

Power Inverter

Overview

Specially designed with portability in mind, SK Electric's power inverter converts DC power (from battery or solar panel) into AC power, ensuring the continued normal operation of electrical equipment.

It has passed through third-party authority testing, and achieved full compliance with the European Union, IEC and Chinese national standards and can be produced as a customized design according to client requirements.

Main Features

- Wide range of input voltage
- Good stability of output voltage and frequency
- Pure sine wave output with high level of protection using DSP controller
- High efficiency
- High reliability
- Electromagnetic compatibility



Applications

- Auxiliary power supply for skytrains, ships, boats, yachts and various other vehicles. Can also be used as AC power supply for special vehicles such as fork lift trucks.
- Expedition and disaster relief environments and other places without electricity or situations involving electrical damage to essential instruments and equipment
- Fire emergency lighting and ventilation equipment
- Electricity blackout situations or equipment requiring backup power sources (such as: computers, fax machines, printers, scanners, etc.); living appliances (televisions, refrigerators, DVD, stereo, video cameras, fans, lighting, etc.)

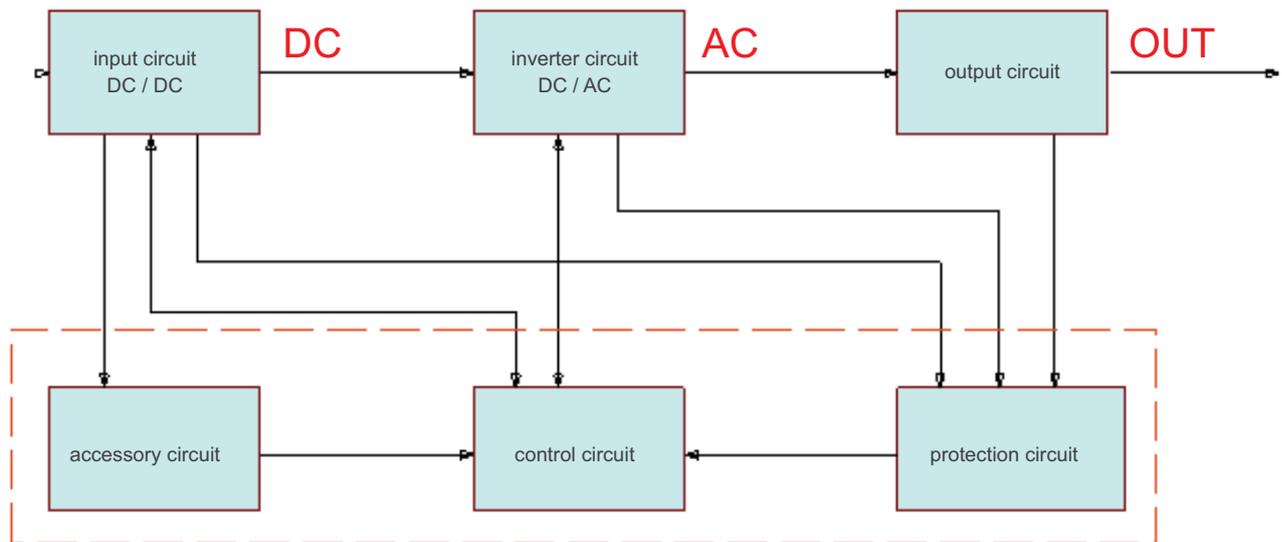
Contact Information

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Power Inverter

Inverter structure, principle and description



Input circuit:

Input DC power filtering, sampling and voltage boost.

Auxiliary circuit:

Provides the main part of the work of each inverter to provide the required operating power.

Control circuit:

A core part of the inverter works in real time to coordinate the work of the monitoring section, to ensure the requirements of the inverter satisfy the requirements, generally MCU or DSP core com

Inverter circuit:

Driven by the control circuit, the function execution unit changes DC power into AC power. The DC power at the input side firstly goes through the filter for its voltage to be increased. The function execution unit comprises parts such as MOSFET IGBT IPM.

Output circuit:

An inverter circuit for converting AC power through the filter after the sampling and output;

Protection circuit:

Applies appropriate protection

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Technical Features

- The main circuit of the inverter uses two BOOST + mode to build common platforms.
- Pure digital power supply design, using the U.S. TI's DSP chip as the main control chip clocked at up to 40MHZ to improve the consistency and reliability of the inverter. This also improves control precision and reduces output harmonics and is flexible and easy to maintain and upgrade. BOOST MOS control and IGBT inverter control on both sides by a DSP chip, improved MTBF, pure sine wave output, low output voltage harmonics.
- Inverter output uses space vector (SVPWM) algorithms and modulation control to improve control precision and reduce output harmonics, while greatly improving the utilization of the DC side of the bus. Increasing the conventional SPWM modulation rate by more than 15% can reduce the DC bus voltage and increase storage capacitor life.
- IGBT drive hard-switching technology, reduces the complexity of the algorithm and improves reliability.
- Storage capacitor with a long life electrolytic capacitors or metal film capacitors.
- AC output frequency starts slowly, reducing the starting current and extending the load (motor) life.
- Reserved RS232 communication improves convenience and flexibility.
- DC side soft-start pre-charge avoids starting surge damage to the device.
- Optimized EMC design includes a variety of measures to reduce EMC interference. (E.g. copper shielding tape, inlet and outlet ring, etc.)
- Aluminum radiator for natural cooling
- DC side power limit function can effectively protect the battery and prolong life.
- Full protection

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Main Performance Indicators

1	Rated output capacity (KVA)	0.3~5	Optional
2	Rated input voltage (V DC)	24, 36, 48, 96, 110	Optional
3	Rated output voltage (VAC)	220VAC single phase) / 380VAC (three phase)	
4	Rated output frequency (Hz)	25~50Hz	Optional
5	Rated output waveform	Sine wave	
6	Waveform distortion	total harmonic \leq 3%	
7	Efficiency	\geq 85%	
8	Protection class	IP 20~IP65	Optional
9	Ambient temperature	-40~70°C	
10	Relative Humidity	\leq 95%	
11	Protection	Failure alarm; input overvoltage, undervoltage, power limit; enter anti-reverse; output over current, over voltage, phase, load short-circuit, over-temperature	

Description of input and output interfaces

INPUT lead to the input power cable connecting the external DC input power supply. **Important:** the positive and negative cannot be reversed

OUTPUT lead to a three-phase inverter output port. External electrical equipment (such as fans, etc.) is connected here.

FAULT Lead fault signal alarm output port and an external contact signal output connected to monitoring equipment can monitor the working status of the inverter

Ground terminal is used to connect to an external ground to ensure reliable operation of the device.



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