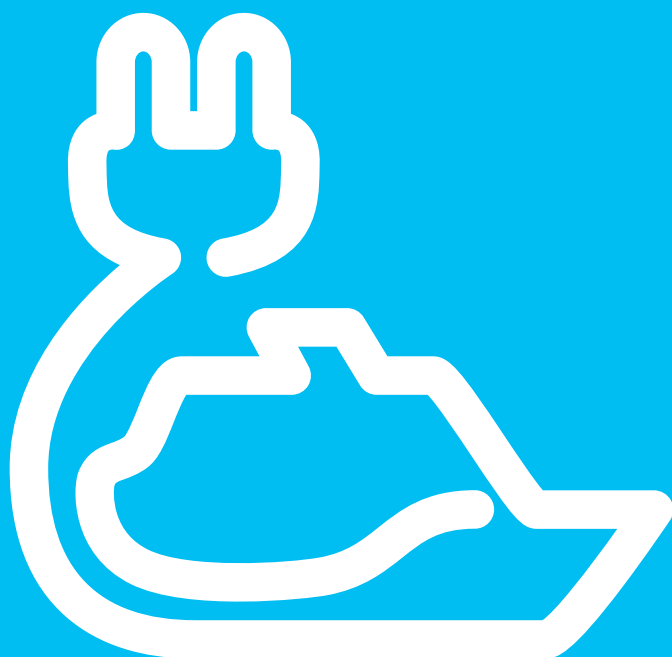


Connect to LV electrical network

Schneider
Electric



Your challenge

Provide a reliable energy to supply your ships

You have a high requirement need at berth

You are in charge of your port/shipyard operations and need a solution to supply boats with an electrical external source.

You would like to simply and effectively supply low voltage loads between 500 and 1500 kVA, converting the frequency from 50 to 60 Hz during various construction phases, maintenance (shipyard), or parking boat dock (Yacht, fluvial, Medium merchant ship), in the environmental aspect.

find a solution which considers technical, economic and environmental constraints.



You are looking for a global solution

You need a solution economically and technically adapted in response to your high requirements level

- > Obtain flexibility in the load variation
- > Possibility to extend power
- > Optimize the solution
 - Energy cost reduction
 - Easy maintenance
- > Respect the local and global standards to reduce atmospheric pollution

For this challenge your partner Schneider Electric support you and provides solutions matching your expectations.

Type of boat	Average power at berth (in kVA)
Bulk Carrier	381
Chemical Carrier	381
Ferry	900
Roro	456
Yatch	150

The best technical and most energy efficient power supply solution

Frequency conversion based with UPS solution

You are looking for an optimized solution for the electric supply of the ship at berth. In order to choose the right solution, all requirements must be considered:



- > Return on investment
- > The most advantageous technical solution
- > Your environmental approach and the respect of the current environmental regulations.

Saving

Global price evaluation has to consider not only the purchasing cost but also operating and maintenance cost in order to maintain sustainability. Indeed, all these costs can vary highly, impacting seriously the return on investment of the installation.

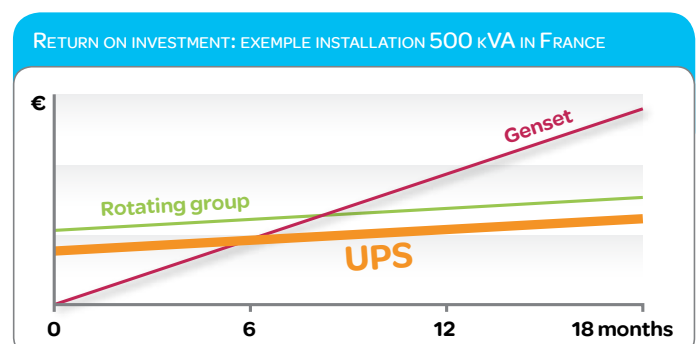
To answer to these needs shore power, 3 solutions are possible :

- > Generating sets
- > Rotating groups
- > UPS

Total cost operation COMPARIZON OF DIFFERENT TECHNOLOGIES :

	Rotary UPS	UPS	Genset
Purchase	★	★★	★★★ (rent)
Installation	★	★	★★★
Consumption	★	★★★	★
Maintenance	★	★★★	★

★★★ LOW COST ★ HIGH COST



Technical benefits

Total flexibility

UPS solution offers suitable for load variation. It allow an easy evolution if power extension is needed.

