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INVERTER
CONVERTER
electronics Ltd.

CP8

Single Phase Clean Power UPS





Product Overview

CP8

Description

The CP8 Single Phase Clean Power UPS keeps your mission-critical power equipment well protected against common power anomalies such as: power sags and brownouts, harmonic distortions, voltage surges/spikes, input noise, and frequency fluctuations at all times. It provides clean, uninterrupted power with precise voltage regulation which guarantees a true sinewave output.

CP8 has high efficiency which helps reduce electrical cost. Further, the UPS is conformally coated which helps protect from degradation, making it a viable solution for a variety of applications such as telecom, data centers, server rooms and others.

The CP8 models are available in wide range of power ratings including, 1000, 1500, 2000, 3000, 6000, 10000VA. Up to three modules can be connected in parallel for added capacity on 6 and 10kVA models.

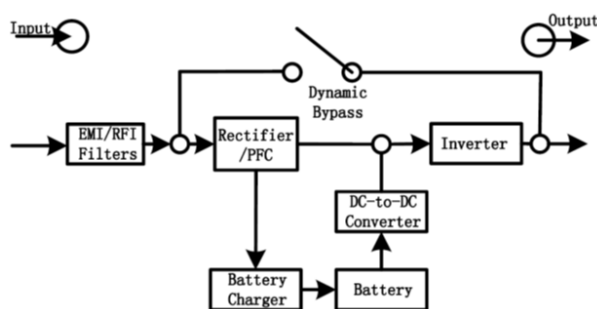


1kVA UPS with accessories included

Technology

Double Conversion technology utilized in every CP8 model allows the equipment to be isolated from raw utility power. This is accomplished by first converting utility input to DC then DC through a booster which is inverted back to AC. In addition, CP8 boasts zero transfer time between the AC mode to battery mode. CP8 also incorporates automatic re-transfer in the event utility is restored while the system is in battery mode.

Furthermore, the UPS is equipped with an internal static bypass switch such that if a fault occurs at the rectifier or the inverter, or if the overload rating is exceed, the system will automatically transfer to bypass mode, safely isolating your essential loads from any potential hazards.



UPS topology



Features

CP8

All Models (1-10kVA)

- Output power factor: > 0.9
- Exceptional output voltage regulation of +/-1%
- Active input power factor correction 0.99
- Outstanding overload capability
- High efficiency up to 91%
- 50Hz/60Hz frequency converter mode
- 4 programmable power management outlets (1-3kVA only)
- Emergency power off function (EPO)
- Hot swappable battery design
- ECO mode energy saving
- Input EMI filter for surge protection
- USB/RS-232 communications
- Low input THDi
- Optional: SNMP/Modbus RS485/Alarm card/Wifi card/External Maintenance Bypass (6/10kVA only for bypass)



1kVA UPS in tower configuration

INPUT CORD TYPE		
1/1.5kVA	NEMA 5-15R (15A)	
2kVA	NEMA 5-20R (20A)	
3kVA	NEMA L5-30R (30A)	
6/10kVA	Terminal Blocks	

6/10kVA

- State-of-Art DSP technology guarantees increase in reliability and noise immunity
- Wide input voltage range (110-300 VAC)
- Generator compatible
- Adjustable battery numbers
- Optional N+1 redundancy up to 3
- Optional isolation transformer for 120VAC nominal output



6kVA UPS and external battery pack in rack mount configuration

BRC-CP8-21-02-18

Additional Features



Rear Layout 6kVA



*Shown above is the rear view of the 6/10kVA UPS unit. To the right is the 3kVA unit. Other UPS models may vary.

