



Powerware

Powerware® 9155 UPS Uninterruptible Power System

Product Focus

8–15 kVA power protection
for critical systems

Full-featured, elegant, and affordable



Features

- Protects connected equipment from all nine of the most common power anomalies
- Provides more real wattage in less space with a 0.9 power factor—protecting more equipment and leaving more room for expansion
- Supports Powerware Hot Sync paralleling of multiple modules for redundancy or extra capacity
- Increases battery life through ABM®, a microprocessor-controlled advanced battery management technology
- Provides 0.99 power factor and generator friendly <5% total harmonic distortion using an active IGBT rectifier to control the input power factor
- Ensures data and system integrity with a complete power management software package for remote monitoring, management, and shutdown—over the network and the Internet
- Provides investment protection and peace of mind with a two-year limited warranty, 10-year pro-rated warranty, \$250,000 load protection guarantee (US and Canada), and optional service plans

Product Snapshot

Technology:	Double-conversion online (Series 9)
Power Rating:	8 kVA, 10 kVA, 12 kVA, 15 kVA at 0.9 power factor
Input Voltage:	200–240 Vac
Output Voltage:	100–127 Vac 200–240 Vac
Frequency:	50/60 Hz
Dimensions:	Two-high configuration: 32.2" H x 12.0" W x 32.5" D Three-high configuration: 47.8" H x 12.0" W x 32.5" D
Configuration:	Small-footprint tower, black
Battery Backup:	Up to 29 minutes typical, extendable up to four hours

Representing the best of more than 40 years of UPS design experience, the new Powerware 9155 uninterruptible power system (UPS) delivers a genuine triple-play: the latest technology advances, a stylish and user-friendly design, and a budget-pleasing price.

This double-conversion online UPS resolves all nine common utility power problems and supplies clean, continuous power to all connected equipment. That makes it ideal for protecting essential IT and electrical infrastructures in corporate, telecom, healthcare, financial and industrial applications.

Advanced design delivers unequalled power performance.

The innovative design of this UPS delivers the industry's best performance combination of efficiency, input current distortion, input power factor, and output power factor.

The Powerware 9155 UPS delivers high efficiency of at least 90 percent across all load ranges—which reduces utility costs and extends battery run times. Higher system efficiency produces cooler operating conditions, which reduces facility air conditioning cost, extends the life of UPS components, and increases overall reliability, availability, and performance.

A new input circuit design keeps input total harmonic distortion (THD) below five percent without compromising overall efficiency. As a result, the Powerware 9155 UPS allows maximum transfer of power between power source and protected load, and is exceptionally compatible with multiple power sources, especially auxiliary generators.

On the output side, the Powerware 9155 UPS provides its full power capability to loads that have a wide range of leading and lagging power factors. With a 0.99 input power factor, the UPS avoids disturbances that energy converters tend to cause.

Scalable architecture meets current and future load requirements.

Powerware 9155 UPSs are available in 8 kVA, 10 kVA, 12 kVA, and 15 kVA models—so you can choose the configuration that most closely meets your capacity requirements and price point.

And you can scale from there. Using our signature Powerware

Hot Sync paralleling technology, up to three equivalent UPS modules can be paralleled for additional capacity or redundancy. Units are capable of load sharing without the need for communications wiring.

Parallel UPS modules can provide up to N+2 redundancy with patented load sharing. Each UPS module operates independently, yet is completely synchronized with the others. That means all critical loads continue to receive UPS-conditioned power, even if one of the paralleled UPSs is unavailable.

Battery innovations optimize battery performance and service life.

The standard battery configuration inside the Powerware 9155 UPS provides up to 29 minutes of battery backup time (at 8 kVA load). This run time can be extended up to four hours by adding external battery modules.

The Powerware 9155 UPS also uses sophisticated technologies that maximize the health and service life of batteries.



ABM technology uses a unique three-stage charging technique that significantly extends battery service life and optimizes recharge time, compared to traditional trickle charging.

This integrated battery management system tests and monitors battery health and remaining lifetime, and provides advance notification for preventive maintenance. Regular battery testing is performed with the rectifier connected, thereby providing consistent test results, regardless of inverter load at testing time.

Temperature-compensated charging monitors battery temperature and adjusts the charge rate accordingly, which properly charges the battery and greatly extends battery life.

Double-conversion, online design offers the highest protection possible.

