



Secure Power solution for marine and offshore

Unique environment require specific solutions

[schneider-electric.com](https://www.schneider-electric.com)

Life Is On

Schneider
Electric



New trends create challenges for your operations

Digitalization in Marine and Off Shore industries

Like for all industrial process digital technologies allow to optimize the running in shipping and drilling industries. Up to now data is basically used for analyze in case of issue or standard running. More and more the data will be collected to have a predictive action on the global running of the ship or the rigs.

The benefits in efficiency, security and energy savings are substantial but require data and power protection. The marine and offshore industry is only at the dawn of its digital journey, but the future is promising.

The availability of electrical power at sea is critical

In additions the specificities and evolution of those activities make more difficult to achieve goals like:

- Reduce OPEX.
- Ensure compliance with regulations:
 - on board Maritime Classification Society Rules
 - off and on shore (IEEE/IEC/ISO 80 005 1-2-3)
- Secure good running of the installation:
 - Ban black out on critical loads putting life, resources and the environment at risk.
 - Guarantee customer delivery of goods in time and good state
 - Local and remote monitoring: consumption, device status and alarms, pre maintenance
- Make maintenance and repair
- Extension of the vessel lifetime from 25 to 35 years
- Protect Data collection and management.

Schneider electric aims to hit all these challenges at 3 levels

From the early design stage, and throughout ship life, you are ensured of expert assistance to adapt our solutions to your specific needs: economical, logistical, implementation, maintenance and refurbishing.

Data protections

Schneider Electric is the leading full-service data center solutions provider from rack to row to room to ship. Offer includes Power Protection, Cooling, Enclosures, Management Softwares, Analytical tools and a full suite of Services to optimize data availability.

Lowers your energy costs through high efficiency

Very High efficiency with multi mode energy management even at very low load levels, up to 99.5%.

Unique supplier: Standard offer and 100% Marine Type Approved

- Guarantee a running under real condition and along the time:
Our UPS are marine type approved which is based on very stringent tests and repetitive audit plant.
- Maintain a constant dialogue with maritime bodies like DNV-GL, BV, ABS, LRS, KRS and CCS, and others. By maintaining these relationships, we ensure that each UPS solution is 100 percent compliant with marine rules.

We are where you are and when you need support

Schneider Electric can help you save time by providing tailored services worldwide via One Single Point of Contact and we have a dedicated organization for marine and of shore activities covering all seas and oceans. You are connected to our platform and experts, results in better informed decisions and earliest maintenance actions on board wherever your ship/rig is located.

- Cost savings with reduced downtime and restart time.
- System troubleshooting, repair and maintenance by a manufacturer's expert with the guarantee of performances. Improvement of installation safety, availability, reliability and quality.
- Expert recommendations.
- Installed base registration and monitoring by Schneider Electric registration tool.



Off Shore applications

1 Control rooms

- SCADA systems, measurement systems, pipeline monitoring
- Well pumps, compressors, reactors, gas processing, desalters, HVAC control panel
- Single-phase and three-phase UPS, DC rectifier; 1 - 1,000 kVa

2 Security, Data, Control rooms, Navigation

- Emergency lighting, video surveillance, firefighting, access control
- SCADA systems, measurement systems, pipeline monitoring
- Meteorological systems, Network
- Data processing, cybersecurity, energy management
- Telecommunication and navigation systems, beacons, positioning systems
- Single-phase and three-phase UPS, DC rectifier; 1 - 500 kVa

