

Powerware® Battery Cabinets for Powerware 9315 (30-500kVA)

Standard Features

- ▶ DC Expert™ battery management system provides battery health indication and enables the system to obtain 100% energy usage without damaging deep discharges
- ▶ Top and bottom wire entry provide installation flexibility.
- ▶ Casters enhance portability.
- ▶ DC-rated circuit breaker within each cabinet provides protection and servicing isolation.
- ▶ Each circuit breaker features:
 - auxiliary switch for UPS sensing of circuit breaker closure.
 - 24 VDC shunt trip to accommodate a remote EPO circuit.

Options

- ▶ Remote configurations are available for Powerware 9315 (30–160kVA).
- ▶ Two battery strings in a single Series 1085 cabinet are avail-



Series 685 Battery Cabinet



Series 1085 Battery Cabinet

Powerware offers two models of battery cabinets for its 9315 series of UPS, the Series 685 and the series 1085. These cabinets line-up and match 9315 systems, and offer a range of runtimes.

Flexibility

- ▶ Cabinets feature a wide range of available battery sizes, optimized to meet application run time needs.
- ▶ Up to 4 cabinets may be daisy-chained together for extended battery run times.
- ▶ Integral configurations, which line-up and match, are standard for Powerware 9315 (30–160kVA).
- ▶ Remote configurations are standard for Powerware 9315 (200–500kVA).

Serviceability

- ▶ “Front-access-only” enhances servicing and installation.
- ▶ Modular battery packaging facilitates periodic servicing accessibility.

Reliability

- ▶ Powerware is a registered ISO 9001 certified manufacturer.
- ▶ Cabinets are UL 1778 listed.
- ▶ Flame retardant batteries meet UL94V2 for computer room installations.

Battery Runtime (minutes)

Powerware 9315 (50-500kVA, 60Hz)

Battery Type	Model Number	9315-50				9315-80			9315-160			9315-225		9315-300		9315-500	
	kVA	30.0	40.0	50.0	50.0	65.0	80.0	100.0	130.0	160.0	225.0	225.0	300.0	400.0	500.0		
	kW	24.0	32.0	40.0	40.0	52.0	64.0	80.0	104.0	128.0	180.0	180.0	240.0	320.0	400.0		
	kWB	25.5	34.0	42.6	42.6	55.3	68.1	85.1	110.6	136.2	189.5	189.5	252.6	336.8	421.1		
Number Parallel Strings																	
J10 - UPS12-100	2	37	24	17	17												
J14 - UPS12-140	1	24	16	12	12	8											
J17 - UPS12-170	1	31	21	14	14	7											
H20 - 12HR-205	1	38	26	19	19	13	9	6									
J27 - UPS12-270	1	59	43	32	32	22	16	10	7								
H30 - 12HR300	1	57	41	30	30	22	16	10	7								
J31 - UPS12-310	1	68	48	38	38	27	20	14	9	5							
J37 - UPS12-370	1	75	57	44	44	32	25	18	12	8							
H40 - 12HR400-2	1	89	58	45	45	32	24	17	12	8							
J47 - UPS12-475	1	113	82	62	62	45	33	24	15	9							
H50 - 12HR500	1	120	93	66	66	47	36	27	17	13	7	7					
J14 - UPS12-140	2	57	41	30	30	22	16	11	8								
J17 - UPS12-170	2	80	54	41	41	29	21	13	7								
H20 - 12HR-205	2	90	60	46	46	33	26	15	13	9	5	5					
J27 - UPS12-270	2	135	94	74	74	54	42	32	22	16	9	9					
H30-12HR300	2	127	100	75	75	51	41	30	21	16	9	9	5				
J31- UPS12-310	2	156	109	85	85	61	48	38	27	20	12	12	7				
J37 - UPS12-370	2	160	93	84	84	70	57	44	32	25	15	15	9				
H40 - 12HR400	2	180	130	107	107	79	58	45	31	24	15	15	9	5			
J47 - UPS12-475	2	264	186	143	143	103	82	62	45	33	20	20	11	5			
H50 - 12HR500	2	258	187	150	150	114	93	66	47	36	23	23	14	8	5		
J27 - UPS12-270	3	217	157	117	117	87	68	52	39	29	17	17	11	6			
H30 - 12HR300	3	201	149	116	116	92	67	49	37	28	17	17	11	7			
J31 - UPS12-310	3	242	176	136	136	99	79	59	44	35	22	22	14	8	5		
J37 - UPS12-370	3	274	195	124	124	90	81	68	52	42	38	38	18	12	7		
H40 - 12HR400	3	284	207	163	163	120	101	76	53	42	27	27	17	11	7		
J47 - UPS12-475	3	419	301	232	232	171	129	99	75	58	38	38	25	15	9		
H50 - 12HR500	3	418	293	230	230	174	138	111	84	61	41	41	27	17	12		
J27 - UPS12-270	4	300	217	168	168	120	94	74	54	42	28	28	17	11	7		
H30 - 12HR300	4	276	201	159	159	119	100	75	51	41	26	26	17	11	8		
J31 - UPS12-310	4	341	242	187	187	141	109	85	61	48	32	32	22	14	9		
J37 - UPS12-370	4	383	274	211	211	133	93	84	70	57	40	40	28	18	13		
H40 - 12HR400	4	408	284	222	222	167	130	107	79	58	40	40	27	17	13		
J47 - UPS12-475	4	545	419	326	326	239	185	143	102	82	55	55	38	25	17		
H50 - 12HR500	4	550	418	316	316	236	187	150	113	93	58	58	41	27	19		
NOMINAL DC LINK VOLTAGE		480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	

