

Marine & offshore UPS

# Power protection on board



**EATON**

*Powering Business Worldwide*



# Powering business worldwide

It all began in 1911 with Joseph Eaton. In a time when transportation was on the verge of dramatic change, he invested in a new idea – the very first gear-driven truck axle. More than 100 years later, though our business has transformed and grown significantly, we remain committed to his spirit of innovation.

## We make what matters work.\*

\* At Eaton, we believe that power is a fundamental part of just about everything people do. That's why we're dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because this is what really matters. And we're here to make sure it works.

To learn more go to: [Eaton.com/whatmatters](https://Eaton.com/whatmatters)



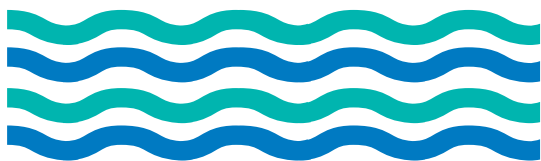
# Over 40 years of Marine UPS expertise

Finland has a rich maritime history and Eaton's marine industry experience stretches back **over 40 years** to the first introduction of UPS systems for Finnish ice-breakers, perhaps the coldest and harshest of all environments, where extreme vibrations could easily damage all but the most **robust equipment**. Since then, Eaton has continued to deploy thousands of marine UPS systems in ships and offshore applications around the world.

## State of the art UPS systems

Eaton Marine uninterruptible power supplies (UPSs) are **specially engineered** for shipping environments and applications, built to meet or exceed industry standards. The UPSs are designed **to protect** critical onboard functions and processes, such as navigation, communication, bridge equipment, lighting and automation, as well as provide auxiliary power for engines and safety systems.

**40** Marine  
UPS   
years expertise



# Products



## Eaton 9130 Marine

<b>Power rating</b>	1.0; 2.0; 3.0 kVA
<b>Typical applications</b>	Navigation, communication, automation, bridge equipment
<b>Installation</b>	Tower with mounting rails and vibration absorbers
<b>Approvals</b>	DNV and ABS type approval



## Eaton 9PX Marine

<b>Power rating</b>	1.5; 3.0 kW
<b>Typical applications</b>	Small servers and storage systems, Bridge equipment
<b>Installation</b>	Rack / Tower (free standing)
<b>Approvals</b>	DNV GL type approval



## Eaton 9155 Marine

<b>Power rating</b>	8 - 15 kVA
<b>Typical applications</b>	Navigation, communication, automation, bridge equipment
<b>Installation</b>	Tower with mounting rails and vibration absorbers
<b>Approvals</b>	DNV type approval, BV type approval and ABS PDA (up to 15 kVA) Other: Classification survey certificate on request





### Eaton 93PS Marine

<b>Power rating</b>	8 - 40 kW
<b>Typical applications</b>	Navigation, communication, automation, bridge equipment, emergency lightning, engine rooms, computer rooms, EPOS
<b>Installation</b>	HotSwap modular design with mounting rails and vibration absorbers
<b>Approvals</b>	DNV GL type approval Other: classification survey certificate on request



### Eaton 9PHD Marine

<b>Power rating</b>	30 - 200 kW
<b>Typical applications</b>	Emergency lightning, EPOS, computer rooms, centralized systems, engine rooms, drilling equipment
<b>Installation</b>	Modular tower design with mounting rails and vibration absorbers
<b>Approvals</b>	Classification survey certificate on request

### Marine type approvals and certifications

Eaton has type approved UPS models available up to 15 kVA and is working for system testing and certification with:

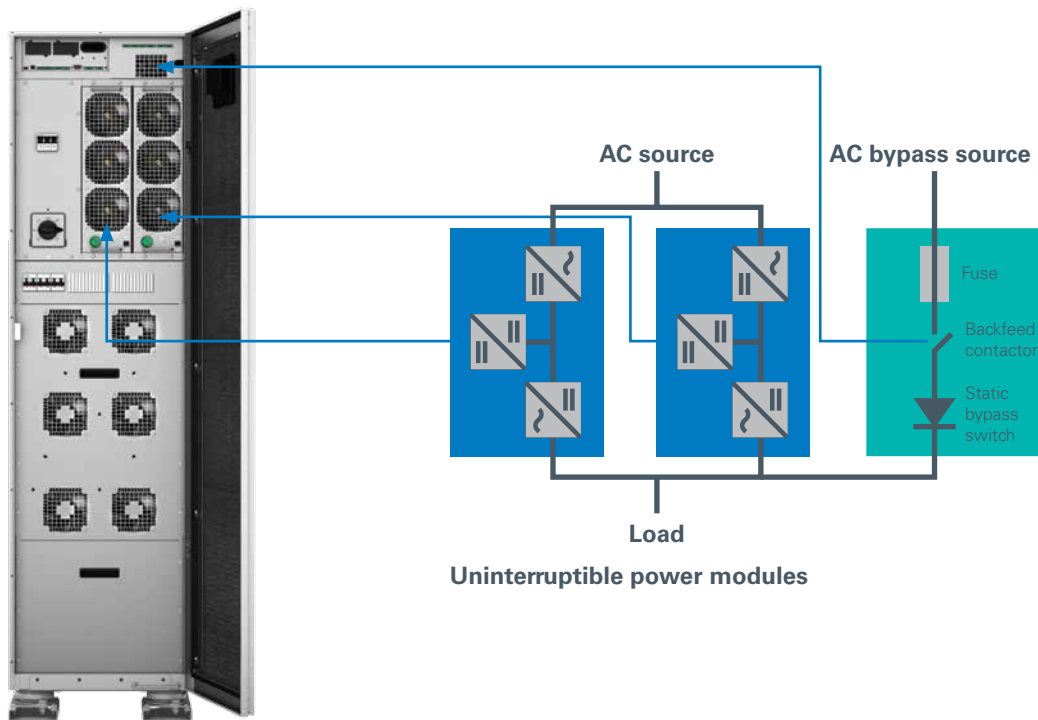
- Lloyd’s Register of Shipping (LR)
- American Bureau of Shipping (ABS)
- DNV GL
- Bureau Veritas (BV)
- RINA
- Korean standard (KR)
- China Classification Society (CCS)
- Russian Maritime Register of Shipping (RMRS)

# Technology

Eaton's modern portfolio of marine grade UPS products is specifically designed to excel in the demanding shipborne environment. Beyond the rules and regulations we work to bring the latest technology and highest efficiency for marine and offshore applications. All Eaton marine UPSs are tested and certified to meet the appropriate safety, EMC and mechanical requirements for marine use. We ship our products with the type approvals or project certificates as per customer need.

## State of the art double conversion

**The double-conversion online topology** topology is the preferable choice for marine use. This protects against all types of power disturbances and is the only topology that meets the highest performance class, VFI-SS-111, requirements.



## Benefit from modularity

In our modular products, each power module includes all the components needed to **support the load independently** – IGBT rectifier & inverter, battery charger, and the microprocessor controls. With Eaton **Hot Sync** no communication between modules is needed for load sharing. Modularity enables configuring redundant system within single frame. Modular design also offers significant **benefits considering the serviceability**.

## Safety and selectivity

The static bypass is rated for the full UPS power. This configuration allows optimizing the hardware for your load profile and selectivity. Our static **bypass design includes the back feed contactor and protective fuse** factory installed and tested. This ensures the installation is safe and complies with standards with minimum design effort needed.