Unlike some commercially-available UPS technologies, the double-conversion design of the Powerware 9155 UPS completely isolates output power from all input power anomalies and delivers completely conditioned, clean, sine-wave output—regulating both voltage and frequency.

Only a true online system, such as the Powerware 9155 UPS, protects connected equipment from all nine of the most common power problems: outages, sags, surges, spikes, brownouts, line noise, frequency variation, switching transients, and harmonic distortion.

Even when presented with the most severe power problems, power output remains stable, making this UPS ideal for equipment that is particularly sensitive to voltage fluctuations. And if the utility power goes out altogether, there is no delay transferring to backup power.

POWERWARE 9155 UPS BACKUP TIMES (IN MINUTES)

VA	Watt	UPS + Internal 32 Battery				UPS + Internal 64 Battery				
		(1) EBM 64	(2) EBM 64	(3) EBM 64	(4) EBM 64	(1) EBM 96	(2) EBM 96	(3) EBM 96		
15000	13500	4.6	23.0	43.0	65.1	88.6	13.3	43.0	76.7	113
14500	13050	4.9	24.1	45.2	68.3	93.0	14.1	45.2	80.5	119
14000	12600	5.2	25.2	47.3	71.5	97.4	14.9	47.3	84.2	125
13500	12150	5.5	26.4	49.4	74.7	102	15.8	49.4	88.1	130
13000	11700	5.8	27.6	51.6	78.1	106	16.7	51.6	92.0	136
12500	11250	6.1	28.8	54.0	81.6	111	17.6	54.0	96.2	142
12000	10800	6.5	30.2	56.5	85.5	116	18.6	56.5	101	149
11500	10350	6.9	31.6	59.3	89.7	122	19.2	59.3	106	156
11000	9900	7.3	33.3	62.4	94.4	129	20.2	62.4	111	164
10500	9450	7.8	35.1	65.9	99.6	136	21.4	65.9	117	174
10000	9000	8.4	37.2	69.8	106	144	22.6	69.8	124	184
9500	8550	9.1	39.6	74.2	112	153	24.1	74.2	132	196
9000	8100	9.9	42.3	79.4	120	163	25.7	79.4	141	209
8500	7650	10.8	45.5	85.2	129	175	27.6	85.2	152	225
8000	7200	11.9	49.1	91.9	139	189	29.8	91.9	164	242
7500	6750	13.1	53.2	99.7	151	205	32.3	99.7	178	263
7000	6300	14.6	58.0	109	164	224	35.2	109	194	286
6500	5850	16.3	63.5	119	180	245	38.6	119	212	314
6000	5400	18.4	70.0	131	198	270	42.5	131	234	346
5500	4950	20.1	77.6	145	220	300	47.2	145	259	383
5000	4500	22.4	86.6	162	245	334	52.6	162	289	428
4500	4050	25.2	97.4	182	276	376	59.2	182	325	-
4000	3600	28.6	110	207	313	426	67.1	207	369	-
3500	3150	32.8	127	238	359	-	77.0	238	423	-
3000	2700	38.3	148	277	418	-	89.7	277	-	-
2500	2250	45.6	176	329	-	-	107	329	-	-

Connectivity options offer maximum flexibility.

Connectivity options are available to suit nearly any communication requirement. The standard unit is equipped with an RS-232 serial port to communicate with power management software. You can customize your UPS by adding any of the following X-Slot™ interface options for other types of communications and applications:



- **ConnectUPS™ Web/Single Network Management Protocol (SNMP)/Card**—allows you to connect the UPS directly to an Ethernet network and the Internet. Convenient UPS monitoring and management with a standard Web browser, SNMP management systems, while simultaneously providing graceful shutdown for multiple computer systems over the network.



- **Modbus® Card**—provides continuous and accurate real-time monitoring of UPS systems through a Building Management System or Industrial Automation System.



- **Multi-Server Card**—enables up to six serially connected devices of mixed operating systems to be independently managed and controlled by a single UPS.



- **Relay Interface Card**—provides a dry-contact interface between the UPS and any relay-connected device, including the IBM® eServer® iSeries and a variety of industrial applications.



- **Environmental Monitoring Probe**—working with the ConnectUPS Web/SNMP Card, remotely monitors temperature, humidity, and the status of two additional user-supplied contacts/sensors, such as smoke detector and open-door detector.

Power management software unifies and centralizes UPS management.



