Shore power

LP	3	3	3
LA Series Shore Power Supply	Input phase	Output phase	Capacity: 1000 KVA

Overview

Langrui LA series high-power shore power supply is a high-power 60Hz frequency converter power supply equipment specifically designed and manufactured by our company to meet customer needs in harsh industrial environments characterized by high temperature, high humidity, high corrosiveness, and heavy load impacts. Our existing mature products have a maximum single-unit power output of 3000 KVA. It complies with the China Classification Society (CCS) marine product certification standards and is widely used in applications such as power supply for shipboard equipment, shipbuilding and repair, offshore drilling platforms, and shore-side docks. Leveraging its strong R&D and manufacturing capabilities, Langrui has become a supplier to many large and well-known shipyards and port machinery companies in China.

The core inverter section of the shore power supply has two design options: frequency converter and module parallel connection. The frequency converter is a modular, mature product composed of parallel-connected IGBT modules, possessing characteristics such as good stability, high reliability, and strong overload capacity. In China, due to the immaturity of early high-power IGBT module parallel connection technology, the capacity of frequency converter power supplies was limited. Therefore, high-power frequency converter power supplies, especially shore power supplies, often used imported frequency converters as the inverter unit.

Product performance advantages

- VF separation control
- Voltage and frequency stabilization technology
- Intelligent reverse power control technology
- Uninterruptible output technology
- Dual control power supply
- High-reliability components
- High-voltage full-load test station

Technical Features

Rated Input Voltage: The input power supply is a three-phase 380V/50Hz industrial power supply. (AC voltage fluctuation range is 323V to 528V)

Rated Output Voltage: The output voltage can be provided in various single/three-phase voltage levels according to user needs.

Rated Output Frequency: 60Hz/50Hz (switchable) or 400Hz

Output Frequency Accuracy and Stability: Output frequency error 0.01Hz; stability <0.01% (output frequency remains unchanged during 0~100% load change)

Output Voltage Regulation Rate: Static <1%; Dynamic <3%

Output voltage instantaneous change when 50% load is suddenly added/removed: <5%, and recovers to the rated output voltage within 0.5 seconds.

Frequency Converter Overload Capacity: 150% for 10 minutes, 200% for 10 seconds

Output Voltage Waveform Total Harmonic Distortion: THD 1.2~2.8

Technical parameters of indoor-type low-voltage input/output shore power supply

Machine model		LA33-300K	LA33-450K	LA33-500K	LA33-600K	LA33-800K
Control method		IGBT/PWM pulse width modulation method				
Input	Voltage	380±10%				
	Frequency	45~~65Hz				
Output	Voltage	440V/480V, 3-phase 3(4)-wire system, voltage (0-500V) arbitrarily adjustable				
	Voltage regulation rate	≤1%				
	Frequency	50Hz/60Hz selectable, 45Hz-65Hz continuously adjustable				
	Frequency stability	Fixed frequency ≤±0.01%, variable frequency ≤±0.1%				
	Load regulation rate	1% (100% purely resistive load)				
	Current	400A	600A	680A	800A	1050A

	Waveform voltage	Sine wave, total harmonic distortion (THD) ≤3%
	Efficiency	≥94% (100% load)
	Display	7-inch LCD touchscreen display showing voltage, current, frequency, power, and power factor
Cooling method		Inverter: heat pipe cooling; Transformer: forced fan cooling
Output protection		The output power supply has comprehensive protection functions against overvoltage, overcurrent, short circuit, and inverter overheating. Considering the power load control of different vessels, an alarm signal is issued when the output load capacity reaches a certain value to facilitate power load control.
environment	Insulation resistance	DC ≥500V 20 MΩ
	Dielectric strength	AC 1800V 5mA/1 minute
	Operating temperature	-10°C-50°C
	Relative humidity	0-90% (non-condensing)
	Altitude	≤1500m
Indoor protection rating		IP22
Outdoor protection rating		IP54

Technical parameters of indoor type high-input, low-output shore power supply.

