports (RS232, AS/400, and contact closure) to provide network-power management; optional insurance covers connected equipment
	SmartOnLine 3000 RT3U UPS System (3KVA)	\$1500	Protects equipment with true online operation; cabinet design accommodates rack or tower applications; connection flexibility includes nine AC outlets, customized load management receptacles, two communication ports (one RS232 and one contact closure), and an SNMP/Web slot; optional insurance covers connected equipment
TSi Power 715-623-0636 800-874-3160 http://www.tsipower.com	UPS-7200 (720VA)	\$489	A 500 watt slimline, rack-mountable, battery-extendable industrial-grade UPS system
	UPS-21000 (2100VA)	\$1599	A 1500 watt 19" rack-mountable, battery-extendable, industrial-grade UPS system; features built-in isolation and constant voltage output transformer