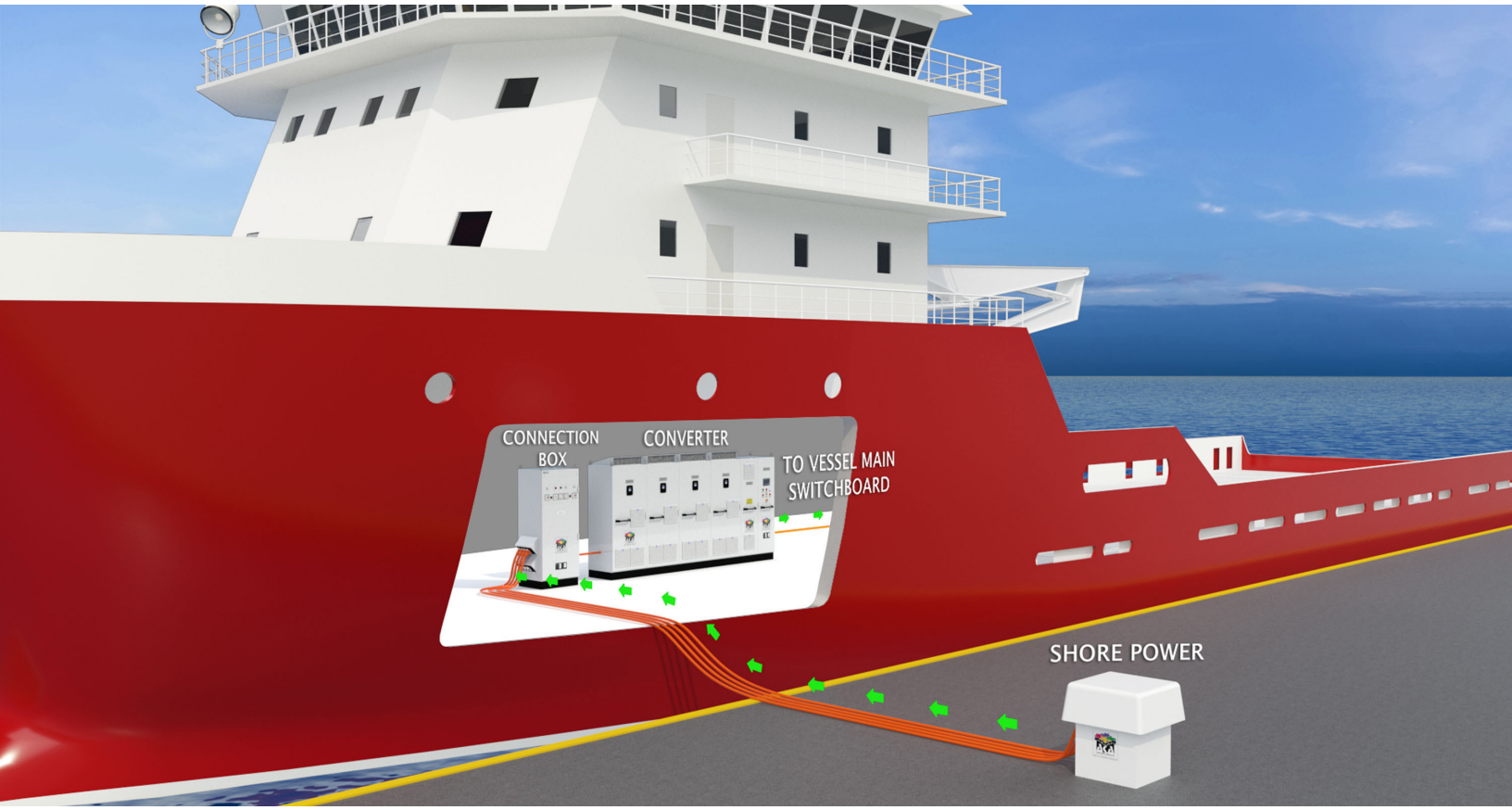
AKA SHORE POWER SYSTEMS



AKA'S CUSTOM FIT SHORE POWER SOLUTIONS ALLOW YOU TO PLUG INTO GREEN RELIABLE POWER

Aspin Kemp & Associates (AKA) shore power system is the next step in providing shipowners with electricity from the shore to help follow the environmental standards while at the port and reducing operation cost during extended port stays. Our shore power systems are the most flexible and most cost-effective way to do this.