Frequency conversion

UPS (Uninterruptible Power Supply) solution answer at your need of the frequency conversion and going to bring you a choice on the supply frequency of your boat, either by carrying out a conversion of 50 to 60 Hz or 50 Hz.

High efficiency

The UPS solution has a high efficiency resulting in the reduction of energy consumption.

Low maintenance

UPS maintenance is very easily and requires limited preventative maintenance servicing. Our service team helps you to define the best maintenance contract.

Overload & Short-circuit

UPS solution offer the best protection in case of oveload and short-circuit.

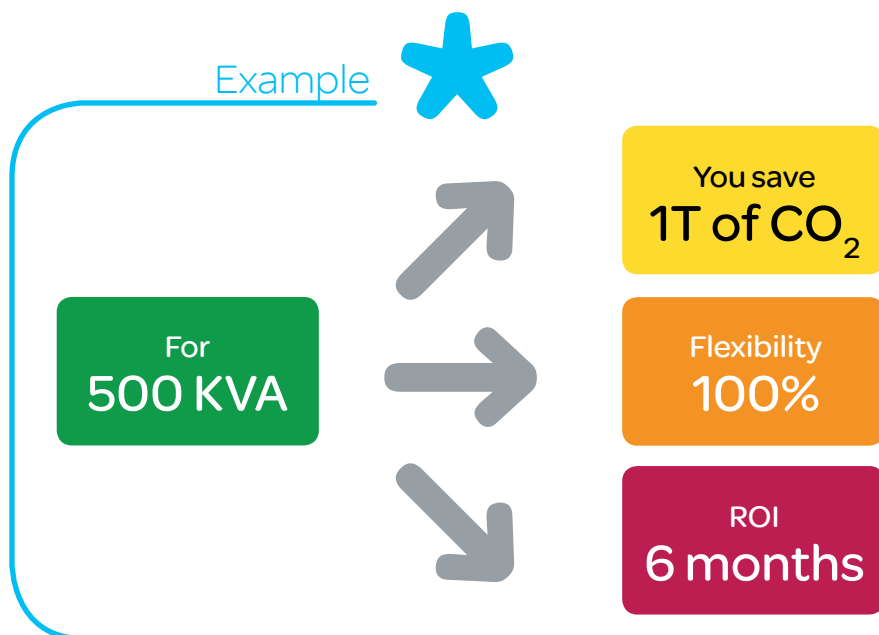
Pollution

Reducing CO2 emission

The total CO2 emission reduction depends how the electricity being used is produced. In the European union, the use of shore-side electricity rather than electricity generated by a ship using low-sulphur fuel will cut CO2 emissions by an average of 50%.

Elimination of noise and vibration

The main cause of noise pollution in ports is the use of auxiliary diesel engines to generate electricity on ships. This noise can reach 120dB near the engines, and the associated vibrations are unpleasant for the crew, passengers, and port personnel. However, all of this noise can be eliminated using a ship-to-shore connection system.



Schneider Electric offers MGE Galaxy 7000 GFC solution that will meet all of your financial expectations.

MGE Galaxy 7000 GFC

The shore connection standard offer

Schneider Electric solution for the frequency conversion based UPS



Easy integration into electrical networks

Schneider Electric, a leader in harmonic management, has built a true IGBT rectifier into the MGE Galaxy 7000. Upstream THDI is less than 5% and the input power factor is greater than 0.99.