3 Security

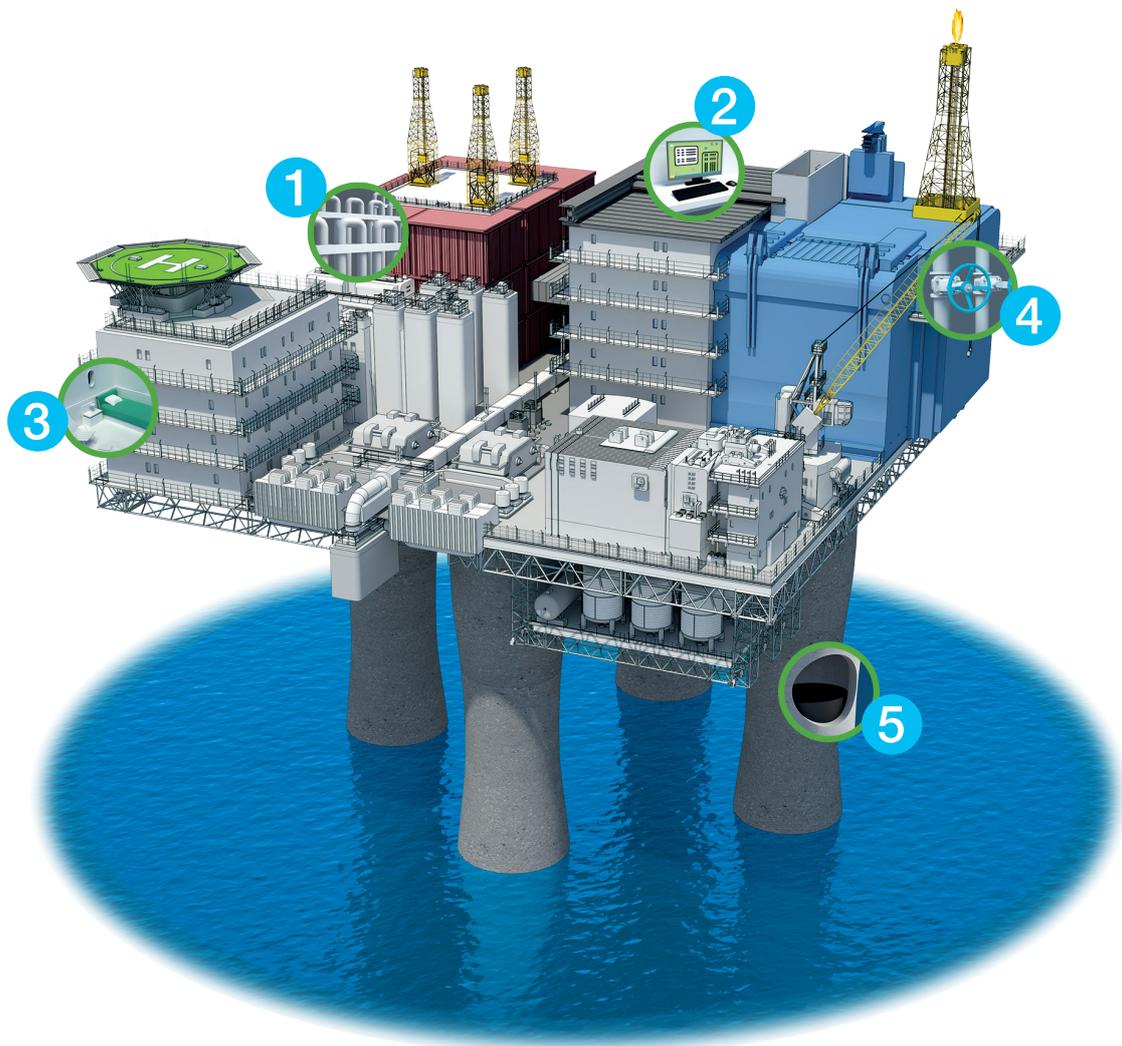
- Emergency lighting, video surveillance, firefighting, access control
- Single-phase and three-phase UPS, DC rectifier; 1 - 500 kVa

4 Process control

- Instrumentation, metering systems, pipeline monitoring, DCS/PLC, RTU, substation automation, motor and gas turbine control
- Single-phase, Three-phase UPS, DC rectifier; 1 - 1,000 kVa

5 Process systems

- Well pumps, compressors, reactors, gas processing, desalters, HVAC control panel
- Single-phase, Three-phase UPS; 1 - 1,000 kVa



Customized solution and harsh environment

Gutor AC and DC Systems are Pre-engineered or engineered solutions for unique requirements

Three-phase UPS: Gutor PXC, Gutor PXP, Gutor PxW Inverter: Gutor WxW

The Gutor UPS's (5 up to 220 kVA*) are successfully tested under extreme environmental conditions as well as under seismic conditions. With a very flexible design, they can meet nearly any requirement.