## Intelligent and informative charger

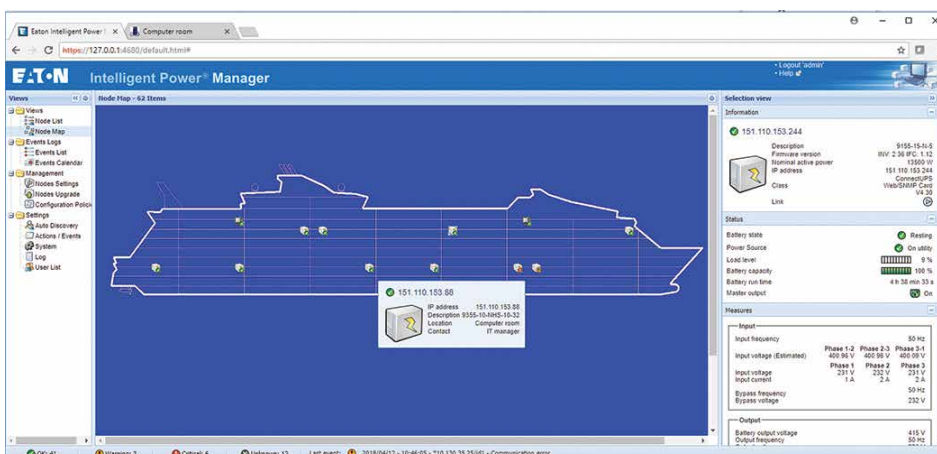
Batteries are the single most expensive and at the same time most vulnerable part of a UPS. Eaton's **Advanced Battery Management (ABM) technology extends the life of the batteries** by applying sophisticated logic to the charging regime. ABM provides **built in battery condition monitoring and early warning** about the end of battery life with no added cost or hardware.

Our charger supports temperature compensation and has a boost charge functionality to further ensure correct conditions for various batteries. With Eaton marine UPS products you can choose your power or energy **reserve from Li-Ion, NiCd or VRLA batteries to Eaton Super Capacitors** to truly optimize your UPS system according to your back-up time, weight, footprint, battery life and budget requirements.



## Monitor and manage

**System performance monitoring** is often crucial for efficient operation. A wide range of remote management options via serial communication ports and potential free contacts are available.





# Applications





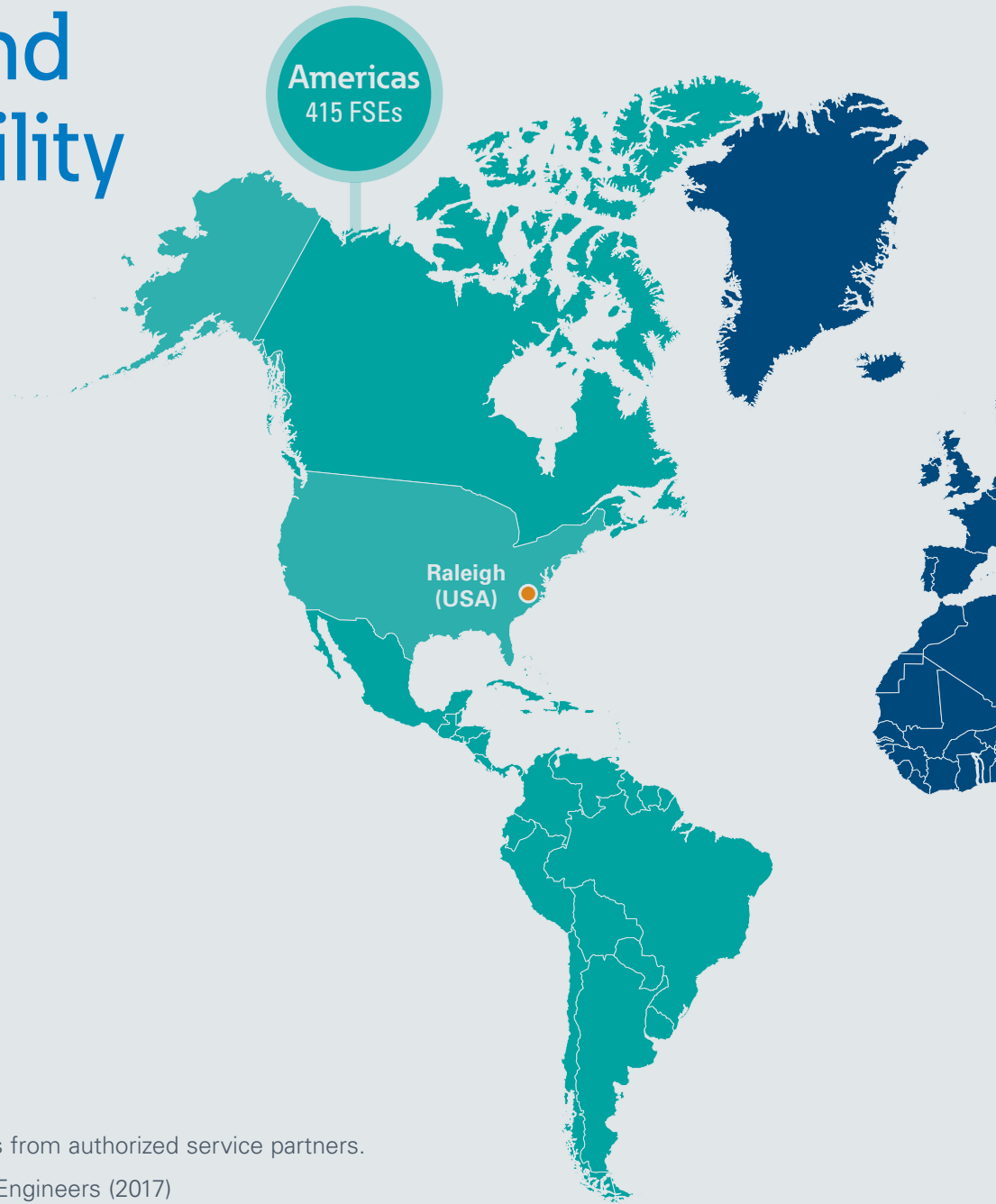
Eaton has the pleasure to work with top shipping companies and ship builders around the world. Our list of references includes UPS deliveries for a wide range of vessels from cruise liners and ferries to ice breakers and dredgers; from LNG carriers and cable ships to oil rigs.

