

# Powerware® PF2 Flywheel

## Energy Storage System

### Features

#### Maximum Availability

- ▶ Powerware PF2 can parallel up to 8 flywheels to increase ride-through time or provide redundancy
- ▶ N+1 configurable
- ▶ Fast recharge time (under 150 seconds)
- ▶ Long, useful life
- ▶ Soft-start UPS integration

#### Maximum Reliability

- ▶ Self-diagnostics
- ▶ Remote notification (e-mail and/or paging)
- ▶ Remote monitoring (network and/or modem)
- ▶ LCD monitor/control panel
- ▶ Microprocessor-based monitoring system
- ▶ Alarm status contacts
- ▶ Log file stores up to 2000 events

#### Maximum Performance

- ▶ High power density (very small footprint)
- ▶ 99% efficient
- ▶ Quiet operation
- ▶ No special facility requirements
- ▶ Low maintenance cost
- ▶ Adjustable voltage setting
- ▶ Battery hardening capability
- ▶ On-board DC disconnect
- ▶ Simple plug and play installation



#### Input Specifications

<b>Float voltage range:</b>	400 to 600 volts DC
<b>Minimum charging current required:</b>	15 ADC (250 kW) 30 ADC (500 kW)

#### Output Specifications

<b>Adjustable nominal discharge voltage range:</b>	360 to 550 volts DC
<b>Maximum rated power:</b>	between 480 VDC and 550 VDC
<b>DC voltage regulation:</b>	±1% steady state
<b>DC ripple:</b>	<2%

With technology increasingly fundamental to survival in today's worldwide economy, Powerware, a leader in systems availability, introduces Powerware PF2. From data centers to industrial plants, wherever maximum productivity and system availability is critical, the Powerware PF2 bridges the power-gap during utility disturbances and acts as an effective enhancement or replacement for traditional battery systems.

The Powerware PF2, a DC battery-free energy storage technology, is an integrated motor-generator-flywheel that stores kinetic energy in a constantly spinning, quiet, low friction steel disc. Compared to traditional battery systems, the Powerware PF2 dramatically reduces space requirements, temperature restrictions, replacement cycles and maintenance costs while improving UPS system reliability and operational integrity.

The Powerware PF2 offers a number of benefits over traditional energy storage systems:

- ▶ Flexible siting
- ▶ Reduced maintenance cost
- ▶ Over 20 years of useful life
- ▶ High power density in a small footprint
- ▶ Non-toxic and non-corrosive
- ▶ Real-time monitoring of over 25 system parameters
- ▶ Only two terminal connections
- ▶ Remote monitoring by Powervision®
- ▶ Service by Powerware Global Services

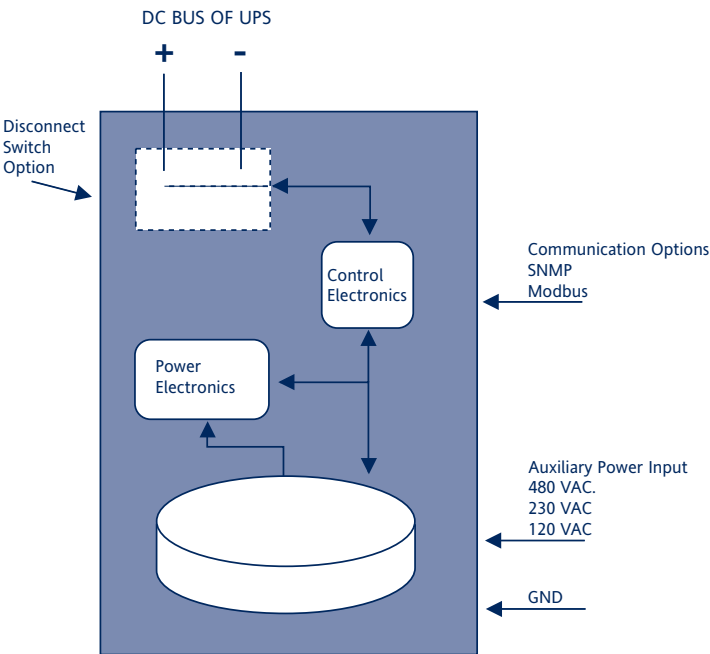
*Specifications subject to change without notice.*

**Powerware PF2 Flywheel Ride Through Times**

				Powerware Flywheel Models			
Powerware UPS Models	UPS Output	Percent kW	Output kW	PF2-250	PF2-500	PF2-750 (PF2-250+PF2-500)	PF2-1000 (2x PF2-500)
Ride-through to the Load in Seconds							
9315-160	100 kVA	50%	40	76	120	120	120
		75%	60	51	101	120	120
		100%	80	38	76	114	120
	130 kVA	50%	52	58	117	120	120
		75%	78	39	78	117	120
		100%	104	29	58	88	120
160 kVA	50%	64	47	95	120	120	
	75%	96	32	63	95	120	
	100%	128	24	48	71	96	
9315-225	225 kVA	50%	90	34	68	101	120
		75%	135	23	45	68	91
		100%	180	17	34	51	69
9315-300	300 kVA	50%	120	25	51	76	103
		75%	180	17	34	51	69
		100%	240	13	25	38	51
9315-500	400 kVA	50%	160	19	38	57	77
		75%	240	13	25	38	51
		100%	320		19	29	39
	500 kVA	50%	200	15	30	46	62
		75%	300		20	31	41
		100%	400		15	23	31
9315-750*	625 kVA	50%	250		24	36	50
		75%	375		16	25	33
		100%	500			18	25
	750 kVA	50%	300		20	32	43
		75%	450			21	27
		100%	600			16	21



\* .8 output power factor. Consult factory for ride-through times for .9 output power factor



**Environmental Specifications**

- Operating temperature:** -20°C to 40°C
- Non-operating temperature:** 0°C to 70°C
- Relative humidity:** <95% non-condensing
- Altitude:** Up to 4,000 ft. (1220 meters) with no derating
- Audible noise:** 72 dBA at 1 meter; in accordance with ISO 7779
- Typical heat dissipation:** <3 kW or 10,250 BTU (250 kW) or <5 kW or 17,050 BTU (500 kW)
- System dimensions:** 42" W x 34" D x 78" H (107 cm. W x 86 cm. D x 198 cm. H)
- Cabinet footprint:** 10 sq. ft. (.93 sq. m.) (no rear or side access required)
- Weight:** 250 kW - 3,800 lbs. (1724 kgs)  
500 kW - 6,000 lbs. (2727 kgs)

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