* Higher ratings on request



- **Double conversion topology UPS** for ultra-high efficiency and power protection with harmonic free input rectifier
- **High protection** class IP42 up to IP54 as an option, Dust Filter
- **Backup times** 10 min up to 2 hours and 8 hours on request
- **Seismic design** up to 2g
- **Wide temperature range** from -10°C up to 55°C
- **Full-front service access**
- **IEC and UL standard**
- **Elevation: up to 1000m without derating, above contact us**

DC Rectifier: Gutor SDC

The Gutor SDC is very flexible and can meet specific requirements and a wide range of backup times.

Similar to the other products built on the xxW platform.

The Gutor SDC withstand the harshest environmental conditions.



- **Output voltage VDC** 24 up to 220V
- **Output Current** 25 up to 1200 A
- **Ambient temperature range** from -10 to +55°C
- **Battery management system**
- **Communication interface**
- **IEC and UL standard**
- **Seismic design** up to 2g

For further information on products please go to www.schneider-electric.com

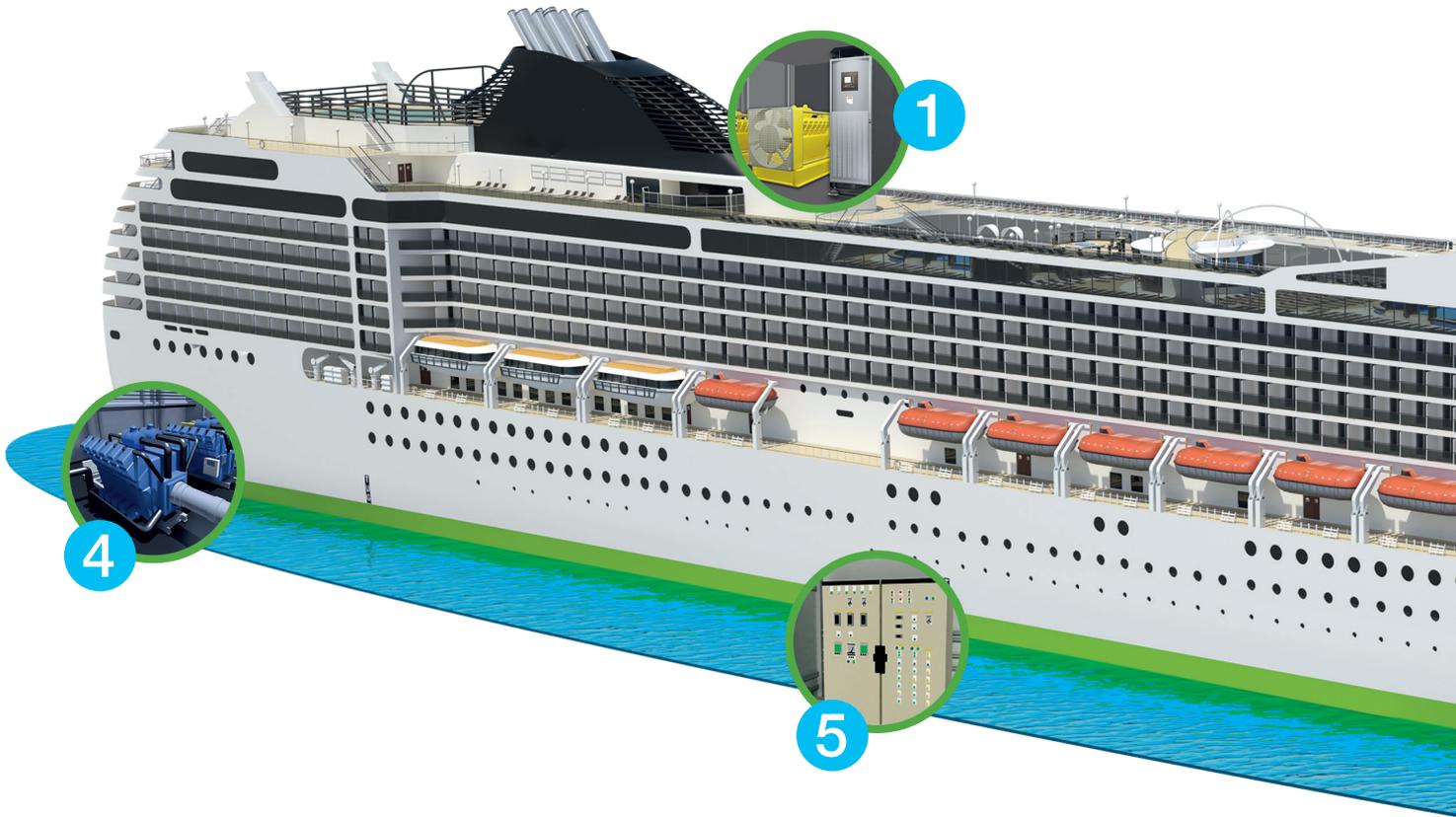
Marine applications

A complete range of solutions for the marine environment

1 Transitional sources and emergency lighting

Passenger ships

- UPS in dedicated room, or in the emergency genset room
- Three-phase 80 - 400 kVA UPS, 30 min
- Passenger ship
- Water cooled units to manage emergency situations
- Chillers up to 400 kW



4 Propulsion systems and automation

All types of merchant and passenger ships

- UPS located in the control room/engine room/main switchboard room
- Single and Three phase 5 - 40 kVA UPS
- Chiller in Technical room
- Precision cooling (5 to 30 kW)

5 Electric shore connection

- Frequency converter for berthed ships and harbor
- Three-phase frequency converter, 500 to 20 MVA

