Powerware series

8-15 kVA

Eaton 9155 UPS

Powering Business Worldwide

Product Introduction

9155 8-15 kVA

Product Snapshot

Technology:	Split-phase double-conversion online UPS
Power Rating:	8 kVA, 10 kVA, 12 kVA and 15 kVA at 0.9 power factor
Input Voltage:	200–240 Vac with Neutral or with optional input isolation transformer
Output Voltage:	100/200, 110/220, 120/240 Vac 180° phase displacement; 120/208, 127/220 Vac 120° phase displacement
Frequency:	50/60 Hz auto-sensing
Dimensions:	32.2" H x 12" W x 32.5" D
Configuration:	Small-footprint tower, black
Battery Backup:	Up to 29 minutes typical, extendable up to four hours (See battery backup charts)

Reliability and efficiency have never looked so attractive. The 9155 single-phase Uninterruptible Power System (UPS) delivers a combination of advanced technology, user-friendly design and low price that's absolutely unmatched by competing products. This innovative design offers high efficiency (90 percent or better across all load ranges), low input current distortion (less than 5 percent total harmonic distortion, with an active IGBT rectifier that delivers 0.99 power factor correction) and high power factor output (0.9 PF).

With advances being made in miniaturization and processing power and more equipment being served by dual-cord power supplies, the challenge of protecting that power, and doing so in a limited space, grows ever greater.

Fortunately, advances in technology have also meant that more power protection per square foot can now be provided. The 9155 delivers premium levels of efficiency, reliability and flexibility, all in a sleek tower half the size of most other units on the market today.

Features of the Eaton 9155 UPS

- A true online, double-conversion topology protects connected equipment from all nine of the most common power problems
- Delivers maximum power density in a compact tower design: 12" wide and 33" deep, including batteries
- Provides more real power in less space (5,500 watts per square foot) with a 0.9 output power factor – protecting more equipment for every utility dollar and leaving more room for expansion of the data center
- Patented Powerware Hot Sync® paralleling of multiple modules delivers extra capacity or redundancy
- Customizable output distribution provides user-specified power outlets along with terminals for connecting hard-wired equipment
- Microprocessor-controlled ABM® technology significantly increases battery life
- Provides a 0.99 input 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 complete power management software for remote monitoring, management and shutdown
- An Eaton factory limited warranty, technical support and optional service plans provide investment protection and peace of mind

Premium power protection is now easier than ever.

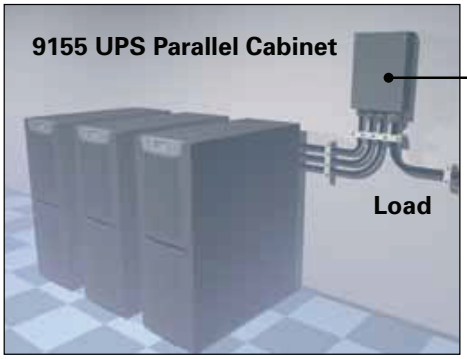
With raised-floor real estate at a premium, you'll appreciate that the 9155 requires only three to six square feet of floor space, including internal batteries. Such a small footprint gives you more location options and more space available for future expansion.

Equipment installation is inexpensive and easy – essentially plug-and-play. You can order 9155 models with your choice of more than 19 types of output receptacles. To rearrange or add data center equipment, you simply unplug from the old receptacle and plug into a new one – no need for an electrician to run new conduit and wiring.

Scalable architecture meets current and future load requirements.

Eaton 9155 UPSs are available in four models: 8, 10, 12 and 15 kVA, so you can choose the configuration that most closely meets your own capacity requirements and price point. And you can scale from there. Using our signature Hot Sync paralleling technology, up to three 9155 modules can be paralleled for extra capacity or redundancy. A 15 kVA UPS, for example, can grow to support loads of up to 45 kVA. There's no dependence on communications wiring among these modules, enhancing reliability and simplifying installation. This paralleling capability Is far more easily achieved than is the case with competitors' products.