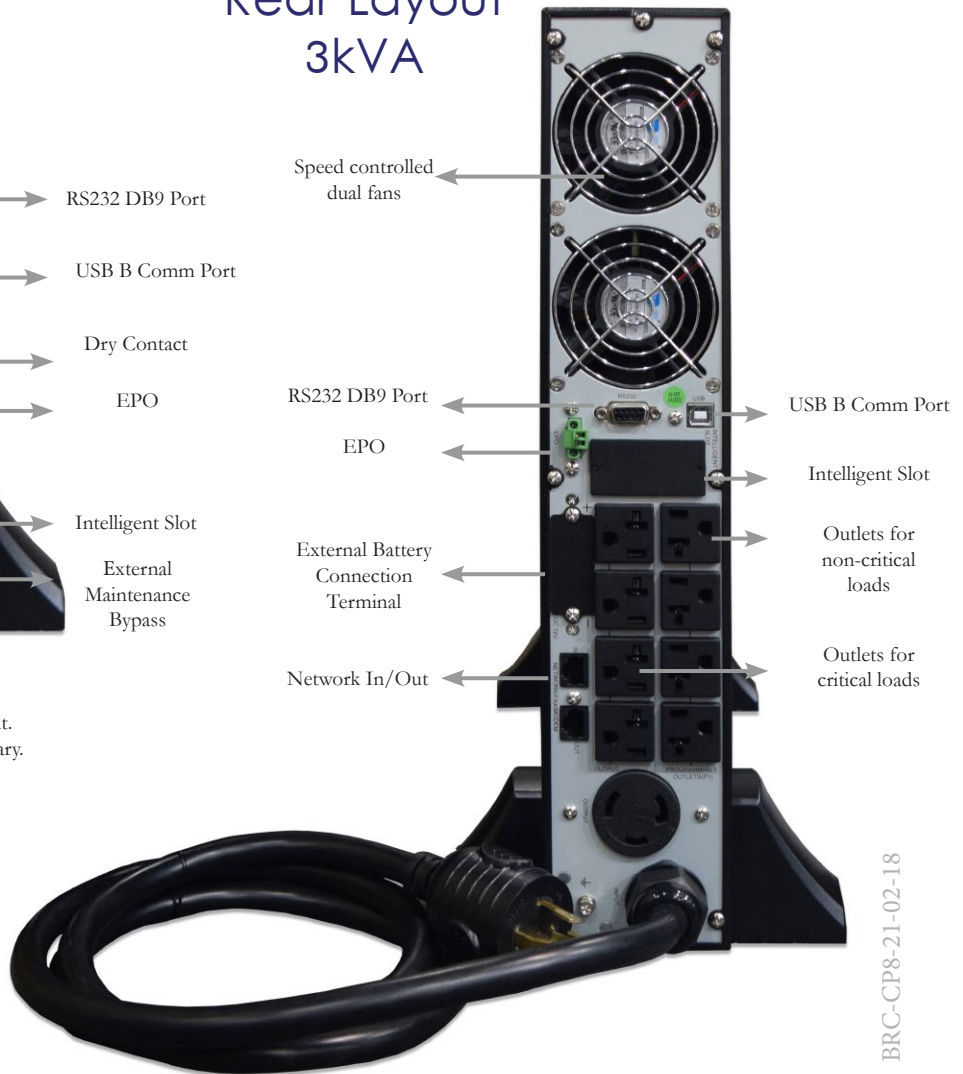
Custom Integration

For harsh environments, an appropriately rated NEMA enclosure can be easily integrated with rails, back panel, sliding drawers, ground lugs, fans, heaters, and A/C to maximize efficiency and reliability.

Custom distribution panel, terminal layout, lifting provisions, over-current protection and transformer configurations can all be utilized as required to provide the perfect solution for your application.

Conveniently, the CP8 UPS can be mounted either on standard 19" racks or freestanding with a tower base.

Rear Layout 3kVA



BRC-CP8-21-02-18



Additional Features

CP8

Metering and Setup

- **Input AC**
 - Voltage
 - Frequency
 - Current
 - **Battery DC**
 - Voltage
 - Current*
 - Load %*
 - Back-up Time
 - **Output AC**
 - Voltage
 - Frequency
 - Load Current
 - Load %
 - **Mode of Operation**
 - Normal
 - Battery
 - Bypass
 - ECO
 - Frequency Converter
 - **Warning/Alarms/Fault Code**
 - Overload
 - Low / High Voltage
 - Abnormal Frequency
 - Batt EOD
 - Over charge
 - EPO
 - High Temperature
 - Rectifier/Inverter/Battery Fail
 - Input Connection Fail
 - **Ambient Temperature**
- * 1-3kVA models only



HMI showing key UPS parameters

Setup Parameters

- **Configurable Parameters**
 - Output voltage / frequency
 - ECO mode
 - Frequency converter mode
 - Bypass voltage / frequency limit
 - Input AC Voltage
 - Programmable Outlet*
 - Battery AH (Capacity)*
 - Battery Boost / Float Voltage*
 - Max charging current
 - EPO logic
 - Output voltage calibration**
- * 1-3kVA models only
**6/10kVA models only



Optional Features

CP8



CP8-SNMP-CARD

The Simple Network Management Protocol (SNMP) allows you to monitor the status of the CP8 UPS using any user-preferred web browser. The card should be inserted in the Intelligent Slot from the rear.



