

Voltage Dip Compensator

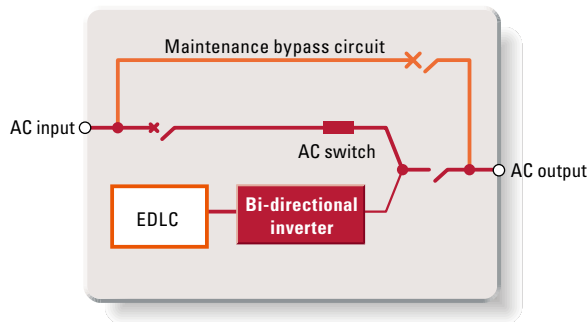
RoHS

SANUPS C23A



High Efficiency and High Reliability with No Interruptions
Compliant with Low Voltage, EMC, and Amended RoHS Directives

Circuit block diagram



No Interruption

- Even in the event of voltage dips or momentary outages, the C23A continues to supply pure sinusoidal power without interruption.
- This prevents equipment susceptible to voltage dips from stopping due to failure or malfunction, improving the productivity of factory facilities.

Active Filter Function

- An active filter cancels the harmonics generated by equipment; the corrected current waveform is harmless to the power grid and other equipment.
- At the same time, the power factor is corrected to approximately 1.0, eliminating wasted power consumption.

High Efficiency

- The C23A uses a parallel processing topology to achieve a 97% efficiency.⁽¹⁾ This reduces running costs and contributes to environmental preservation.

(1) For 100 and 200 kVA models.

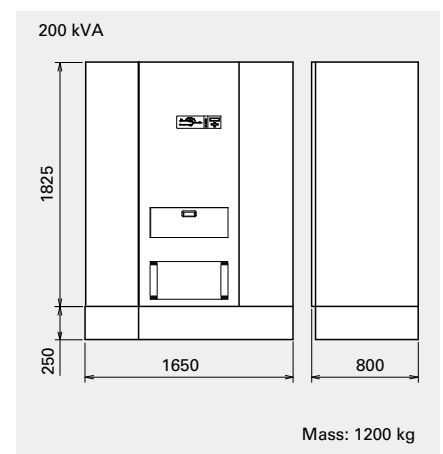
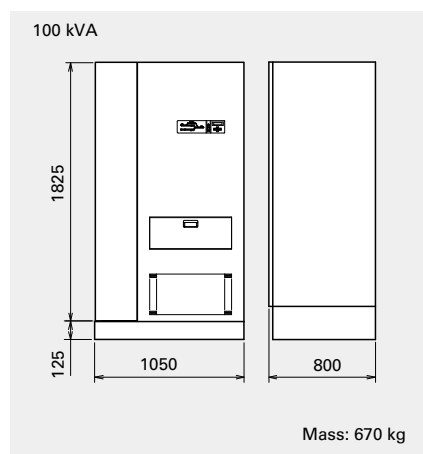
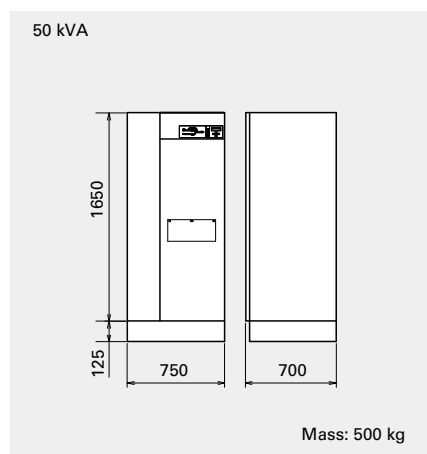
Reduced Maintenance Costs

- A long-life electric double-layer capacitor (EDLC) is used instead of lead-acid batteries, reducing maintenance labor and costs.

