

New power technologies boost efficiency in Marine and demanding Industrial applications

Press Release
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Powerbox, one of Europe's largest power supply companies and a leading force for 4 decades in optimizing power solutions for demanding applications, introduces four new products within its Marine Line, PT570, PT571, PT576 and PT577, complying with the major classifications and approved by Det Norske Veritas (DNV), Germanischer Lloyd (GL) and major marine approval organizations. Designed for demanding applications requiring peak power, the new series can deliver 50% extra peak current for 10 seconds and exhibits high efficiency, up to 92%. The PT570, PT571, PT576 and PT577 can be operated from -25°C to +70°C without derating in convection cooled conditions. Built for robustness the new products are suitable for use in harsh environments with high vibrations, e.g. on diesel generators and all units are protected by conformal coating to withstand condensing conditions. The PT570 (250W) and PT571 (125W) are built-on baseplate technology whilst the PT577 (250W) and PT576 (125W) are made for DIN-Rail mounting.

The requirements imposed on products responsible for shipping and offshore installations are greater than the average for industrial and office environments, requiring power designers to follow strict design rules and to select components and technology complying with international standards.

Generally two zones are distinguished on a ship; the "bridge and the open deck zone", and the "general power zone", which basically cover all other areas in the ship. The open deck areas and bridge have extra demands on the electromagnetic emission and immunity (EMC), since sensitive equipment is positioned here, such as communication, radar and navigation devices. These EMC requirements regarding emissions are well below the known EN55022 Level B and measurement starts at 10 kHz, instead of the usual 150 kHz. All products are EN60945 compliant.

The limits regarding mechanical and climatic requirements are also more demanding than for the average industrial application. Vibration levels up to 4g are common, as well as large temperature fluctuations from -25°C and + 70°C and high relative humidity where condensation cannot be excluded. The new products, PT570, PT571, PT576 and PT577 integrate the latest power technologies specific to the Marine Industry offering a unique combination of electrical and mechanical performance.

To guarantee the highest level of safety, marine power architects often require redundant power sources. To ensure this, several power supplies are connected in parallel, linked to each other through diodes. To simplify installation and utilization, the PT570, PT571, PT576 and PT577 include as standard, an internal

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ORing diode, making them optimized for redundancy. The user can select if the power unit will be used in "Single Mode" or "Redundant Mode"

"The Marine Industry and demanding Industrial applications require very high reliability combined with robustness. Such products have to be designed following strict rules and use state of the art technology" says Martin Fredmark, VP Product Management. "Powerbox Marine Line reflects Powerbox expertise to develop up front products for the most demanding application."

Depending on the application, output protection may need a different type of configuration. The PT570, PT571, PT576 and PT577 include three overload protections, switch off, hiccup mode or constant current, selectable via a DIP switch. The units include a DC OK signal and a potential free relay contact for fault protection. A front LED indicates power unit status (OK or Fault).

In Marine applications, loads are not always in the vicinity of the power supply and voltages can drop due to long cables, requiring the marine power architects to take that in consideration during installation. The PT570, PT571, PT576 and PT577 include a voltage output setting, making possible to precisely adjust the voltage to load requirement.

"The new products are the result of ongoing evolution of our design platforms. The power density was increased by 40%, while at the same time improving the energy efficiency and adding to the functionality" says Harm-Jelle Zwier - Senior Design Engineer.

The PT570, PT571, PT576 and PT577 have an universal input voltage 90 to 265VAC, 47-63Hz (440Hz with reduced PFC) and leakage current is below 3.5 mA. All units have an input to output isolation of 3000VAC and 2000VAC input to chassis.

PT570 (250W – peak-power 300W/10s) and PT571 (125W – peak-power 150W/10s) are available in four adjustable output voltages, 12V (11-15V) ; 24V (23-29V) ; 36V (35-46V) and 48V (47-56V). The PT570 and PT571 have a typical efficiency of 90%. Mechanically designed for baseplate optimized cooling, the PT570 dimensions are 230 x 115 x 40 mm and 200 x 100 x 35 mm for the PT571.

PT577 (250W – peak-power 375W/10s) offers the same four output voltages as PT570 - PT571 and housed in a 132 x 50 x 128 mm (excluding the DIN-Rail mounting device) cassette-box. PT576 (125W – peak-power 187.5W) offers 24V or 48V output voltage suitable for local distribution. Dimensions 132 x 37 x 128 mm (excluding DIN-Rail fixture).

All products can be operated without load and include over-voltage, over-current and over-temperature protection.

Designed for Marine and Harsh Industrial environments, the PT570, PT571, PT576 and PT577 comply with the safety standard EN60950, EN61000 relevant chapters. Operated in environments exposed to vibrations, the PT570, PT571, PT576 and PT577 are tested to comply with the Germanischer Lloyd table 3.16 – High Vibration Strain (± 1.6 mm displacement, 2-25Hz, 4g; 25-100Hz (1 octave/min)).

The PT570, PT571, PT576 and PT577 can be operated up to 10,000 feet and up to 30,000 feet in non-operating conditions.

About Powerbox

Founded in 1974, with headquarters in Sweden and local operations in 15 countries on four continents, Powerbox serves customers around the globe. We focus on four major markets - industrial, medical, railway and transportation, and defense - for which the company designs and markets premium quality power conversion systems for demanding applications. Our mission is to use our expertise to increase our customers' competitiveness by meeting their entire power needs. Every aspect of our business is focused on that goal, from the design of the advanced components that go into in our products to our customer service. Powerbox is recognized for technical innovations that reduce energy consumption and the company's ability to manage the full product lifecycle, minimizing environmental impacts.

For more information

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DIN-Rail & Cassette Marine Line

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