

Electric power supply

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Electric energy is produced via two shaft generators while being at sea, otherwise via two ancillary diesel generator sets.

The vessel possesses a shore power supply connector for 1000 A for the normal network and 100 A for the protected network.

The electric power supply is divided in several electric circuits. There is a clean electric circuit for electronic devices and a power conversion network for electric devices. The nautic instruments on the bridge are run via a separate network. In case of emergency all security-relevant consumers are supplied by an emergency generator.

The whole power supply is based on a frequency of 50 Hz and a total wattage of 4400 kW. Out of this 390 kW are maintained for the clean network.

Electric networks of RV Polarstern:

- 660 Volt, 50 Hz
- 380/220 Volt, 50Hz
- 380/220 Volt / 50Hz via converter for laboratories and nautic instruments
- 24 Volt direct current

Consumers with a high electric consumption are supplied via the 660 Volt network. Power Over Ethernet (POE) is not supported by default.

220 V sockets

All functional spaces, laboratories and bunk rooms are equipped with sockets for 220 Volt. Inside ship the sockets are of type CEE 7/3. The corresponding plugs need to be of type CEE 7/4 or CEE 7/7 (international type "F", German acronym "Schuko").

Computers and sensitive scientific instruments can be connected to the protected network using the sockets coloured in red. These sockets are supplied by the clean network and additionally are buffered by two uninterrupted power supplies (UPS) with 120 kVA electric capacity each.

Outside ship there are also IP44 protected sockets of type CEE, following norm IEC 60309 / DIN EN 60309 for 220V. The blue cases covers 3 pins (L+N+PE,6h)

Please be aware, a 220V socket can be loaded with a maximum of 10 Ampere.

380 V sockets

Other consumer especially those belonging to the machinery are connected to the three phase 380 Volt network. The red coloured sockets provide 16 A (some 32 A, 63 A or 125 A). The corresponding plugs following norm IEC 60309 / DIN EN 60309 and have 5 pins: 3L+N+PE,6h.

In most laboratories there is at least one 16A 380V socket. Outside by means of upper and lower P-deck as well as working deck there are connection boxes providing several sockets for different amperage.

110V DC

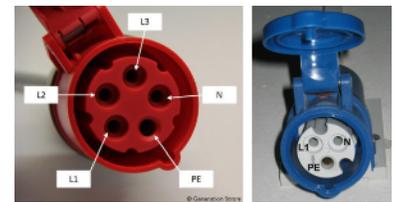
There is no dedicated supply for 110 Volt. If your devices require 110 Volt, you need a transformer to transform 220V into 110V. Such transformers are not available on board.

24V DC sockets

In nearly all laboratories sockets for 24 Volt DC are installed. Customers need banana plugs with 4mm pins.



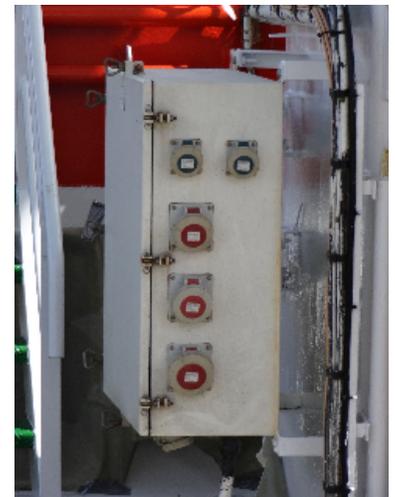
CEE 7/3 sockets "Schuko" for 220V: white frame indicate normal net. Red socket indicate UPS cleaned net.



IEC sockets for 380V (left) and 220V (right)



IEC plugs for 380V for different amperage.



Connection box on lower P-deck is providing on right and bottom side several sockets



Socket and banana plugs for 24V DC