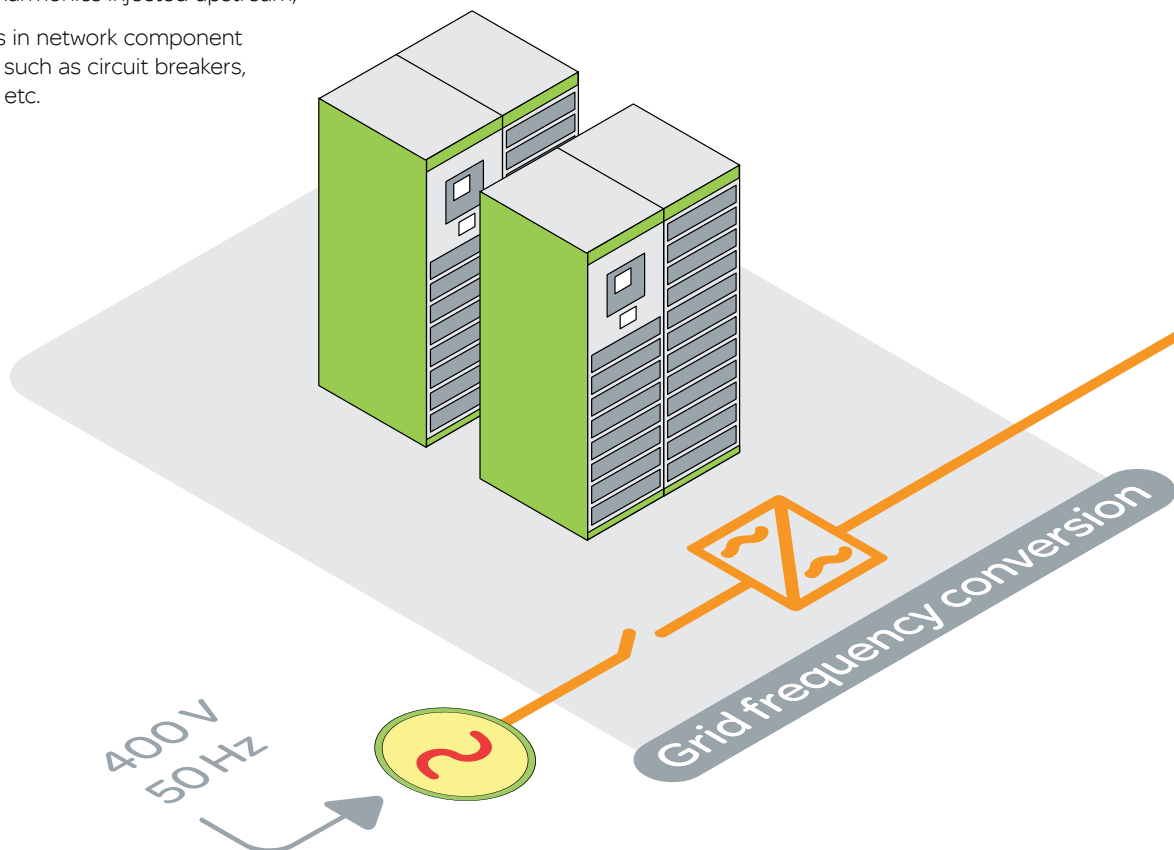
- > Less reactive power,
- > Fewer harmonics injected upstream,
- > Savings in network component ratings such as circuit breakers, cables, etc.

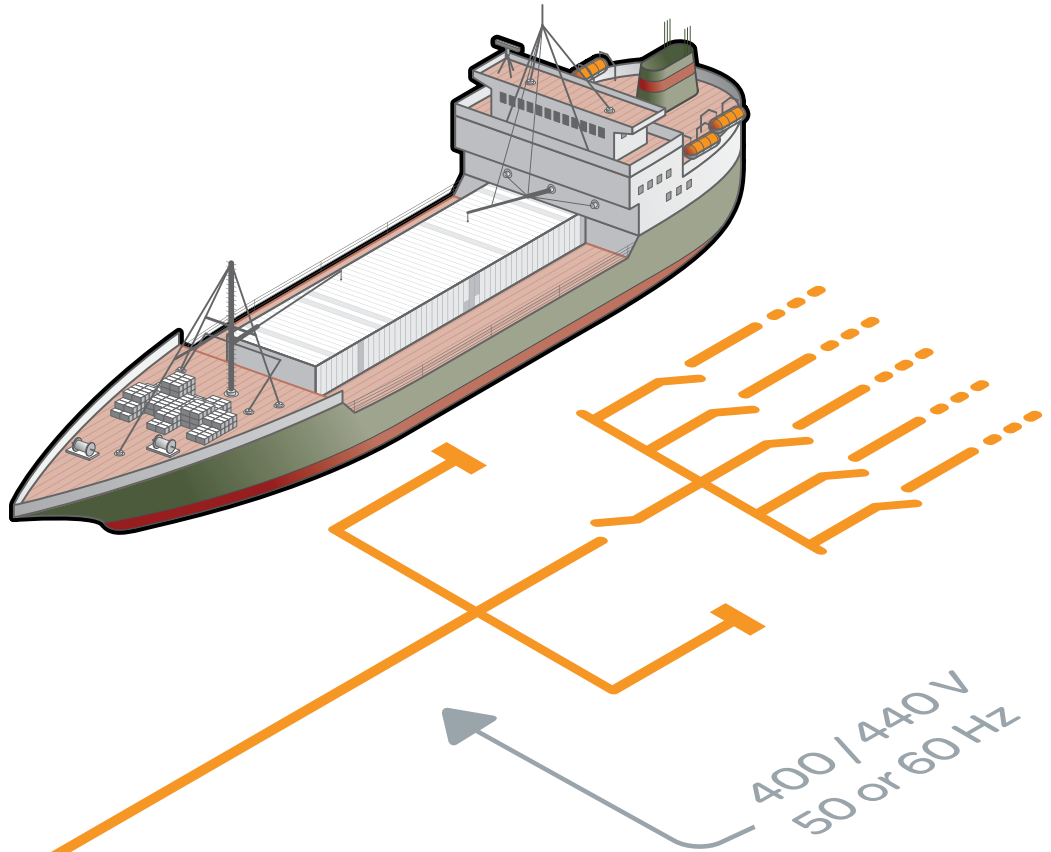
Up to 94.5% efficiency means significant savings