IT network solution

- Rack & PDU
- Single phase UPS 1-5 Kva

2 SOLAS applications (emergency transitional lighting, public address, VDR, watertight bulkhead, fire doors, etc.)

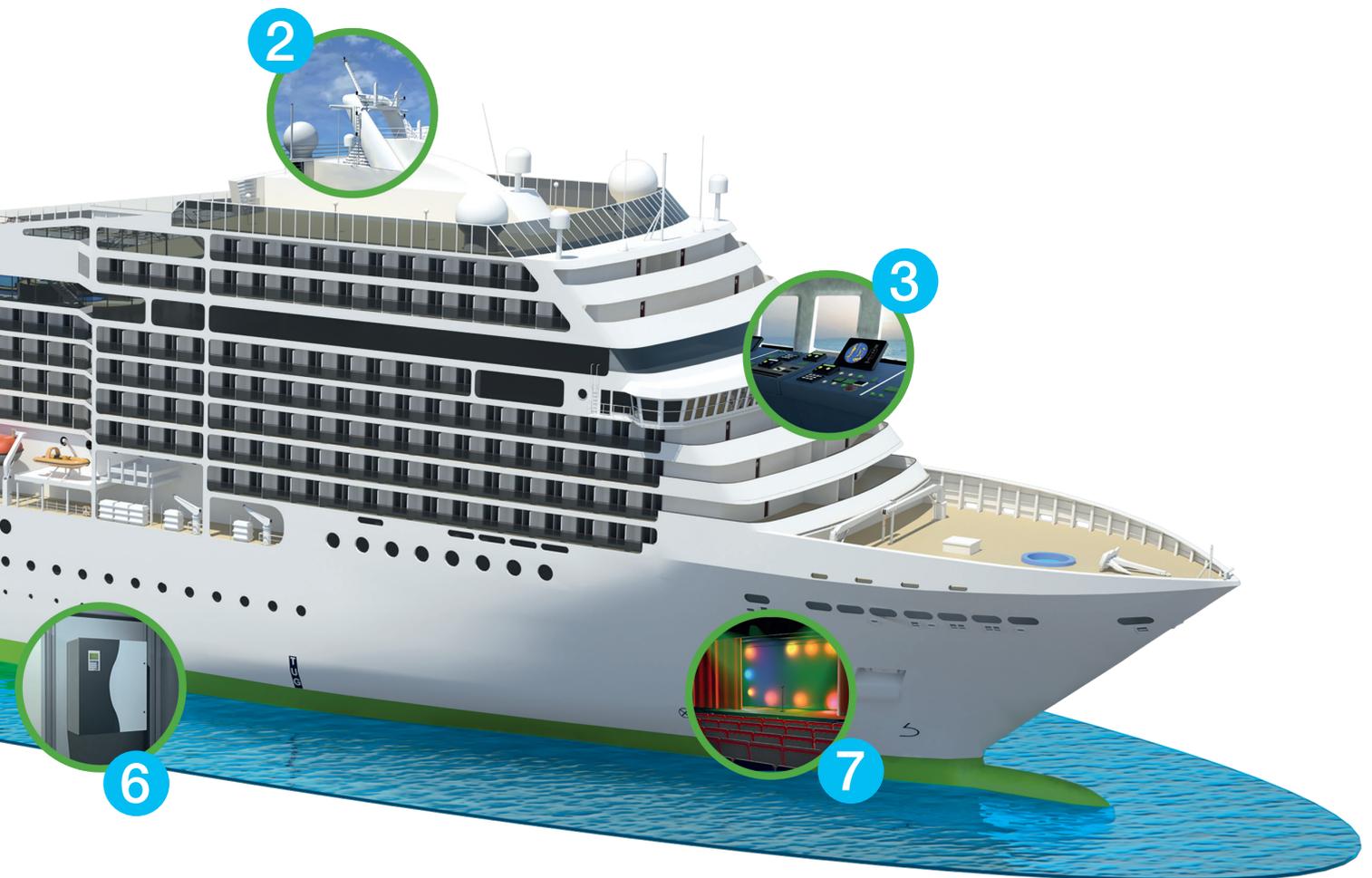
All types of merchant and passenger ships

- UPS units spread out in small technical rooms within the ship
- Single- and three-phase UPSs from 1 to 400 kVA
- Single-phase 800 - 2000 VA type approved UPS for Voyage Data Recorder

3 Navigation and transmission systems

All types of merchant and passenger ships

- UPS located in the wheelhouse
- Single- and three-phase 5 - 60 kVA UPS



6 Low-voltage active filter against harmonic pollution

- Active Harmonic filter, range: 20 - 120 A

7 Sound and light systems - management computing

Passengers ships

- UPS located near the theater or broadcast room or casino
- Single- and three-phase 10 - 80 kVA UPS

Secured power for marine environment

Smart and Galaxy solutions are designed to work on standard electrical room conditions

Single-phase UPS: APC Smart UPS

Smart-UPS RT models protect your critical hardware from damaging surges and power failures, boosting availability levels for critical applications. Units are available in both tower and standard 19" rack formats, mounted in just 2U of space.



- Available from 1 to 6kVA, 50 and 60Hz
- Designed to be installed in racks or cabinets
- Hot-swappable, user-replaceable batteries
- Modbus communication enabled
- IEC and UL standard
- Marine type approval

Three-phase UPS : MGE Galaxy 5500 / VM

Schneider Electric UPS line is at the top of its class. The three-phase UPS units, Galaxy ranges, 10-1000 kVA, come parallel-ready to give you the highest power availability for your most critical applications. Both models come with small footprints and flexible designs, readily adaptable and scalable to handle each power event without a break in service.