Function

Active Filter Function	An active filter includes a bi-directional inverter that cancels the harmonics generated by equipment, making the source current sinusoidal. The corrected current waveform is harmless to the power grid and other equipment. Furthermore, the UPS power factor can be corrected to nearly 1.0.
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Dimensions (Unit: mm)



Specifications

Item		Model	C23A503C	C23A104C	C23A204C	Remarks		
Rated output capacity	Apparent power		50 kVA	100 kVA	200 kVA			
	Active power		40 kW	80 kW	160 kW			
Enclosure type		Steel-sheet free-standing enclosure (Ingress protection rating: IP2X)						
Topology		Parallel processing						
Cooling system		Forced air cooling						
Energy storage device		Electric double-layer capacitor (EDLC)						
AC input	No. of phases/wires	3-phase 3-wire						
	Rated voltage	200/210/220 V					Same as AC output	
	Rated frequency	50/60 Hz					Select at the time of order	
	Current harmonic distortion compensation	Compensation capacity	Within rated capacity					
		Harmonic current	85% or higher compensation					At 100% rectifier load
		Compensation order	2nd to 20th harmonics					
Input power factor	0.98 or greater					At rated output		
AC output	No. of phases/wires	3-phase 3-wire						
	Rated voltage	200/210/220 V					Select at the time of order	
	Voltage regulation	In grid operation	Within -8 to +10% of rated voltage					Changeable with settings
		In capacitor operation	Within $\pm 2\%$ of rated voltage					(1)
	Rated frequency	50/60 Hz					Same as AC input	
	Frequency regulation	In grid operation	Within $\pm 4\%$ of rated frequency					
		In capacitor operation	Within ± 0.1 Hz of rated frequency					(1)
	Load power factor	Rated	0.8 (lagging)					
		Fluctuation range	0.7 to 1.0 (lagging)					(2)
	Voltage harmonic distortion (In capacitor operation)	At linear load	2% or less					
		At rectifier load	5% or less					
	Voltage unbalance (In capacitor operation)	Within 2%					With a load of 1/3 the total capacity on one line	
	Transient voltage fluctuation (In capacitor operation)	Fluctuation	Within $\pm 5\%$					
		Settling time	50 ms or less					
	Overload capability (Bypass circuit)	200% (30 s), 800% (0.5 s)						
Overcurrent protection	The inverter shuts down when the output current exceeds 110% of the rated value, then the grid power will be supplied by bypass. When the current falls equal to or below the rated current, the inverter will automatically start up for normal operation.							
Transfer time to capacitor operation	0 s (No interruption)							
Dip compensation time	1 s or more (At rated load)					(3)		
Initial charging time	Within 60 s					Capacitor voltage from 0 to 100%		
Recharging time	Within 10 s					After compensating for a 1-second voltage dip		
Acoustic noise	65 dB or less					A-weighting, at 1 m from front of unit		
Heat dissipation		2.6 kW	5.1 kW	10.2 kW		At rated output, after battery charging completed ⁽⁴⁾		
	Operating environment	Temperature: 0 to 40°C, Humidity: 30 to 90% RH (non-condensing)						
Standards	CE (Low Voltage Directive, EMC Directive): EN 62040-1,-2 RoHS Directive							

(1) Shows the performance of the inverter when the compensator transferred to capacitor operation at the rated input voltage and rated frequency.

(2) Continuous

(3) Rated load: At a load power factor of 0.8 (lagging) and 25°C ambient temperature

(4) Calculated with a load power factor of 0.8.

Dip compensation time can be extended as an option. Contact us for details.

External Communication Signals and Corresponding Status

External communication signals	Status
AC input error	Input voltage deviates from the specified value
Major fault	A major fault that results in inverter shutdown
Minor fault	A minor fault that does not prevent continued inverter operation
Output overcurrent	Output current exceeds the specified value
Parallel power supply with grid	Power supplied both from the grid power and inverter
Capacitor power supply	Inverter is in operation using the energy stored in the capacitor
Grid bypass supply	Power is supplied directly from the power grid
Inverter operation	When the inverter is in operation
Inverter shutdown	When the inverter is stopped
All outputs shutdown	When the unit's output is completely stopped

Note: These are dry contact outputs.



■ Eco Products

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