CP8-MODBUS-CARD

The dual Modbus RTU RS485 ports provides you with flexibility for networking with multiple devices. An external Modbus RTU to TCP converter can be installed if desired.



CP8-COMM-CARD

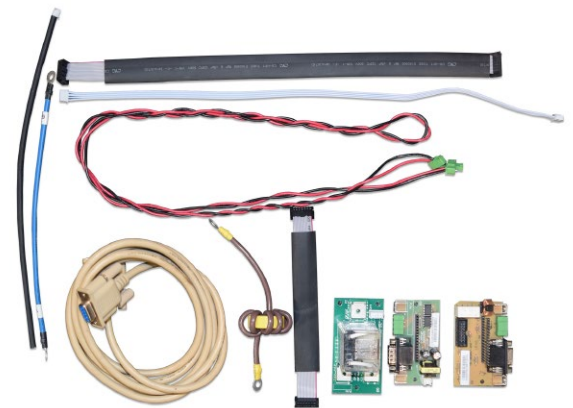
The optional alarm card provides the following status relays for your monitoring needs:

- UPS ON status
- UPS alarm
- Utility failure
- Low battery
- UPS failure
- Bypass Status
- UPS audible alarm



CP8-MBP-10K-RT

An external maintenance bypass panel can be integrated to ensure a complete UPS isolation when maintenance or removal of the UPS is required without dropping power to the load.



CP8-B-PARA-KIT

The factory installed, plug and play parallel kit enables the 6 and the 10kVA UPS models to be connected in parallel up to three units for an added capacity and N+1 redundancy with load sharing.

*Each UPS unit must have its own separate battery bank for proper operation.

Product Selection



MODEL	Capacity (VA)	Power (W)	In (Vac)	Out (Vac)	Battery (Vdc)	Battery Backup Time				Dimensions H x W x D (in)	Wt (lbs)
						25% Load (min)	50% Load (min)	75% Load (min)	100% Load (min)		
CP8-A-1K-RT	1000	1000**	120	120	36	38.63	16.77	9.46	5.9	(2U) 3.5 x 17.2 x 16.1	31.1
CP8-A-1.5K-RT	1500	1300**	120	120	36	20.2	10.3	5.27	2.96	(2U) 3.5 x 17.2 x 16.1	32.1
CP8-A-2K-RT	2000	1850**	120	120	72	40.59	17.01	9.62	5.96	(2U) 3.5 x 17.2 x 24.8	51.4
CP8-A-3K-RT	3000	2739**	120	120	72	24.33	9.79	4.88	2.64	(2U) 3.5 x 17.2 x 24.8	60.6
CP8-B-6KB-RT*	6000	6000	240	240	240	42.89	18.09	10.3	6.57	(5U) 8.8 x 17.2 x 27	172.1
CP8-B-10KB-RT*	10000	10000	240	240	240	22.88	8.78	4.59	3.06	(5U) 8.8 x 17.2 x 28	178.7

* Includes one external battery bank - part number: CP8-EBB-240-6K/10K-RT

** Based on 120V input/output nominal

MODEL	Use with (VA)	Battery (Vdc)	Battery Qty (#)	Battery Cap (AH)	Total String	Additional External Battery Backup				Dimensions H x W x D (in)	Wt (lbs)
						25% Load (min)	50% Load (min)	75% Load (min)	100% Load (min)		
CP8-EBB-36-1.5K-RT	1500	36	6	18	2	147.45	66.50	39.61	27.31	(2U) 3.5 x 17.2 x 16.75	47.3
	1500	36	6	18	2	55.73	24.34	14.58	9.29		
CP8-EBB-72L-2K/3K-RT	2000	72	12	18	2	96.98	41.46	24.68	16.88	(2U) 3.5 x 17.2 x 28.5	90.8
	3000	72	12	18	2	58.93	25.04	14.54	9.46		
CP8-EBB-240-6K/10K-RT	6000	240	20	9	1	42.89	18.09	10.3	6.57	(3U) 5.3 x 17.2 x 24.75	139
	10000	240	20	9	1	22.88	8.78	4.59	3.06		

Options

ISOLATION TRANSFORMER	Capacity (VA)	Power (W)	In (Vac)	Out (Vac)	Battery (Vdc)	Dimensions H x W x D (in)	Wt (lbs)
CP8-6K-ISO	6000	6000	240	240/120	240	(3U) 5.3 x 17.2 x 26.75	134.5
CP8-10K-ISO	10000	10000	240	240/120	240	(3U) 5.3 x 17.2 x 31	198.4

*Backup time is affected with use of isolation transformers.