The innovative technology built into the MGE Galaxy 7000, including digital electronics for better and faster regulation, an IGBT rectifier and transformerless design, results in high efficiency.

Benefits

- > Energy savings to cut costs.





Clean, stable output waveform

The digitally controlled IGBTs and high technology output filter provide a very clean, stable output voltage waveform with less than 2% total harmonic distortion (THDU), even for:

- > Stepped load switching,
- > Unbalanced loads.

Benefits

- > Optimum supply for loads,
- > Increased life expectancy for the protected equipment.

Sized for harsh environments

Robust electrical performance

The sizing and quality of power components result in unsurpassed output performance for MGE Galaxy 7000:

- > High fault-clearing capabilities,
- > High load crest factor > 3:1,
- > Excellent voltage stability, even for stepped load switching or unbalanced loads,
- > Designed for any type of load from industrial,
- > No derating, even for loads with a leading power factor.

Benefits

- > High fault-clearing capacity for better discrimination in the electrical network,
- > Compatibility with all types of loads.

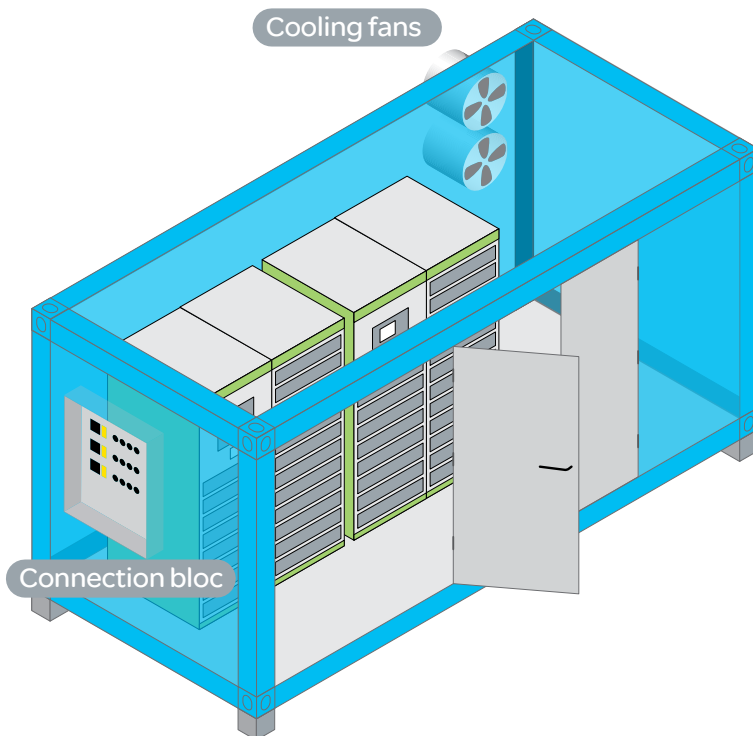
What can Schneider Electric do for you ?

Integrated solution

Schneider Electric offers a fully self-contained shelter solution.

The advantage of this global solution is:

- > The ease of mobility,
- > The installation as close to the boat,
- > Protection against harsh environment saline, humidity and dusty environments.



