



# FCX SYSTEMS Shore POWER

**The FCX Shore power solution dramatically reduces ship emissions as well as noise and vibration from ships in port . . . at a lower operating and maintenance cost than motor generator sets or running the ship's motors.**

Safe and reliable power is seamlessly transferred from the public electric power grid to the ship while in port, regardless of ship electrical design.

Using the most advanced solid-state technology available, FCX produces all aspects of large KVA Frequency Conversion Systems to convert any conventional electrical power to either 60 Hz or 50 Hz power for dock applications.

- Laminated bus design eliminates transient voltage surges for high performance and increased reliability
- Insulated Gate Bipolar Transistor (IGBT) inverters controlled by drivers specifically designed to monitor the health and protect the transistors
- Built-in failsafe modular system design ensures continuous operational dependability
- Unique microprocessor controller guarantees long lasting performance under all conditions



Each solid-state converter is configured in a vertical NEMA 12 equivalent cabinet

- RS232/485 communications interface
- 4 line 20 character alpha-numeric user interface display
- True RMS voltage control is not affected by non-linear / solid state loads
- Integrated IGBT driver/power modules for the most compact and reliable inverter
- High overload capability
- Precise output regulation
- Multiple event logging diagnostic system
- Electronic line drop compensation
- Software options and upgrades

### **Suitable For:**

Container Terminals and City Ports  
Cruise and Container Ships, Ro-Ro Vessels and LNG Carriers  
Single and Multiple Frequency Applications  
Single and Multiple Berth Configurations  
Dry Dock Applications

**On average, FCX's Shore-to-Ship Power Units deliver a 30% cost reduction in port operations.**

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**FCX Systems provides one-stop expertise that includes application assessment, design and implementation for an uninterrupted, turnkey installation.**

## INPUT POWER

Input Voltage	208 to 600VAC three phase +/-10%, typical (other voltages are available)
Input Phase Rotation	Any (automatic phase lock)
Inrush Current	None (soft start to rated power)
Input Frequency	45 to 65 Hz
Protection	Overload, short circuit, over voltage, under voltage, phase loss, over temperature, access door interlock

## OUTPUT POWER

Output Power	200 KVA to 4000 KVA
Output Voltage	115V to 960V, 3 phase
Output Frequency	50Hz and 60Hz
Voltage Balance	± 1% for balanced loads, ± 2% for 25% unbalanced loads
Harmonic Content	2% max., 1.5% typical (line to line or line to neutral)
Overload Capacity	125% for 10 minutes (standard)
Protection	Overload, short circuit, over and under voltage, over temperature, isolation, and access door safety interlock
Efficiency	85% above 75% load
Output LDC	7% standard (higher compensations available)

## ENVIRONMENTAL

Enclosure	NEMA 12 equivalent
Ambient Temp. Range	Operating: -40 °C to +55 °C (-40 °F to +131 °F)
Humidity	10% to 100%
Altitude	0 to 3,000 meters (10,000 ft.) without derating
Wind	Up to 145km/hr (90 mph)
Operational Life	30 to 35 years

## MONITORING AND CONTROLS

Digital Monitor	LED display
Meters	Elapsed time

## CODES AND STANDARDS

Meets or exceeds	MIL-STD-1399-300	
	IEEE C62.41	IEEE 519
	IEEE 1100	IEEE 1159

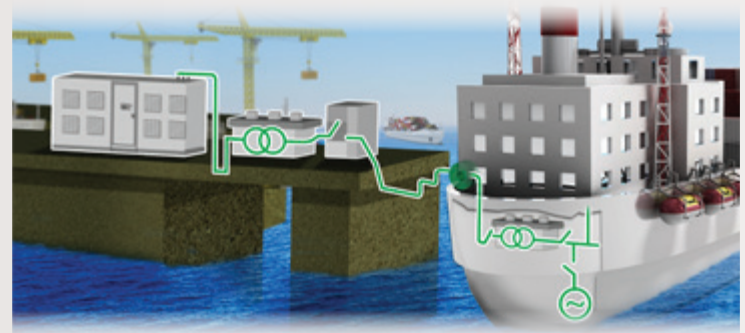
ISO 9001:2008

## OPTIONS AND ACCESSORIES

NEMA 4X equivalent stainless steel enclosures
12 pulse and 24 pulse input rectification systems
Ethernet communications
Distribution panels
Distribution transformers (for providing higher voltages)
Remote operators station(s)
Fully automatic paralleling system

## FCX INTERNATIONAL SERVICES

- One-year warranty included, options available for extended warranty plans
- Spare parts kit
- Backup FCX service centers worldwide
- Factory 24-hour service assistance
- In-house factory service engineers
- Factory engineers available onsite
- Remote monitoring by computer interface system
- Onsite customer personnel training in operation, maintenance and servicing



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**FCX**  
SYSTEMS

*Engineered for Endurance*

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