Features & Benefits

Quick disconnects between battery tray assemblies reduce battery maintenance time.

Manufacturer supplied wiring with quick disconnects provides plug and play capability for line-up and match configurations.

Removable battery tray assemblies provide "front-access-only" and reduce battery maintenance time.



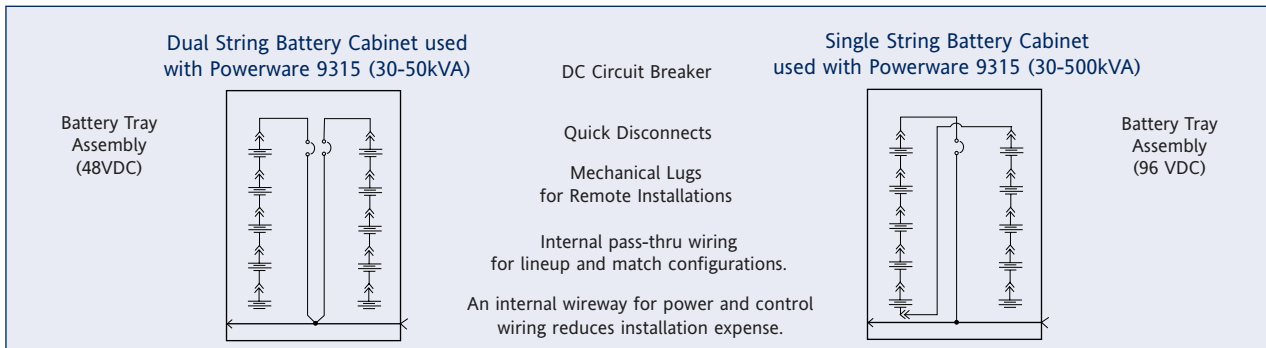
Series 1085 Battery Cabinet with doors removed.

A DC-rated circuit breaker in each battery cabinet allows multiple battery strings to be serviced independently of each other, assuring back up power is always available to the UPS.

The circuit breaker features shunt trip and A/B auxiliaries for UPS remote control and sensing capability.

Mechanical lugs, located adjacent to the internal wireway, reduce installation time for remote configurations.