Powerware Hot Sync Redundant/Capacity



Inside view of 9155 Parallel Cabinet Maintenance Bypass

Battery innovations optimize battery performance and service life.

Standard internal batteries provide power until auxiliary power takes over or systems are gracefully shut down. Battery runtime can be extended to hours by adding matching Extended Battery Modules (EBM).

Eaton 9155 8-15 kVA UPS Backup Times (In Minutes)

VA	Watt	UPS + Internal 32 Battery	(1) EBM 64	(2) EBM 64	(3) EBM 64	(4) EBM 64	UPS + Internal 64 Battery	(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

Eaton 9155 8-15 kVA UPS Backup Times (In Minutes)

VA	Watt	UPS + Internal 32 Battery	(1) EBM 64	(2) EBM 64	(3) EBM 64	(4) EBM 64	UPS + Internal 64 Battery	(1) EBM 96	(2) EBM 96	(3) EBM 96
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	-	-

Note: Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.

Options & service

Additional 9155 options

Wall-mount maintenance bypass panels

Eaton offers a comprehensive line of optional wall-mounted maintenance bypass panels compatible with the 9155 UPS. The wall-mounted bypass panel is used to bypass the UPS during maintenance or servicing, providing wrap-around bypass for UPS service without shutting down the load. And for more flexible power distribution, these maintenance bypass panels can be equipped with surge protection and provisions for 36 poles of distribution utilizing Eaton's Cutler-Hammer® breakers.

Proven warranty and support services

Customers consistently rank Eaton services number one in quality. Eaton's comprehensive, world-class service solutions are designed to improve costs, uptime, reliability, power quality and safety. And with 240 customer service engineers in North America and 1,200 international authorized service providers, Eaton has more service personnel than any other UPS manufacturer.

The standard factory warranty covers:

- System warranty: Two year parts / 90 days labor
- Battery warranty: Two years parts / 90 days labor

Extensive service options for enhanced reliability

For support beyond the warranty period, Eaton offers enhanced service options including onsite startup, corrective and preventive maintenance, battery solutions, training, remote monitoring and factory spare parts and upgrades. Customizable three-phase UPS services packages allow customers to select the plan that provides the right combination of system uptime, convenience and value.

Service Plans			
Features	**Service Plans**		
	Factory Warranty	**On-Site Gold**	**On-Site Gold Plus**
Comprehensive coverage of the UPS and batteries	✔	✔	✔
Telephone technical Support	✔	✔	✔
Connectivity support	✔	✔	✔
Expedited delivery of replacement parts, modules and batteries		✔	✔
On-site startup		✔	✔
On-site corrective maintenance		✔	✔
Next-day 24-hr response		✔	✔
UPS preventative maintenance			✔
Battery preventative maintenance			✔

Connectivity & manageability

Enhanced communication capabilities

The 9155 UPS is equipped with a variety of standard communications features for network connectivity and remote management applications, including:

- RS-232 serial port
- Two X-Slot® communication bays
- Relay output contacts
- Two programmable signal inputs
- Remote emergency power-off (REPO)

Easy network connectivity and monitoring

ConnectUPS-X card
The ConnectUPS-X Web/SNMP X-Slot card connects the 9155 directly to an Ethernet network and the Internet and enables graceful shutdown of multiple computers over the network. The ConnectUPS-X Web/SNMP also features a three-port switching hub.

Modbus® card
The Modbus card is an X-Slot device that allows continuous, real-time monitoring of the 9155 through a Building Management System (BMS) or industrial automation system.

Relay interface cards
The relay interface card for the X-Slot enables remote UPS shutdown and provides isolated dry contact Form-C relay outputs for utility failure, low battery, UPS alarm/OK, and on bypass.

Environmental Monitoring Probe
The environmental monitoring probe (EMP) works with the 9155 and ConnectUPS-X card to remotely monitor ambient temperature and relative humidity of the remote environment. The EMP can also be configured to provide status of two additional contact devices such as smoke detectors or open-door sensors.