OPTIONS	Description
CP8-MBP-10K-RT	Maintenance Bypass panel [3.39"x17.2"x8.27"-HxWxD] - [6.6 lbs]
CP8-SNMP-CARD	SNMP network card
CP8-MODBUS-CARD	Modbus RTU RS-485 (2 ports)
CP8-COMM-CARD	Alarm relays/dry contact
CP8-B-PARA-KIT	Parallel Kit (only for 6-10k models)*
CP8-RAIL-KIT-2U	Rail mounting kit (pair) for 2U high
CP8-RAIL-KIT-3U	Rail mounting kit (pair) for 3U high
CP8-WIFI-CARD	Wifi network card

RIC Electronics Ltd. guarantees this product to be free from defects in material and/or workmanship for a period of 24 months (2 years) from date of manufacture. Some exclusions may apply.

* Derate the capacity to 90% in parallel operation or when the output voltage is adjusted to 208VAC.



Technical Specifications (1-3kVA)

Model	CP8-1K-RT	CP8-1.5K-RT	CP8-2K-RT	CP8-A-3K-RT
Capacity*	1000VA/1000W	1500VA/1300W	2000VA/1850W	3000VA/2740W
Input				
Voltage Range	Low Line Transfer	80VAC/70VAC/60VAC/55VAC \pm 5 % (based on load percentage 100% - 80 % / 80 % - 70 % / 70 - 60 % / 60 % - 0)		
	Low Line Comeback	87VAC/77VAC/67VAC/62VAC \pm 5 %		
	High Line Transfer	150 VAC \pm 5 %		
	High Line Comeback	145 VAC \pm 5 %		
Frequency Range	40Hz ~ 70 Hz			
Phase	Single phase with ground			
Power Factor	\geq 0.99 @ full load			
THDi	\leq 5% @ 100~130VAC THDU < 1.6% @ input and full linear load condition			
Output				
Output voltage	100/110/115/120/127VAC			
AC Voltage Regulation	\pm 1% (Batt. Mode)			
Frequency Range (Sync)	47 ~ 53 Hz or 57 ~ 63 Hz			
Frequency Range (Batt. Mode)	50 Hz \pm 0.1 Hz or 60Hz \pm 0.1 Hz			
Overload	AC Mode	100%~ 110% warning only, 110%~130%: 5min,130%~140%: 30sec,140%: 1.5sec		
	Battery Mode	100%~ 110% warning only, 110%~130%: 2min,130%~140%: 10sec,140%: 1.5sec		
Current Crest Ratio	3:1 max			
Harmonic Distortion	\leq 2 % @ 100% Linear Load ; 4 % @ 100% Non-linear Load			
Transfer Time	Line to Battery	0 ms		
	Inverter to Bypass	< 4 ms		
Efficiency				
AC Mode	\geq 89% @ full charged battery			\geq 91% @ full charged battery
ECO Mode	\geq 96% @ full charged battery			
Battery Mode	\geq 88%			\geq 90%
Battery (Internal)				
Battery Type	12V/9AH	12V/9AH	12V/9AH	12V/9AH
Numbers	3	3	6	6
Autonomy (mins)	5.9 @ 100% load	2.94 @ 100% load	5.96 @ 100% load	2.96 @ 100% load
Charger				
Charging Current	Selectable: 1/2/4/6/8A			
Float Charging Voltage	Range: 2.20V to 2.33V/cell (Default 2.28V/cell)			
Boost Charging Voltage	Range: 2.25V to 2.40V/cell (Default 2.36V/cell)			
Dimensions - UPS inc. Internal Battery				
Dimension, HxWxD in {mm}	(2U) 3.5 x 17.2 x 16.1 in {89 x 437 x 409mm}	(2U) 3.5 x 17.2 x 16.1 in {89 x 437 x 409mm}	(2U) 3.5 x 17.2 x 24.8 in {89 x 437 x 630mm}	
Net Weight Lbs {Kg}	31.1lbs {14.1kg}	33.3lbs {15.1kg}	51.4lbs {23.3kg}	60.6lbs {27.5.1kg}
Environment				
Operation Humidity**	20-95 % RH @ 0- 40°C (non-condensing)			
Noise Level	Less than 50dBA @ 1 Meter (With fan speed control)			
Management				
Smart RS-232 or USB	Supports Windows® 2000/2003/XP/Vista/2008/7/8/10, Linux, Unix and MAC			
Optional SNMP	Power management from SNMP manager and web browser			
Certification				
Approvals	cTUVus (UL1778:2014, CSA C22.2 No. 107.3-14)			

