



Advancing the Future of Power Conversion.

ShorePower Solutions

PCTI's solid-state shorepower frequency converters are an efficient solution for converting grid electricity to the appropriate load frequency. Our frequency converters provide highly reliable, clean and efficient power conversion.



WHY SHOREPOWER?

Our converters enable connection of ships to port grids regardless of their respective frequencies (50Hz or 60Hz). PCTI's shorepower frequency converters cut fuel costs, reduce fuel emissions and air pollution from generators, and eliminate unnecessary noise.

PCTI's shorepower frequency converters are a viable solution in replacing motor generator sets. We custom build our shorepower frequency converters to your specifications, up to 2MVA.



CLEAN & EFFICIENT POWER

Input power factor and harmonic distortion in the input current of a frequency converter can have detrimental effect on the utility grid supplying the converter, especially for higher power converters.

All PCTI frequency converters for shorepower application are designed to have very low input current distortion, THD < 5%, and almost unity power factor in the input.



DESIGNED & BUILT TO LAST

Our shorepower frequency converters are made for both indoor and outdoor applications. The outdoor units are rugged enough to withstand a harsh marine environment, including tropical locations.

Our shorepower supplies conform to at-berth regulations.

SUPERIOR DSP TECHNOLOGY

All PCTI frequency converters are equipped with a sophisticated control system utilizing digital signal processor (DSP) control based on IGBT PWM technology.

PCTI's DSP technology provides several performance-increasing benefits, including:

- ✓ Real-time calculation, transformation, data collection, decision-making, and more
- ✓ Capability to anticipate changes in the system and adapt for performance optimization
- ✓ Increased reliability based on a single control board solution
- ✓ Ease of updating, changing, or modifying the equipment's functionality or application (even after installation)
- ✓ Real-time data logging

Our equipment is able to be monitored, tested, and operated via state-of-the-art DSP-based embedded control systems for real-time performance.



Specifications

General

Input Service

The input for our shorepower solutions can be any three phase AC input. Typical AC input frequency is 60Hz or 50Hz. If you require a different frequency, please contact us for a custom solution based on your application. The efficiency of our units is better than 85% at full load, and the power factor is better than .95 unity at full load and nominal input. Custom shorepower solutions are available; please contact us for more information.

Output Voltage

The output range for our shorepower solutions is between 10KVA to 2,000KVA (2MVA). The output service can be any voltage. The AC output frequency is typically 50Hz or 60Hz, but others are available on request. The power factor is 0.9 lead to 0.7 lag. PCTI's units are capable of continuous zero lead to zero lag at full-rated output without damage to the unit. The overload capacity is 125% for 10 minutes, 150% for 2 minutes, 200% for 20 seconds (optional), and 300% for 6 seconds (optional).

Frequency Regulation

The frequency regulation for our units is +0.05%. The regulation is 1% independent phase regulation for combined no load to full load at rated input voltage change control technology: digitally synthesized pulse width modulation.

Wave Shape and Crest Factor

The wave shape of our shorepower solutions is pure sine wave, and the crest factor is 1.41 +0.1%.

Transient Response

The transient response is 50ms for a 90% load change on any phase or combination of phases.

Current Limit

The current limit is 110% of load.

Total Harmonic Distortion (THD)

The THD is less than 2%, 1% on any single frequency, and less than 4% for non-linear loads.

NEMA Enclosure Ratings

Popular ratings include NEMA 12 (IP 20), NEMA 3R (IP 54), NEMA 4 (IP 55), and NEMA 4X (IP 56). Other ratings available upon request.

Codes and Standards

Our units can be built to compliance for any of the following: IEC, NEMA, NEC, IEEE, MIL-SPEC, MIL-STD-461 compliant for EMI/RFI.

Standard Features

Precision Controls

All of PCTI's shorepower solutions come standard with automatic line drop compensation and automatic input line monitoring.

Built-in Test (BIT) and Protection Monitoring

All of PCTI's shorepower solutions come standard with the ability to detect and isolate faults without having to use external testing equipment.

Environmental Endurance

Our units come standard with the capability to operate in temperatures ranging between -5°C to 40°C. During storage, our units are built to endure temperatures between -10°C to 65°C. All of PCTI's units are able to withstand up to 90% humidity, non-condensing, at 40°C.

Performance Protection

Our shorepower converters include an input circuit breaker, an output contactor, an electrical door interlock with bypass, and an audible alarm. Our units also include protection against overcurrent/overload (will withstand output short current cleared by internal circuitry), overvoltage, undervoltage, overtemperature, output underfrequency, and input to output transformer isolation.

Remote Capability

PCTI's shorepower solutions have programmable functions via Ethernet/IP, profinet, Modbus, CANbus, IEEE 488.2 / GPIB, RS232, or RS485. These programmable functions include: start/stop, reset, current adjust, voltage adjust, voltage and current reading, and fault indication (UV, OV, OC, other). Analog signals are from 4 to 20mA, 0 to 5V, or 0 to 10V.

Standard Front Panel Devices

All of our units come with the following front panel devices: power on indicator, run indicator, undervoltage indicator, overvoltage indicator, voltage trim adjust from 90% to 10%, start push-button, stop/reset push-button, emergency mushroom off switch, fault indicator, output voltmeter with 3 phase selector switch, and an output ammeter with 3 phase selector switch.

Optional Features

Output Circuit Breaker

Add additional protection to your shorepower frequency converter with an output circuit breaker.

Frequency and/or Elapsed Time Meter

Add the capability to meter energy consumption with detailed data and/or elapsed time.

Dual Output and Multiple Selectable Input Voltages

PCTI can custom-build shorepower solutions with dual outputs and multiple selectable input voltages to meet your requirement.

Cable Racks for Input and/or Output Cables

At your request, we can add cable racks to your shorepower frequency converter to keep your cables safely rolled up and off of the ground when not in use.

Mobile

PCTI can custom-build your shorepower frequency converter to be mobile, towable, bridge-mounted, or freestanding. Mobile units can have pneumatic tires or casters depending on rating.

Event and Data Logging

Add event and data logging through an on-board SD card, external USB drive, or remote computers via remote interfaces to continuously monitor equipment operating status as well as internal control parameters.

HMI Touchscreen Operation

Add a Human Machine Interface (HMI) touch panel to your shorepower frequency converter for even more ease of use. The HMI touch panel can provide you with a view of vital information such as system conditions and operations.