Power Xpert® Gateway Series cards
Power Xpert Gateway Series X-Slot cards provide Web-enabled, real-time monitoring of UPSs, PDUs and RPPs through standard onboard Web pages, Power Xpert software or third-party software.

Power Xpert meters
Power Xpert meters combine state-of-the-art technology with next-generation power diagnostics, data trending and performance benchmarking with a twist-and-click LCD display.

Centralized control and visibility

The 9155 UPS is shipped with the Eaton Software Suite CD. The software suite includes the following applications, as well as a user-friendly wizard to guide users through software selection and installation:

- LanSafe® power management software
- Intelligent Power® Manager
- NetWatch network monitoring software

eNotify Remote Monitoring

Eaton's eNotify Remote Monitoring Service provides 24x7 real-time monitoring of the 9155 and battery systems and alerts both service technicians and the customer when a problem is detected. Proactive monitoring enables technical experts to respond immediately to more than 40 alarm conditions and, in many cases, resolve issues remotely with minimal or no downtime. Additional eNotify benefits include:

- One-way outbound status and event e-mails for security and reliability
- Fast diagnosis and notification of critical alarms
- Monthly customer reports including power event logs and overall UPS and battery health summaries

ConnectUPS-X Web/ SNMP X-Slot card

Power Xpert Gateway Card 2000

Modbus card

Relay Interface cards

Monitoring Probe

LanSafe®

Foreseer

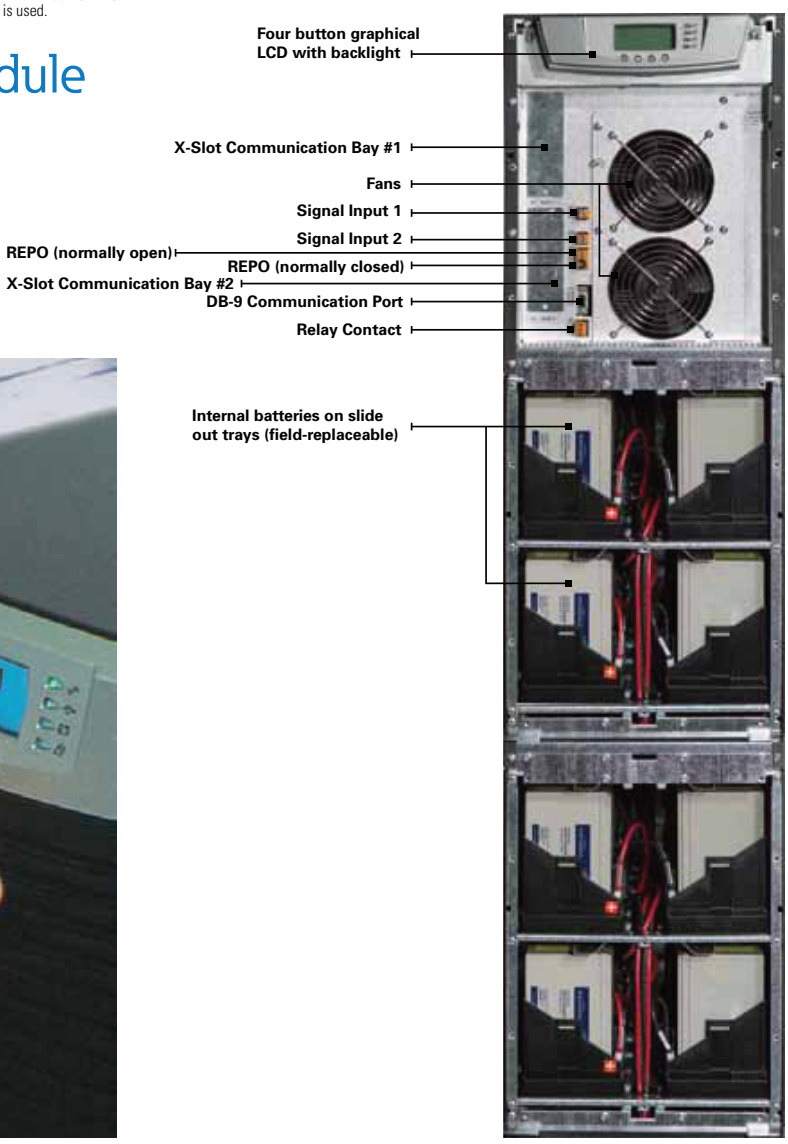
Eaton 9155 at-a-glance

Model Selection Table - Eaton 9155 UPS (8–15 kVA)