Every Powerware 9155 UPS comes with a CD that includes:

- Free-of-charge LanSafe™ power management software
- 30-day trial version of Powerware PowerVision® UPS performance analysis and monitoring software

Powerware LanSafe and PowerVision software products give your system administrators control and visibility over UPS systems, using an intuitive, graphical interface and SNMP. You can securely monitor UPS and battery performance over your existing Ethernet network and the Internet, establish prioritized shutdown of network devices and client/server applications, test all networked UPS systems from one node, analyze trends and network conditions, and stay informed of potential power problems by pager and e-mail.

Industry-leading warranty and service plans deliver peace of mind.

Eaton offers a limited factory warranty that includes replacement parts for two full years and on-site labor services for ninety days. By choosing the Powerware 9155 UPS, you receive not only a market leading product, but also the expertise that comes with a worldwide network of technical support and on-site service capability. Additionally, your critical systems are protected by a \$250,000 load protection guarantee, which covers repair or

replacement of any equipment due to AC power line surge, spike, or other transient when properly connected to a Powerware 9155 UPS.

Optional service plans for enhanced services and added protection.

As with all Powerware single-phase UPS products, we offer Gold Plans to enhance the limited factory warranty and provide extended coverage as needed by our customers. These service plans are available for the Powerware 9155 UPS:

On-site Gold Plan

Protect your investment for an additional two, three, or five years. Each plan includes an on-site startup by our field engineering staff, extended on-site labor service for the full two years of parts warranty, and 7x24 service response and technical support. This plan includes full coverage for the UPS and service coverage for the standard internal UPS batteries.

On-site Gold Plan Plus

Further enhance your service coverage and protection with the On-site Gold Plan Plus. In addition to the on-site Gold Plan features, you also receive the added protection of an annual preventive maintenance inspection.

The same plans are also available for extended battery modules that you may place in service along with the UPS. By adding Gold Plan coverage to the extended battery modules, your complete system is fully protected with parts and labor replacement coverage.

Achieve a new level of confidence with the comprehensive warranty and service plans tailored to your Powerware 9155 UPS. You can enjoy the peace of mind that comes with

knowing that your power protection systems are optimized for peak performance and delivering continuous, high-quality power to your critical systems and applications.

Eaton delivers a new level of confidence.

The culmination of 40 years of R&D excellence, the new Powerware 9155 UPS delivers confidence—confidence that your organization’s critical electronics are protected by the most reliable, efficient, and full-featured protection available. Eaton will be there with you for the longterm with premium warranty coverage and expert technical support.

Eaton is a global leader in power quality and management solutions—the #1 manufacturer of UPSs above 5000 VA (Frost & Sullivan: World UPS market 2003).

Powerware products and services deliver power protection for workstation clusters, data centers, manufacturing automation and process control, telecommunications networks—anywhere continuous, clean power must be provided in compact packages at an affordable price.

To find out more about the new Powerware 9155 UPS:

www.powerware.com
1-800-356-5794.

POWERWARE 9155 UPS LIMITED FACTORY WARRANTY AND SERVICE PLAN FEATURES

Service Plan Features	Limited Factory Warranty	On-Site Gold Plan	On-Site Gold Plan Plus
Service plan terms available	2 Yr	2, 3, 5 Yr	2, 3, 5 Yr
90 days on-site labor (5x8); two years parts coverage			
On-site startup of UPS and batteries, 5x8			
On-site corrective maintenance, 7x24			
Full coverage of UPS and internal battery module			
7x24 technical telephone support			
Service priority			
Full coverage of extended battery modules			
One 7x24 annual preventive maintenance inspection			
Remote monitoring service (available 2005)			

Service included 
 Optional service 

SERIES 9 (ON-SITE SERVICE IS 24 HOURS A DAY, 7 DAYS A WEEK)

	ON-SITE GOLD Part Number	ON-SITE GOLD PLUS Part Number
Powerware 9155 UPS (8–10 kVA)		
2 Yr	20SGX915510KVXCX	20SGP915510KVXCX
3 Yr	30SGX915510KVXCX	30SGP915510KVXCX
5 Yr	50SGX915510KVXCX	50SGP915510KVXCX
Powerware 9155 UPS (12–15 kVA)		
2 Yr	20SGX915515KVXCX	20SGP915515KVXCX
3 Yr	30SGX915515KVXCX	30SGP915515KVXCX
5 Yr	50SGX915515KVXCX	50SGP915515KVXCX