One Line Diagrams



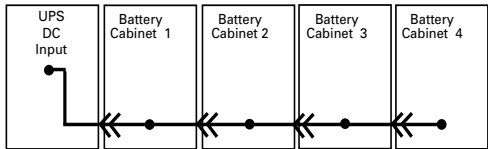
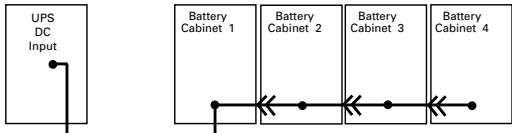
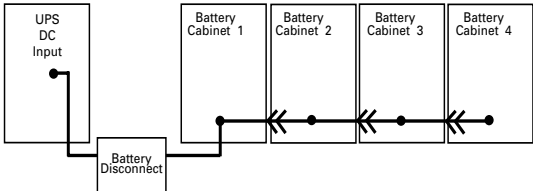
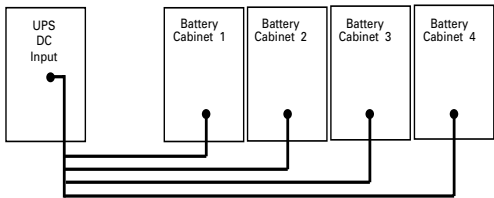
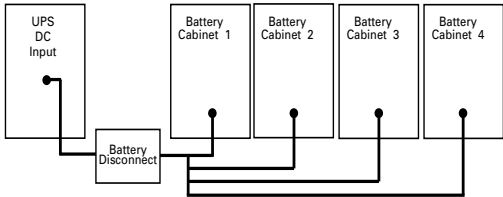
A dual string battery cabinet is available for the 9315-50. Battery string redundancy assures DC power is always available to support the UPS during a utility outage. Additionally, the dual circuit breaker design allows one battery string to be serviced while the other battery string continues to provide UPS backup power.

Battery Runtime (minutes)

Powerware 9315 (50-500kVA, 50Hz)

Model Number		9315-40		9315-65		9315-80			9315-130		9315-160			9315-200	9315-250		9315-400	
		kVA																
		30.0	40.0	50.0	65.0	50.0	65.0	80.0	100.0	130.0	100.0	130.0	160.0	200.0	200.0	250.0	300.0	400.0
		24.0	32.0	40.0	52.0	40.0	52.0	64.0	80.0	104.0	80.0	104.0	128.0	160.0	160.0	200.0	240.0	320.0
		kWB																
		25.5	34.0	42.6	55.3	42.6	55.3	68.1	85.1	110.6	85.1	110.6	136.2	168.4	168.4	210.5	252.6	336.8
Battery Type		# Parallel Strings																
J14 - UPS12-140	1	19	13	9	6	12	8											
J17 - UPS12-170	1	27	16	10	5	14	7											
J20 - 12HR-205	1	31	22	16	11	19	13	9	5		6							
J27 - UPS12-270	1	51	36	27	17	32	22	16	8		10	7						
H30 - 12HR300	1	48	34	25	17	30	22	16	9	5	10	7						
J31 - UPS12-310	1	57	42	31	22	38	27	20	11	7	14	9	5					
J37 - UPS12-370	1	66	49	39	28	44	32	25	15	9	18	12	8					
H40 - 12HR400-2	1	72	49	38	27	45	32	24	14	9	17	12	8					
J47 - UPS12-475	1	95	70	53	38	62	45	33	19	11	24	15	9					
H50 - 12HR500	1	105	78	56	41	66	47	36	22	14	27	17	13					
J14 - UPS12-140	2	49	34	26	17	30	22	16	9	6	11	8						
J17 - UPS12-170	2	66	45	34	24	41	29	21	9	5	13	7						
J20 - 12HR-205	2	74	51	40	29	46	33	26	16	11	15	13	9	5	5			
J27 - UPS12-270	2	114	82	62	46	74	54	42	27	17	32	22	16	9	9	5		
H30 - 12HR300	2	114	86	60	44	75	51	41	25	17	30	21	16	9	9	6		
J31 - UPS12-310	2	131	92	73	52	85	61	48	31	22	38	27	20	11	11	7		
J37 - UPS12-370	2	119	88	77	61	84	70	57	39	28	44	32	25	15	15	11	7	
H40 - 12HR400	2	158	115	93	63	107	79	58	38	27	45	31	24	14	14	10	7	
J47 - UPS12-475	2	226	161	118	88	143	103	82	53	38	62	45	33	19	19	13	8	
H50 - 12HR500	2	224	165	124	101	150	114	93	56	41	66	47	36	22	22	15	11	6
J27 - UPS12-270	3	184	131	100	75	117	87	68	44	32	52	39	29	17	17	12	9	
H30 - 12HR300	3	174	124	105	76	116	92	67	43	30	49	37	28	16	16	12	9	
J31 - UPS12-310	3	211	153	115	86	136	99	79	50	38	59	44	35	21	21	15	11	6
J37 - UPS12-370	3	233	155	99	84	124	90	81	60	45	68	52	42	27	27	19	15	9
H40 - 12HR400	3	244	177	139	108	163	120	101	61	45	76	53	42	26	26	18	14	9
J47 - UPS12-475	3	364	258	198	145	232	171	129	86	63	99	75	58	37	37	26	19	11
H50 - 12HR500	3	360	253	199	152	230	174	138	98	67	111	84	61	40	40	29	21	14
J27 - UPS12-270	4	257	184	144	104	168	120	94	62	46	74	54	42	27	27	19	14	9
H30 - 12HR300	4	237	174	136	107	159	119	100	61	44	75	51	41	26	26	18	14	9
J31 - UPS12-310	4	292	211	164	118	187	141	109	73	52	85	61	48	32	32	24	18	11
J37 - UPS12-370	4	327	233	174	104	211	133	93	77	61	84	70	57	39	39	30	23	15
H40 - 12HR400	4	348	242	189	144	222	167	130	94	63	107	79	58	39	39	29	22	14
J47 - UPS12-475	4	478	360	279	206	326	239	185	119	88	143	102	82	54	54	41	31	19
H50 - 12HR500	4	475	360	272	205	316	236	187	123	101	150	113	93	57	57	43	32	21
NOMINAL DC LINK VOLTAGE		420	420	420	420	480	480	480	420	420	480	480	480	420	420	420	420	420