Order Number[1]	Description	Power Rating[2] (kVA/kW)	Input & Output Connection[4]	Output Receptacles	Dimensions H x W x D[5] (in)	Unit Weight[3] (lb)
K40811000000000	PW9155 Model 8 - 32 Battery (2-high)	8/7.2	Hardwired	See PDM chart	32.2 x 12.0 x 32.0	352
K40812000000000	PW9155 Model 8 - 64 Battery (3-high)	8/7.2	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	590
K40813000000000	PW9155 Model 8 - 32 Battery with Transformer (3-high)	8/7.2	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	558
K41011000000000	PW9155 Model 10 - 32 Battery (2- high)	10/9	Hardwired	See PDM chart	32.2 x 12.0 x 32.0	352
K41012000000000	PW9155 Model 10 - 64 Battery (3- high)	10/9	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	590
K41013000000000	PW9155 Model 10 - 32 Battery with Transformer (3-high)	10/9	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	558
K41211000000000	PW9155 Model 12 - 32 Battery (2-high)	12/10.8	Hardwired	See PDM chart	32.2 x 12.0 x 32.0	352
K41212000000000	PW9155 Model 12 - 64 Battery (3-high)	12/10.8	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	590
K41213000000000	PW9155 Model 12 - 32 Battery with Transformer (3-high)	12/10.8	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	558
K41511000000000	PW9155 Model 15 - 32 Battery (2- high)	15/13.5	Hardwired	See PDM chart	32.2 x 12.0 x 32.0	352
K41512000000000	PW9155 Model 15 - 64 Battery (3- high)	15/13.5	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	590
K41513000000000	PW9155 Model 15 - 32 Battery with Transformer. (3- high)	15/13.5	Hardwired	See PDM chart	47.8 x 12.0 x 32.0	558

1. 50/60 Hz auto-sensing. All models can be used for frequency/phase conversion with de-rated 80% load. Please refer to manual for details.
2. Input voltage 200–240V with neutral or with optional input isolation transformer. Output voltages are user-selectable 100/200, 110/220, 120/240 Vac 180° phase displacement, or 120/208, 127/220 Vac 120° phase displacement.
3. Weight is installed weight; add 47 lbs (2-high models) or 50 lbs (3-high models) to determine shipping weight.
4. An input neutral is required for all configurations unless the input isolation transformer is used.
5. Depth increases to 33.7" when unit is configured with a PDM.