AKA's shore power systems are customizable to allow for a wide range of voltages and power requirements to suit your vessels' need for shore power. It can also accommodate for frequency conversion where the shore power supply frequency is different from that of the ship's network.

For example, the system can convert a shore power supply of 60 Hz. to a vessel network of 50 Hz or vice versa. The ships network can also be bi-directional conversion ship to ship, bi-directional conversion for frequency stabilisation for sensitive mission equipment while at sea or dual purpose functionality using shore power system for conversion from shaft generator "variable frequency" to fixed frequency "clean power".

Our solution with all the required components can be arranged onboard the vessel in appropriate locations, or the solution can be containerized depending on the project requirements. Our shore power system is suitable for both new builds and retrofit projects.

AKA's designs utilizes commercial off-the-shelf components and can be customizable to match the existing parts to ensure spare inventory is minimized.

Our systems come fully equipped with hardware and software to allow for secure remote access and troubleshooting so that our engineers and technician can access the system from anywhere in the world. We are a vertically integrated solution provider and will include an end-to-end service, including class approved marine designs, and equipment delivery, as well as system installation supervision, commissioning, and full life cycle support.

System Features

- One-stop-shop from a proven vertically-integrated marine electrical system integrator able to provide an end-to-end shore power solution including:
  - Front-end engineering and design including surveys, feasibility studies, and system sizing, and budgeting
  - Detailed system studies, modelling, and engineering design to marine classification standards
  - Procurement
  - System production within our in-house 100,000 ft.2 manufacturing facility
  - System Testing within our integrated test bay simulating real-world conditions with live generators and real loads.
  - Installation supervision
  - Commissioning
  - Full life cycle support including field service as well as remote access and troubleshooting by AKA's engineering team.
- Customizable solutions are available to cover a wide variety of voltage, power, and frequency sources and loads.
- Advanced automation is available for seamless transfer between ship and shore.
- An available human-machine interface for complete user control and situational awareness of the shore power system.
- Onboard alarm and monitoring system providing a visual, audible, and even remote notification to alert operators of any existing issues.
- An optional data monitoring and collection system to record shore power usage over time.
- A revenue-grade power and energy meter to monitor the usage of shore power.
- Emergency stop circuits for quick and safe shutdown of the system
- Optional containerization that achieves complete environmental control over the shore power system
- Remote service and support (Access to the internet either via satellite or cellular data connection required)

System Components

Cable Reels or Cable Management Systems Are Optional
Cable reels can be provided for organized and simplified cable management and deployment. The cable reels can be manually or electrically driven.

Shore Power Isolation Transformer
They are used as necessary for voltage adaptation and galvanic isolation between ship and shore.

Connection Box
This shore power connection box can be designed and tailored for your solution. The connection box serves as not only the interface for the power cable but also the interface for the communications to the shipboard generators to allow for synchronization to shore. Key-ed cable connections and operation indication, indoor or outdoor rated enclosure are available.

Ship-To-Shore Converter Unit
A back-to-back solid-state power converter linking between 60Hz and 50Hz electrical networks. This unit is designed where the shore supply frequency is different from the ship's system. The converter unit is of modular design allowing to tailor the power rating to the vessel demand and redundancy requirements.

Control and Communication Integration Between Ship and Shore
AKA will work to accommodate with the specific shore power supply available for the vessel as well as the existing ship's automation and infrastructure to ensure a seamless transition between ship to shore power.

Pre-Magnetization of Transformers
To reduce the impact of system in-rush current from the connection of large transformers, AKA can offer an optional pre-magnetization system to limit this effect as well as reduce failures from closing onto a faulty network.

ISO 9001:2015 NSF CERTIFIED

AKA Energy Systems

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