Machine model		LA33-300K	LA33-450K	LA33-500K	LA33-600K	LA33-800K
Control method		IGBT/PWM pulse width modulation method				
Input	Voltage	10KV±15%				
	Frequency	45~~65Hz				
Output	Voltage	440V/480V, 3-phase 3(4)-wire system, voltage (0-500V) arbitrarily adjustable				
	Voltage regulation rate	≤1%				
	Frequency	50Hz/60Hz selectable, 45Hz-65Hz continuously adjustable				
	Frequency stability	Fixed frequency ≤±0.01%, variable frequency ≤±0.1%				
	Load regulation rate	1% (100% purely resistive load)				
	Current	400A	600A	680A	800A	1050A

	Waveform voltage	Sine wave, total harmonic distortion (THD) ≤3%
	Efficiency	≥94% (100% load)
	Display	7-inch LCD touchscreen display showing voltage, current, frequency, power, and power factor
Cooling method		Inverter: heat pipe cooling; Transformer: forced fan cooling
Output protection		The output power supply has comprehensive protection functions against overvoltage, overcurrent, short circuit, and inverter overheating. Considering the power load control of different vessels, an alarm signal is issued when the output load capacity reaches a certain value to facilitate power load control.
environment	Insulation resistance	DC ≥500V 20 MΩ
	Dielectric strength	AC 1800V 5mA/1 minute
	Operating temperature	-10°C-50°C
	Relative humidity	0-90% (non-condensing)
	Altitude	≤1500m
Indoor protection rating		IP22
Outdoor protection rating		IP54

Containerized High-Input, Low-Output Shore Power Supply Technical Specifications

Machine model		LA33-300K	LA33-800K	LA33-1000K	LA33-2000K	LA33-3000K
Control method		IGBT/PWM pulse width modulation method				
Input	Voltage	10KV±10%				
	Frequency	45~~65Hz				
Output	Voltage	440V, voltage (0-500V) can be set arbitrarily.				
	Voltage regulation rate	≤1%				
	Frequency	50Hz/60Hz selectable, 45Hz-65Hz continuously adjustable				
	Frequency stability	Fixed frequency ≤±0.01%, variable frequency ≤±0.1%				
	Load regulation rate	≤1% (100% purely resistive load)				
	Current	400A	1050A	1312A	2624A	3936A
	Waveform voltage	Sine wave, total harmonic distortion (THD) ≤3%				

	Efficiency	≥90% (100% load)
	Display	7-inch LCD touchscreen display showing voltage, current, frequency, power, and power factor
Cooling method		Inverter: heat pipe cooling; Transformer: forced fan cooling
Output protection		The output power supply has comprehensive protection functions against overvoltage, overcurrent, short circuit, and inverter overheating. Considering the power load control of different vessels, an alarm signal is issued when the output load capacity reaches a certain value to facilitate power load control.
environment	Insulation resistance	DC ≥500V 20 MΩ
	Dielectric strength	AC 1800V 5mA/1 minute
	Operating temperature	-10°C-50°C
	Relative humidity	0-90% (non-condensing)
	Altitude	≤1500m
Outdoor protection rating		IP65

Technical parameters of containerized high-voltage shore power supply system

Machine model		LA33				
		1000K	2000K	3000K	4000K	5000K
Control method		IGBT/PWM pulse width modulation method				
Input	Voltage	10KV±10%				
	Frequency	50HZ±10%				
Output	Voltage	6.6KV, voltage (0-7KV) can be set arbitrarily.				
	Voltage regulation rate	≤1%				
	Frequency	50Hz/60Hz selectable, 45Hz-65Hz continuously adjustable				
	Frequency stability	Fixed frequency ≤±0.01%, variable frequency ≤±0.1%				
	Load regulation rate	≤1% (100% purely resistive load)				
	Current	87A	175A	262A	350A	432A
	Waveform voltage	Sine wave, total harmonic distortion (THD) ≤3%				

	Efficiency	≥90% (100% load)
	Display	7-inch LCD touchscreen display showing voltage, current, frequency, power, and power factor
Cooling method		Inverter: heat pipe cooling; Transformer: forced fan cooling
Output protection		The output power supply has comprehensive protection functions against overvoltage, overcurrent, short circuit, and inverter overheating. Considering the power load control of different vessels, an alarm signal is issued when the output load capacity reaches a certain value to facilitate power load control.
environment	Insulation resistance	DC ≥500V 20 MΩ
	Dielectric strength	AC 1800V 5mA/1 minute
	Operating temperature	-10°C-50°C
	Relative humidity	0-90% (non-condensing)
	Altitude	≤1500m
Outdoor protection rating		IP65

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