

# Eaton 9PHD Marine UPS

30–200 kW



Designed, Manufactured  
and Tested in Finland

## Strong and Smart Power Protection Designed and Certified for Marine and Offshore

### Designed for marine and offshore environments

- Marine certificate from any marine classification society
- Marine vibration tested units
- Halogen free cables
- IP23 protection
- Conformally coated PCB boards
- Cable area designed to support marine cabling practices
- Vibration dampers and installation brackets for floor and wall
- Door handle, stopper and triangle key included

### Strong design for demanding environments

- Protection against dirt, dust, water and moisture with cover options up to IP54
- 1.5mm cover plates for robust use
- Protection for touch screen display

### Smart technology for maximizing reliability

- Large touch screen display for easy operation and reduced risk of human error
- Modular design allows building fault tolerant N+1 units
- Redundant monitored cooling fans in each power module
- Battery start feature
- Eaton's unique Hot Sync wireless paralleling for building n+1 systems with several UPS units

### Smart technology for minimizing operating costs

- The 9PHD UPS sets new standards with an operating efficiency level up to 97% in double conversion mode
- > 99% superior efficiency is delivered in Energy Saver System mode (ESS)
- Power factor 1 increases unit power by 10-20% compared to average UPS

### Easy deployment for optimizing installation costs

- Front access for installation and service
- Cabinet supports use of halogen free cables, double cables and large cables for installation
- Lifting lugs included for easier unit handling during installation
- Suitable for 3-wire and 4-wire networks and voltage range 380V-480V without transformers
- Small footprint due compact power electronics and internal transformer options

**EATON**

Powering Business Worldwide

# Eaton 9PHD Marine UPS 30–200 kW

## Technical specifications

| General                                 |   |
|---|---|
| UPS output power rating (1.0 p.f.)      | 30, 40, 50, 80, 100,<br>120, 150, 160, 200 kW                 |
| Efficiency in double conversion mode    | Up to 97%   |
| Efficiency in Energy Saver System (ESS) | > 99%   |
| Inverter/rectifier topology             | Transformer-free IGBT with PWM                                |
| Audible noise                           | 30–50 kW: < 60 dBA  |
|   | 80–200 kW: < 65 dBA   |
|   | ESS operation: < 47 dBA                                       |
| Ambient temperature                     | 0°C to 45°C at sea level,<br>higher temperatures are optional |
| Ingress protection                      | IP23, Optional: IP33; IP54                                    |

| Input                                 |   |
|---------------------------------------|---|
| Input wiring                          | 3ph + N + PE / 3ph + PE   |
| Nominal voltage rating (configurable) | 380 V-480 V, 50/60 Hz   |
| With optional transformer             | 208 V- 690 V, 50/60 Hz  |
| Input voltage range                   | Rectifier input + 20%, if voltage > 440 V +10%<br><b>Low</b> -15% at 100% load, -40% at 50% load<br>without battery discharge<br>Bypass +10% - (-15%) |
| Input frequency range                 | 40-72 Hz  |
| Input Power Factor                    | 0.99  |
| Input ITHD                            | 30 kW: < 4.5%   |
|                                       | 40-200 kW: < 3%   |
| Soft start capability                 | Yes   |
| Internal backfeed protection          | Yes   |

| Battery                        |  |
|--------------------------------|--|
| Battery type                   | VRLA, Ni-Cd  |
| Charging method                | ABM technology or Float  |
| Temperature compensation       | Optional   |
| Battery nominal voltage (VRLA) | <b>From</b> 432 V (36 x 12 V, 216 cells) to<br>480 V (40 x 12 V, 240 cells)<br><b>Note:</b> Strings with different battery<br>voltage may not be paralleled! |
| Charging current maximum*      | 30–50 kW 29.3 A  |
|                                | 80–100 kW 58.6 A   |
|                                | 120–150 kW 87.9 A  |
|                                | 160–200 kW 117.2 A   |
| Battery start capability       | Yes  |