SERIES 9 EXTENDED BATTERY MODULES (ON-SITE SERVICE IS 24 HOURS A DAY, 7 DAYS A WEEK)

	ON-SITE GOLD Part Number	ON-SITE GOLD PLUS Part Number
Powerware 9155 EBM 64		
2 Yr	20SGX9155EB64CX	20SGP9155EB64CX
3 Yr	30SGX9155EB64CX	30SGP9155EB64CX
5 Yr	50SGX9155EB64CX	50SGP9155EB64CX
Powerware 9155 EBM 96		
2 Yr	20SGX9155EB96CX	20SGP9155EB96CX
3 Yr	30SGX9155EB96CX	30SGP9155EB96CX
5 Yr	50SGX9155EB96CX	50SGP9155EB96CX

kVA UPGRADES

	Part Number
Powerware 9155 8 kVA to Powerware 9155 10 kVA	103004195
Powerware 9155 12 kVA to Powerware 9155 15 kVA	103004196

MODEL SELECTION TABLE - POWERWARE 9155 UPS (8-15 kVA)

Order Number ¹	Description	Power Rating ² (kVA/W)	Input & Output Connection	Output Receptacles	Dimensions H x W x D (in)	UNIT Weight ³ (lb)
K408110000	Powerware 9155 Model 8 32 Battery (2-high)	8 / 7.2	Hardwired	See PDM CTO	32.2 x 12 x 32.5	350
K408120000	Powerware 9155 Model 8 64 Battery (3-high)	8 / 7.2	Hardwired	See PDM CTO	47.8 x 12 x 32.5	586
K408130000	Powerware 9155 Model 8 32 Battery w/ Transformer (3-high)	8 / 7.2	Hardwired	See PDM CTO	47.8 x 12 x 32.5	554
K410110000	Powerware 9155 Model 10 32 Battery (2-high)	10 / 9	Hardwired	See PDM CTO	32.2 x 12 x 32.5	350
K410120000	Powerware 9155 Model 10 64 Battery (3-high)	10 / 9	Hardwired	See PDM CTO	47.8 x 12 x 32.5	586
K410130000	Powerware 9155 Model 10 32 Battery w/ Transformer (3-high)	10 / 9	Hardwired	See PDM CTO	47.8 x 12 x 32.5	554
K412110000	Powerware 9155 Model 12 32 Battery (2-high)	12 / 10.8	Hardwired	See PDM CTO	32.2 x 12 x 32.5	350
K412120000	Powerware 9155 Model 12 64 Battery (3-high)	12 / 10.8	Hardwired	See PDM CTO	47.8 x 12 x 32.5	586
K412130000	Powerware 9155 Model 12 32 Battery w/ Transformer (3-high)	12 / 10.8	Hardwired	See PDM CTO	47.8 x 12 x 32.5	554
K415110000	Powerware 9155 Model 15 32 Battery (2-high)	15 / 13.5	Hardwired	See PDM CTO	32.2 x 12 x 32.5	350
K415120000	Powerware 9155 Model 15 64 Battery (3-high)	15 / 13.5	Hardwired	See PDM CTO	47.8 x 12 x 32.5	586
K415130000	Powerware 9155 Model 15 32 Battery w/ Transformer (3-high)	15 / 13.5	Hardwired	See PDM CTO	47.8 x 12 x 32.5	554

- 50/60 Hz auto-sensing. All models can be used for frequency/phase conversion with derated 80% load, please refer to manual for details.
- Input Voltage 208-240 or 100/200, 110/220, 120/240 Vac 180° phase displacement, 120/208, 127/220 Vac 120° phase displacement. Output Voltages are user-selectable 100/200, 110/220, 120/240 Vac 180° phase displacement, 120/208, 127/220 Vac 120° phase displacement.
- Weight is unit weight. Add 47 lb (for 2-high) or 50 lb (for 3-high) to determine shipping weight.