Application team

A team dedicated to design, quote and manufacture the modifications of standard product to answer at the application related to ups environment.

Examples :

- > Products Electrical & Electro-technical customization (By-pass and distribution cabinet, Battery circuit breakers),
- > Mechanical product customization,
- > Product range re-design and up-grade (STS up to 1200Amp, G7K Static By-pass Switch up to 4000 Amp),
- > Specific project management.



Leader for shore connection activity

Unrivalled means of R&D development

Safely and reliably transform the energy of the power grid to the standalone network of the ship, Schneider Electric has simulated in the lab the real conditions of a shore connection.

Tested

The real electrical operation of a boat was produced by a 1MVA diesel generator with variable charges that allows the reproduction of the electrical behaviour of all types of vessels: ferries, container ships, cargo, tankers, and cruise ships.

Approved

This concentration of innovation and technology is completely adaptable and flexible for a perfect combination with all port conditions around the world. The MGE Galaxy 7000 GFC has passed successfully all the steps of this process.

Validated

The reproduction of connection and disconnection cycles enables the reproduction of the interface like that which the user would find on the site, allows for the verification by simulation of the reaction of the system, and helps ensure the optimum safety of users.

Documented

In addition to strong Schneider Electric support, customers receive a full set of documents and trainings to achieve all the benefits from the solution.



Go further with Turnkey solution for ports and ships

Your needs

- Synchronisation between ships and shore
- Power from 1 up to 20MVA
- MV connection
- With or without frequency conversion

SE provides also a variety of comprehensive solutions, including a fully integrated system, compliant with the international IEC/ISO/IEEE 80005

- Ready to use
- Safe and reliable
- Scalable and movable
- Optimized footprint
- More than 100 shore connection solutions have already been installed in a number of ports across the world.

For more information :
www.schneider-electric.com/shore-connection



References

Trusted industry partner

Ship building

Customer Brest harbor chamber of commerce

Our Solution

Offer :2x400 kVA in parallel installed on the existing building.

Needs Supply a board at berth and reduce contamination on Brest area

Customer Benefits

Schneider Electric sales team helped and worked with a chamber of commerce to realised the project.



Service

Services solutions from a trusted adviser

3 Phase and Cooling services

Schneider Electric™ Critical Power & Cooling Services (CPCS) provides the highest quality services and solutions by trained and trusted professionals. Our world-class services offer a smart way to build, operate, and maintain your critical applications, ensuring the right people, in the right place, at the right time.

Assembly and Start-Up Service

Assembly and Start-Up Service by a certified Field Service Engineer (FSE) ensures full factory warranty coverage. A Schneider Electric certified installation of your solution ensures your equipment is properly and safely configured for optimal performance. This service features a standard 8-hour, 5-day response time, with upgrades available for off-business hours.

Advantage Plans

Flexible service packages offer hassle-free system maintenance to improve uptime at a predictable cost. These packages provide your system with the care it needs to operate most efficiently while minimizing downtime. The Advantage Plus, Premier, Ultra, and Max are full-service packages that include technical support, preventive maintenance, quick on-site response, and remote monitoring. Response time upgrades are available.

Remote Monitoring Service (RMS)

RMS is an economical and easy-to-use Web-based service that lets you quickly respond to environmental or system changes. Trained technicians provide secure 24-hour monitoring of your physical infrastructure to diagnose and resolve problems before they become critical.

Preventive Maintenance

Preventive Maintenance on-site examinations of your critical systems are designed to prevent problems before they occur and keep your system running at maximum efficiency.

Packages ¹	Advantage Plus	Advantage Premier	Advantage Ultra
Annual preventive maintenance visit	✓	✓	✓
Next Business Day on-site response ²	✓	✓	✓
Remote monitor service	✓	✓	✓
Technical support	✓	✓	✓
Parts ³	Discounted rates	Discounted rates	All included
Labour and Travel	Standard rates	All included	All included

¹: Only valid on Smart-UPS, Galaxy, Symetra, Epsilon and AccuSine range.

²: Upgrades to an eight-hour or four-hour on-site response time and upgrade to 24/7 preventive maintenance service may be selected where available.

³: Batteries and proactive replacement of parts not included.

To learn more about Schneider Electric solutions visit www.schneider-electric.com
Try our FREE, web-based applications to experiment with virtualization, efficiency and more at tools.apc.com

Make the most of your energySM

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