Front view of 3-high module with cover off



Eaton 9155 Accessories

Accessories

Order Number	Description	Dimensions H x W x D (in)	Unit Weight (lb)
Powerware Hot Sync			
124100017-001	9155 Parallel Cabinet	24.0 x 20.3 x 2.2	57.3
103004336	Powerware HotSync CAN Bridge Card	-	-
Notes: Up to three 9155 UPS and up to four 9355 UPS (available Fall 2005) UPSs can be paralleled with the Parallel Cabinet.			
Extended Battery Module (EBM) or Cabinets (EBC)			
103004192-5501	9155 and 9355 EBM 64 (2-high)	32.2 x 12.0 x 30.2	480
103004193-5501	9155 and 9355 EBM 96 (3-high)	47.8 x 12.0 x 30.2	710
Notes: up to four EBM 64 cabinets or three EBM 96 cabinets can be added to each 8-15 kVA UPS for extended runtime.			
Seismic Mounting Kit			
103004194-5501	Seismic Kit, Rated Zone 4, UL Tested, Performance rating based on NEBS GR-63-CORE Standard Vibration Test	Fits both 2- & 3-high models	136
Maintenance Bypass Module (MBM)			
BPE20MBB1A	Wall-mounted Maintenance Bypass Module for 9155	21 x 14 x 6.75	31
Eaton 9155 Parallel System Start Up			
OSTUP9155P10CX	9155 8-10 kVA 2 or 3 Unit Parallel		
OSTUP9155P15CX	9155 12-15 kVA 2 or 3 Unit Parallel		
103004626	9155 Parallel System 2 unit upgrade kit (includes Can Bridge Cards, Procedures, and Parallel User's Guide)		
103004627	9155 Parallel System 3 unit upgrade kit (includes Can Bridge Cards, Procedures, and Parallel User's Guide)		
Connectivity Options			
116750221-001	ConnectUPS-X Web/SNMP/xHub Card		
05146288-5501	ConnectUPS-MX SNMP/Modem Card (9155 only)		
1035425-5591	Modbus Card		
1018460	Relay Interface Card (AS/400 Compatible)		
103003055	Industrial Relay Card		
116750224-001	Environmental Probe (requires ConnectUPS Web/SNMP card)		
Spare Parts			
106711155	9155 Spare Parts Kit "A"		
Upgrades			
103004195	9155 8 kVA to 9155 10 kVA		
103004196	9155 12 kVA to 9155 15 kVA		

Power Distribution Module (PDM) with Mechanical Bypass Switch

Optional Receptacle Panels	Breaker	Voltage	Phase
(4) 5-15R	15A	120V	1
(4) 5-20R UL	20A	120V	1
(4) 6-15R	15A	208V	2
(4) 6-20R	20A	208V	2
(4) L5-15R	15A	120V	1
(2) L5-20R*	20A	120V	1
(2) L5-30R*	30A	120V	1
(2) L6-15R	15A	208V	2
(2) L6-20R*	20A	208V	2
(2) L6-30R*	30A	208V	2
(2) L14-20R*	20A	120/208V	2
(2) L14-30R*	30A	120/208V	2
Blank panel			

* The combined quantity of these locking receptacle plates must not exceed four.

TECHNICAL SPECIFICATIONS for 10 AND 15 kVA

POWER	
Ratings (kVA/Watts)	8, 10, 12 and 15 kVA at 0.9 power factor
Topology	True double-conversion online UPS
ELECTRICAL INPUT	
Nominal Input Voltage	200V-240V with neutral or with optional input transformer
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	P.F >0.99 typical, >0.96 frequency converter
Input Current Distortion	5% THD
ELECTRICAL OUTPUT	
Nominal Output Voltage	100/200, 110/220, 120/240 Vac 180° phase displacement; 120/208, 127/220 Vac 120° phase displacement
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 Runtime	See Battery Runtime 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
Parallel for Redundancy and Capacity	Yes, using Powerware Hot Sync technology
Dimensions and Weights	See Model Selection Table
Overload	150% for 5 sec / 125% for 1 min (online), (Normal Operation) 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	Bundled Software Suite CD Software

ENVIRONMENTAL	
Operating Temperature	10°C to +40°C, +45°C with 7.5% derating; Batteries recommended max. +25°C
Storage Temperature	-15°C to +25°C
Relative Humidity	0–95%, non-condensing
Audible Noise	< 53 dBA at 1 meter (noise less room) typical
Altitude	< 1000m at +40°C, < 3000m at +25°C
CERTIFICATIONS	
Safety Certifications	NOM-0190SCFI-1993, UL 1778, CSA C22.2, No. 107.3; EN 5502 Class A (CISPR22 Class A) and IEC 60950; IEC 62040-1-1
EMC Compliance	IEC 62040-2, FCC Part 15, ICES-003, VCCI
Quality	ISO 9001: 2000 and ISO 14001:1996
Markings	UL, cUL, CSA, CE and NOM-NYCE

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

PowerChain Management®