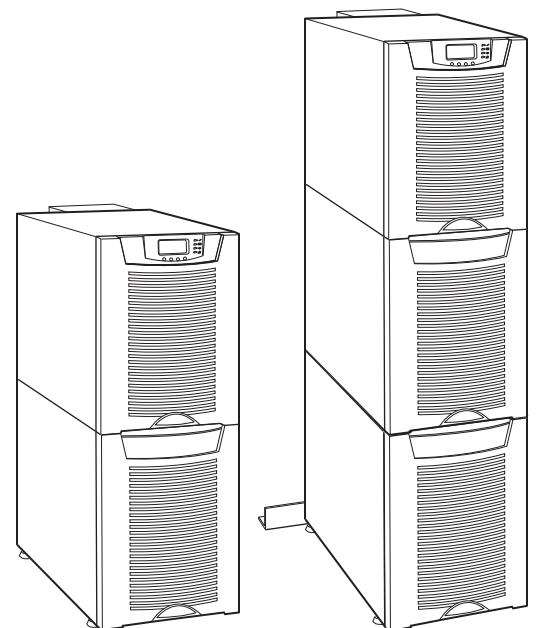
ACCESSORIES

Order Number	Description	Dimensions H x W x D (in)	UNIT Weight (lb)
Extended Battery Modules			
103004192	Powerware 9155 EBM 64 (2-high)	32.2 x 12 x 30.2	484
103004193	Powerware 9155 EBM 96 (3-high)	47.8 x 12 x 30.2	720
Note: up to four EBM 64 cabinets or three EBM 96 cabinets can be added to each UPS for extended run time.			
Maintenance Bypass Module			
103004184	Rear UPS-Mount, Maintenance Bypass Module	16.5 x 12 x 7	15
Spare Parts			
106711155	Powerware 9155 Spare Parts Kit "A"	-	-
Connectivity Options			
103002974-5501	ConnectUPS-X Web/SNMP/xHub Card	-	-
05146288-5501	ConnectUPS-MX SNMP/Modem Card	-	-
103002510-5501	Modbus Card	-	-
05146508-5501	USB Card	-	-
05146447-5501	Multi-Server Card	-	-
1018460	Relay Interface Card (IBM eServer iSeries Compatible)	-	-
103003055	Industrial Relay Card	-	-
103003637-5501	Environmental Monitoring Probe (requires ConnectUPS Web/SNMP device)	-	-

POWER DISTRIBUTION MODULE (PDM) WITH MECHANICAL BYPASS SWITCH

Optional Receptacle Panels ¹	Breaker	Voltage	Phase
(2) 5-15R	15A	120V	Single
(2) 5-20R UL	20A	120V	Single
(2) 5-20R CSA	20A	120V	Single
(2) 6-15R	15A	208V	Dual
(2) 6-20R	20A	208V	Dual
(2) L5-15R	15A	120V	Single
(1) L5-20R ²	20A	120V	Single
(1) L5-30R ²	30A	120V	Single
(2) L6-15R	15A	208V	Dual
(1) L6-20R ²	20A	208V	Dual
(1) L6-30R ²	30A	208V	Dual
(1) L14-20R ²	20A	120/208V	Dual
(1) L14-30R ²	30A	120/208V	Dual
Blank Plate	-	-	-

- Maximum of 8 panels per PDM
- The combined quantities of single-locking receptacle panels must not exceed 5 per PDM



Two-high Configuration

Three-high Configuration

FEATURE	BENEFIT
Leading power performance	
Double-conversion, online topology	Delivers continuous clean power and provides the highest protection possible for mission-critical applications
High 0.9 output power factor	Accommodates high power factor load power factor requirements
THD <5 percent; 0.99 input	Reduces harmonics that would disturb other loads, and is maximally generator-friendly
Transformer-less design	Delivers market-leading 90% system efficiency across all load ranges
User-selectable frequency (50 Hz or 60 Hz)	Enables the unit to operate in either a 50-Hz or 60-Hz environment
Scalability and high availability	
Powerware Hot Sync Paralleling Technology	Enables multiple UPSs to be paralleled for N+1 redundancy with no single, system-level point of failure Enables additional UPS modules to be joined, to support more capacity, with patented load-sharing among UPSs
Automatic static bypass switch and manual service bypass switch	Transfers the power path to bypass mode if necessary, either due to unplanned events or planned system maintenance, so there is no interruption of power to protected loads
Self-diagnostics	Reduces the risk of unexpected problems, by constantly monitoring internal UPS operation with digital signal processing (DSP) technology

Battery performance

ABM Technology	Advanced battery management reduces battery corrosion and extends battery service life by up to 50%, compared to conventional trickle-charging
Optional Extended Battery Modules (EBMs)	Extends battery backup time from minutes up to four hours, to keep equipment operational during prolonged utility power outages