**Powering marine and offshore applications:**

- Satellite communication
- Internal cable TV
- Ship automation
- Intercom, security camera systems
- Dynamic Positioning System
- Emergency Public Announcement
- Azipod control
- Business and customer satisfaction
- Water-proof doors
- Emergency lighting
- Power distribution, filtering
- Voyage Data Recorder
- Control/monitoring system
- Navigation equipment
- Computer systems
- Radio and telecom
- Cash registers (EPOS)



# Service and serviceability



\*The numbers do not include FSEs from authorized service partners.

\*\*FSE = Eaton UPS Field Service Engineers (2017)

The serviceability of the Eaton Marine UPSs is the result of close relationship with R&D and customer quality functions. When you choose Eaton UPS on top of reliable and serviceable product, you also have access to **Eaton's global UPS service coverage with more than 1200 UPS service specialists** ready to serve you and your UPS hardware. For UPS units located in remote and hard to access locations, we offer remote monitoring and event management through the optional communication options.

If you need **increased autonomy over UPS service**, Eaton also welcomes you to join our **service training facility** that covers all 3ph UPS products sold in the EMEA region to get UPS model specific service training. Together with proper training, pre-engineered spare parts kits and the Eaton UPS's design for serviceability you can gain greater autonomy over your UPS service for that extra layer of certainty.

Ask your local sales office for more information or visit [eaton.com/UPSservices](http://eaton.com/UPSservices)





### Control your on-board power, globally

Eaton offers service options for marine end customers to provide a support package which helps to increase the ability of the on-board electricians suitably trained to independently maintain and service their UPSs in the vessel at all times.

There are two service packages - **Maintain and Repair** - to choose from, depending on the level of autonomy you wish to gain. Initially, with the package you will receive training for the local personnel and a spare parts kit, and the yearly contract that allows you e.g. 24/7 hotline service and firmware upgrades.

**MAINTAIN service package** To commission and run the periodical preventive maintenance independently

**REPAIR service package** To run basic corrective service independently in addition to Maintain service package and to receive additional benefits



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Printed in Europe  
Publication No. BR153054EN / CSSC-992  
April 2018

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