*Output power capacity is based on a 120VAC input voltage. The power rating will vary depending on the input voltage.
 ** If the Ups is installed or used in a place where the altitude is above 1000m, the output power must be derated 1% for every 100m.
 Product specifications are subject to change without further notice.

BRC-CP8-20-01-22

Technical Specifications (6/10kVA)

Model		CP8-B-6K-RT	CP8-B-10K-RT
Capacity*		6000VA/6000 W	10000VA/10000W
Input			
Voltage Range	Low Line Loss	110 VAC(L-N) \pm 3 % at 0-60% Load 176 VAC(L-N) \pm 3 % at 60%-100% Load	
	Low Line Comeback	Low Line Loss Voltage + 10V	
	High Line Loss	300 VAC(L-N) \pm 3 %	
	High Line Comeback	Low Line Loss Voltage - 10V	
Frequency Range		46Hz ~ 54 Hz @ 50Hz system 56Hz ~ 64 Hz @ 60Hz system	
Phase		Single phase with ground	
Power Factor		\geq 0.99 at 100% Load	
Output			
Output voltage		208/220/230/240VAC	
AC Voltage Regulation		\pm 1%	
Frequency Range (Synchronized Range)		46Hz ~ 54 Hz @ 50Hz system 56Hz ~ 64 Hz @ 60Hz system	
Frequency Range (Batt. Mode)		50 Hz \pm 0.1 Hz or 60Hz \pm 0.1 Hz	
Overload	AC Mode	100%~110%: 10min ; 110%~130%: 1min ; >130% : 1sec	
	Battery Mode	100%~110%: 30sec ; 110%~130%: 10sec ; >130% : 1sec	
Current Crest Ratio		3:1 max	
Harmonic Distortion		\leq 1 % @ 100% Linear Load; \leq 4 % @ 100% Non-linear Load	
Transfer Time	Line <--> Battery	0 ms	
	Inverter <--> Bypass	0 ms	
	Inverter <--> ECO	<10 ms (Typical)	
Efficiency**			
AC mode		> 94%	
Battery Mode		> 92%	
Battery (External)			
CP8 Battery Module CP8-EBB-240-6K/10K-RT		240VDC/n*9Ah where n= # of strings	
External battery banks		240VDC custom battery solution	
Number of 12V jars in a bank		20	
Charger			
Charging Current		Adjustable from 1A to 4A	
Charging Voltage		(Battery number*13.65 V) \pm 1%	
Dimensions - UPS inc. External Battery			
Dimension, HxWxD in {mm}		(5U) 8.8 x 17.2 x 27 {223.5 x 436.9 x 685.8mm}	(5U) 8.8 x 17.2 x 28 {223.5 x 436.9 x 711.2mm}
Net Weight Lbs {Kg}		33.1lbs {15kg}	39.7lbs {18kg}
Environment			
Operation Humidity		<95 % RH @ 0 - 40°C (non-condensing)	
Operation Altitude***		<1000m	
Acoustic Noise Level		Less than 55dB @ 1 Meter	Less than 58dB @ 1 Meter
Management			
Smart RS-232 or USB		Supports Windows® 2000/2003/XP/Vista/2008/7/8, Linux, Unix, and MAC	
Optional SNMP		Power management from SNMP manager and web browser	
Certification			
Approvals		cTUVus (UL1778:2014, CSA C22.2 No. 107.3-14)	

* Derate the capacity to 60% in Frequency Converter mode. * Derate the capacity to 90% in parallel operation or when the output voltage is adjusted to 208VAC
 ** Specifications vary when output isolation transformer is installed with the system. If the Ups is installed or used in a place where the altitude is above 1000m, the output power must be derated 1% for every 100m.
 Product specifications are subject to change without further notice.