Communications and remote monitoring

LanSafe power management software included free-of-charge	Enables administrators the ability to shutdown, monitor and manage UPSs over the network and the Internet, including remote shutdown features and integration with SNMP-compatible management systems.
Optional X-Slot Cards	Enable the UPS to communicate with UPS management systems, network and building management systems, environmental monitoring devices, and other UPSs—in a variety of networking environments
Environmental Monitoring Probe	Monitors environmental conditions—such as moisture, smoke, temperature, or open door at remote UPS locations

Packaging and local user interface

Slim, compact, and lightweight design	Requires little floor space, is easy to move, and provides easy access to install new components or features
User-friendly graphical LCD display	Simplifies on-site monitoring and control, minimizes training

Powerware, ABM, ConnectUPS, LanSafe, PowerVision, Powerware Hot Sync, and X-Slot are trade names, trademarks, and/or service marks of Eaton Power Quality Corporation or its subsidiaries and affiliates. All other trademarks are property of their respective owners.

UNITED STATES
8609 Six Forks Road
Raleigh, NC 27615 U.S.A.
1.800.356.5794

www.powerware.com

CANADA
Ontario: 416.798.0112

LATIN AMERICA
Argentina: 54.11.4343.6323
Brazil: 55.11.3616.8500
México: 52.55.9171.7777

TECHNICAL SPECIFICATIONS¹

Power

Ratings (kVA/Watts)	8, 10, 12, 15 kVA at 0.9 power factor
Topology	True double-conversion online UPS

Electrical Input

Nominal Input Voltage	208–240 or 200/100, 208/120, 220/110, 220/127/240/120 Vac
Input Voltage Range	-15%, +10% from nominal at 100% load without depleting battery
Operating Frequency	50/60 Hz (45 to 65 Hz)
Input Power Factor	0.99 typical
Input Current Distortion	5% THD

Electrical Output

Nominal Output Voltage	100/200, 110/220, 120/240, 120/208, 127/220 Vac/220/127
Output Voltage Regulation	±1% Static; ±5% dynamic at 100% resistive load change, <1 ms response time
Efficiency	90% typical

Battery

Battery Type	9Ah, sealed, lead-acid, maintenance-free
Battery Run Time	See Battery Run Time Chart
Battery Replacement	Field-replaceable
Charger	Default is 3.4A per battery string. Charger current is configurable from 0.5A to 25A per string with an overall maximum of 34A (limited by input current)
Start-On-Battery	Allows start of UPS without utility input

General

Diagnostics	Full system self-test at startup
UPS Bypass	Automatic on overload or UPS failure
Dimensions and Weights	See Model Selection Table
Overload (Normal Operation)	150% for 5 sec / 125% for 1 min (online), 110% for 10 min

Communications

LCD Display	Graphical LCD with blue backlight
LEDs	(4) LEDs for notice and alarm
Audible Alarms	Yes
Communication Ports	(1) RS-232, (1) relay contact, (1) REPO, (2) environmental input
Communication Slot	(2) X-Slot communication bays
Power Management Software	Bundled Software Suite CD

Environmental

Operating Temperature	0°C to +40°C, +45°C with 7.5% derating; Batteries recommended max. +25°C
Storage Temperature	-15°C to +45°C
Relative Humidity	0–90%, non condensing
Audible Noise	Audible Noise: < 53 dBA at 1 meter (noise less room) typical
Altitude	< 1000m at +40°C, < 3000m at +25°C

Certifications

Safety Certifications	IEC 62040-1-1, IEC 60950, EN 62040-1-1, UL 1778
EMC Compliance	EN 50091-2 Class A
Quality	ISO 9001: 2000 and ISO 14001:1996
Markings	CE and GOST markings

1. Due to continuous product improvements, program specifications are subject to change without notice.

EUROPE/MIDDLE EAST/AFRICA

Denmark: 45.3686.7910
Finland: 358.94.52.661
France: 33.1.6012.7400
Germany: 49.7841.666.0
Italy: 39.02.66.04.05.40
Norway: 47.23.03.65.50
Sweden: 46.8.598.940.00
United Kingdom: 44.1753.608.700

ASIA PACIFIC

Australia/NZ: 61.2.9878.5000
China: 86.21.6361.5599
HK/Korea/Taiwan: 852.2745.6682
India: 91.11.2649.9414 to 18
Singapore/SEA: 65.6829.8888

© 2004 Eaton Corporation
All Rights Reserved
9155FXA
Revision 12/04
Reprint 12/04



Powerware