- **Double conversion topology UPS** for ultra-high efficiency and power protection with harmonic free input rectifier
- **Comes parallel-ready**, so you can pay as you grow and meet your future needs
- **Designed to be compliant** IP20, IP32 on option and IP44 (upon request) Backup times up to two hours
- **Fault-tolerant architecture** due to automatic and maintenance bypass in a compact footprint
- **Full front access** with a user-friendly interface
- **Operating temperature:** 0 to 40°C
- IEC and UL standard
- Marine type approval

Data center and Edge computing

These solutions solve specific problems that address space, speed, and reliability

SmartBunker FX

Our data center solutions protect and optimize data centers. Choose Schneider Electric if you want expert data center solutions that provide the following advantages:

- Simplify and speed up planning, designing and building your data center
- Roll out and implement software defined data centers
- Protect on premise applications operating in tough environments
- Optimize costs and performance by balancing on premise and cloud-based applications
- Secure critical process applications independent of developments in digitized processes and applications, as needed for the future
- Monitor, automate and control your entire data center physical infrastructure with integrated DCIM.



For ruggedized Environments

- 23U and 42U
- 5 and 8kVA UPS
- **Electrical Input panel**
- **Netbotz environmental monitoring**
- **1 Switched Rack PDUs**
- **Active DX cooling solutions**
- **Thermal insulation**
- **Sealed enclosure**

Reference and customized solution for cooling

Emergency water chillers

High performance BRWC chillers are ideal to manage emergency situations in case of breakdown of the primary cooling system, using sea or fresh water for condensation.

Engineering-to-order design. Cooling system design can be adjusted to fit a specific application.

Heat exchangers treatment. Protects air side heat exchangers in saline or aggressive environments.

Redundant components. Redundancy is applied on the critical sections of the units to guarantee continuous operation.

Dual A-B power inputs. Draws power from the secondary line for power protection with dual feeds for redundancy.

Easy to use. The local user terminal displays all unit settings and data points.

Network interface. Provides management by connecting the device directly to the network or to the management system.



- Aquafair Water-cooled chillers 400 - 1,500 kW.
- Sea water condensers.
- Reliable and customizable design.
- Double refrigerant circuit.
- Single or double power supply.
- Integration on the Ship Management System.



Precision air conditioners

Leading-edge precision air-conditioning technologies integrated into one high-efficiency system, designed for heat dissipation in technical rooms, like server rooms, broadcasting centers, sound and light systems.

Microprocessor Controller. Allows unit to restart without intervention after a power failure; monitors all components and displays any malfunctions; manages emergency conditions and deactivate heaters and humidifiers while still maintaining basic cooling needs.

Compact, low weight, easy to install and handle even in confined spaces.

Frontal access for all maintenance and minimal service clearance.

Multiple configuration options and customized solutions.



- Uniflair Direct Expansion and Chilled Water.
- Precision air conditioners.
- Compact dimensions and simple installation.
- High reliability and management of emergency conditions.
- Versatile configurations and options.
- Integration on the Ship Management System.



Peace of mind, anytime, anywhere

Services for every stage of your equipment's life cycle

Schneider Electric services offer the benefits of our expertise, from the early planning stages through hardware maintenance and eventual replacement. But these are just a few areas where you can put our services to work for you, saving you time and money, and guaranteeing you the peace of mind you need to successfully run a business.

Among the tools and services we offer: Design

- To help you define a durable protection system, designed in accordance with the relevant electrical standards.

Implementation

- Installation & commissioning: To ensure efficient and safe power protection, installation, and start-up in compliance with manufacturer's recommendations.

Operation

- Preventive maintenance: To improve installation availability and prevent all risks of failure, plans are developed for replacement of defective components or subassemblies during a scheduled corrective maintenance inspections.
- Maintenance contracts: To ensure total peace of mind through full coverage of your UPS including guaranteed response time, 24-hour support, and access to original spare parts.

- Battery monitoring: To take full advantage of the total backup time of the batteries and maximize their lifetime at site.
- Training: A full training program for your staff; various courses are available to cater to different technical competencies and needs.
- Spare parts: To ensure original component supply in strict compliance with manufacturer specifications through our worldwide network.

Refurbish

- Battery replacement: To enjoy return to full backup time required for satisfactory operation of your sensitive applications.
- Replacement program: To enjoy the reliability of a new updated installation, with the best performance/cost ratio, in compliance with marine regulations.



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

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