\* when load level ≤ 40 kW/UPM

| Output                                |   |
|---------------------------------------|---|
| Output wiring                         | 3ph + N + PE/ 3ph + PE  |
| Nominal voltage rating (configurable) | 380 V-480 V, 50/60 Hz   |
| With optional transformer             | 208 V- 690 V, 50/60 Hz  |
| Output UTHD                           | < 1% (100% linear load)   |
|                                       | < 5% (reference non-linear load)  |
| Rated output power factor             | 1.0   |
| Permitted load power factor           | 0.8 lagging - 0.8 leading   |
| Overload on inverter                  | 10 min 102-110%;  |
|                                       | 60 sec 111-125%;  |
|                                       | 10 sec 126-150%   |
|                                       | 300 ms > 150%.  |
| On battery mode 300 ms > 126%         |   |
| Overload when bypass available        | Continuous < 125%, 10 ms 1000%<br><b>Note:</b> Bypass fuses may limit the overload<br>capability! |

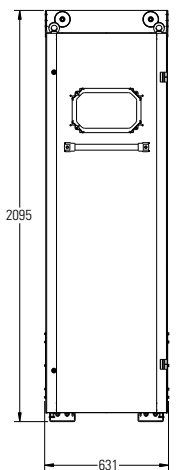
| Accessories  |  |
|--|--|
| Accessories for UPS:   |  |
| Internal transformers; Cabinet protection IP33, IP54; ATS automatic transfer switch; Single feed kit; Earth fault monitoring; 24V Emergency Power Off (EPO); Special system voltages |  |
| Accessory cabinets:  |  |
| Marine battery cabinets with long-life batteries; Matching transformer cabinet for one or two transformers; External maintenance bypass switch.                                      |  |
| Communication options:   |  |
| Web/SNMP; ModBus/Jbus; Industrial Relay  |  |

| Communications       |                                  |
|----------------------|----------------------------------|
| MiniSlot             | 4 communication bays             |
| Serial ports         | Built-in host and device USB     |
| Relay inputs/outputs | 5 relay inputs and dedicated EPO |
|                      | 1 relay output                   |

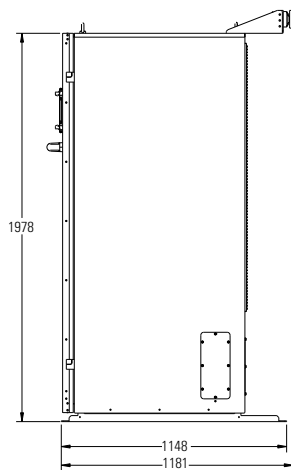
| Compliance with standards |             |
|---------------------------|-------------|
| Safety (CB certified)     | IEC 62040-1 |
| EMC                       | IEC 62040-2 |
| Performance               | IEC 62040-3 |

Marine class certificates are available from any class example: DNV, ABS, Lloyds Register Bueray Veritas etc

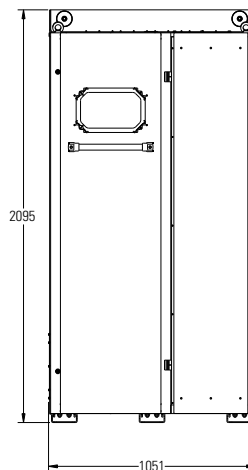
Due to continuous product improvement programmes, specifications are subject to change without notice.



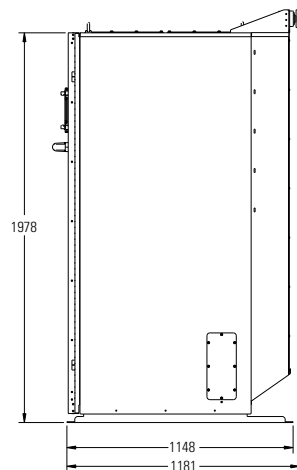
Eaton 9PHD Marine 30kW–100kW



Rear Exhaust



Eaton 9PHD Marine 80kW–200kW



Top Exhaust