Available Wiring Configurations

9315-40 through 160	9315-200 through 500
1. In this line-up and match configuration, the battery cabinets are bolted and connected to each other and the UPS using manufacturer-supplied hardware and wiring.  2. In this remote configuration, the first battery cabinet is connected to the UPS using customer-supplied wiring. The battery cabinets are bolted and connected to each other using manufacturer-supplied hardware and wiring.  3. In this remote configuration, the first battery cabinet is connected to the UPS through a battery disconnect using customer-supplied wiring. The battery cabinets may be bolted to each other using manufacturer-supplied hardware. 	1. In this remote configuration, the battery cabinets are individually connected to the UPS using customer-supplied wiring. The battery cabinets may be bolted to each other and the UPS using manufacturer-supplied hardware.  2. In this remote configuration, the battery cabinets are individually connected to the UPS through a battery disconnect using customer-supplied wiring. The battery cabinets may be bolted to each other and the UPS using manufacturer-supplied hardware.  Environmental requirements for operation of the Battery system are: Ambient temperature range: 10–40° C (50–104° F) Recommended operating range: 20–25° C (68–77° F) Maximum relative humidity: 95%

Key Factors That Affect Battery Life

1. AMBIENT TEMPERATURE

The rated output capacity of a battery is based on an ambient temperature of 25°C (77°F). It is important to realize that any variation from this operating temperature can alter the performance of the battery and shorten its expected life. A good rule of thumb when determining battery life in relation to temperature is that for every 8.3°C (15°F) average annual temperature above 25°C (77°F), the life of the battery is reduced by 50 percent.

2. CYCLING

During a utility power failure (severe brownout or blackout conditions), the UPS operates on battery power. Once utility power is restored, the battery is recharged for future use. This entire 'loop' is considered a discharge cycle. When installed, the battery is at 100 percent of rated capacity. Each discharge and subsequent recharge reduces the relative capacity of the battery by a small percentage. The length of the discharge cycle will determine the reduction in battery capacity.

3. MAINTENANCE AND SERVICE

The gradual decrease in battery capacity can be monitored and evaluated through voltage checks, load testing and retorquing connections, as part of a periodic maintenance program. Without regular maintenance and service checks, your UPS battery may experience:

- Heat-generating resistance at the terminals
- Improper loading
- Reduced protection
- Premature failure

With proper maintenance and service, the end of battery life can be determined and replacements scheduled without any interruption or loss of backup power.

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