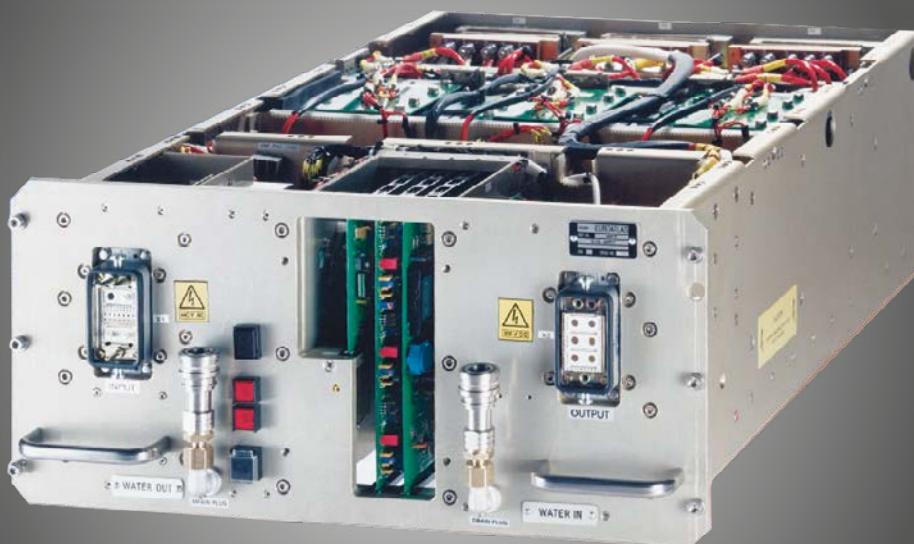


AC/DC Converter for Naval Radar Application



The AC/DC converter module has a total output power of 35 kW and is designed for 19" rackmount. The converter was a customer specific development for the APAR (Active Phased Array Radar) which is a shipborne Multifunction Radar (MFR) manufactured by THALES Nederland. It is the first active electronically scanned array MFR employed on an operational warship. 5 water-cooled converter modules are installed in a rack system and operate in parallel. Wärtsilä supplied the converter for the German F124 frigates, Dutch frigates Evertsen (F805), De-Zeven-Provinciën-class and the Danish frigates Iver Huitfeldt class.



For Surface Vessels

Standard features

- 19" Modular design
- High efficiency $\geq 92\%$

Key features of the AC/DC module

- Input power factor of nearly "1" (sinusoidal input current waveform)
- High reliable design by paralleling up to 5 power units of 35 kW
- Hot replacement, spare unit changable under full operational conditions
- High quality DC output voltage with galvanically insulation
- Integrated fault detection system (BIT)
- 1 x Operating unit & monitoring panel
- 1 x Redundant 35 kW power unit
- 1 x Heat exchanger
- 2 x Cooling water distribution units
- Aluminium cabinet including wiring
- High reliability
- STANAG 1008 /DNV/GL

Application

- Naval Radar System

Support service

- Complete integrated Logistic Support (ILS)



Electrical Specifications:

Input

Voltage 440 V, 3-phase
 Frequency 60Hz \pm 5%
 SHD \leq 3%
 THD..... \leq 5%
 MIL-STD-1399, section 300A, type I
 STANAG 1008, Edition 8

Output:

Output specification.....STANAG 1008 e8
 Output voltage..... 350 V DC \pm 5 %
 Power..... 5 x 35 kW
 Efficiency \geq 92 %
 Hold-up time 5 m sec

Environmental Specifications:

Max. ambient temperature:..... 0 °C to +49 °C
 Storage temperature:..... -30 °C to + 71 °C
 Cooling water temperature: +5 °C to +15 °C
 Cooling water flow rate: 10-30 liter/min
 Shock.....MIL-STD 810E
 RFI / EMI.....461C
 Protection.....IP 23

Physical Characteristics:

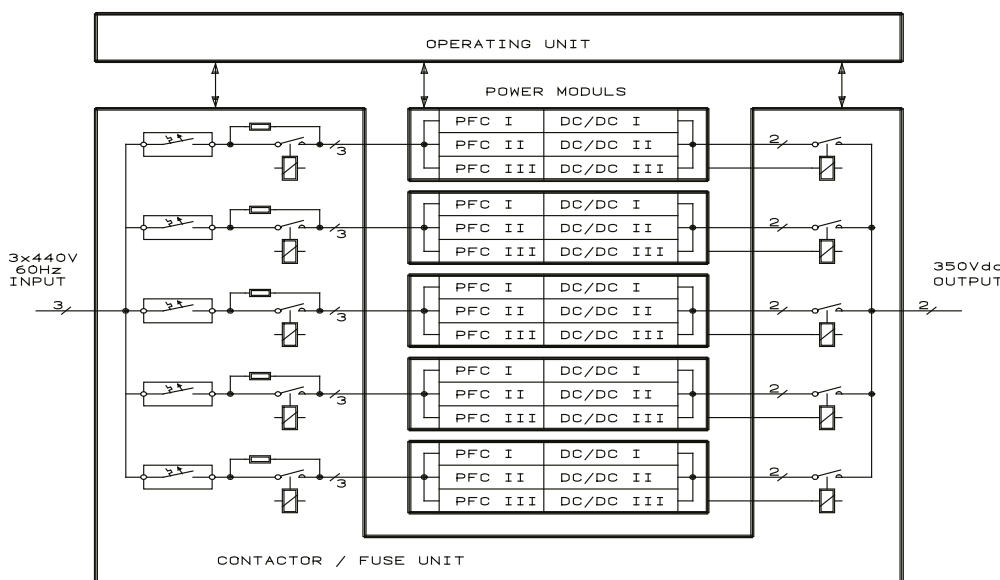
Dimension excluding shockmounts:
 1830 x 651.5 x 902.5 mm (HxWxD)
 Shockmounts (unloaded):
 Height 145 mm
 Weight..... 960 kg \pm 5%
 (for 175 kW version)

Design Characteristics:

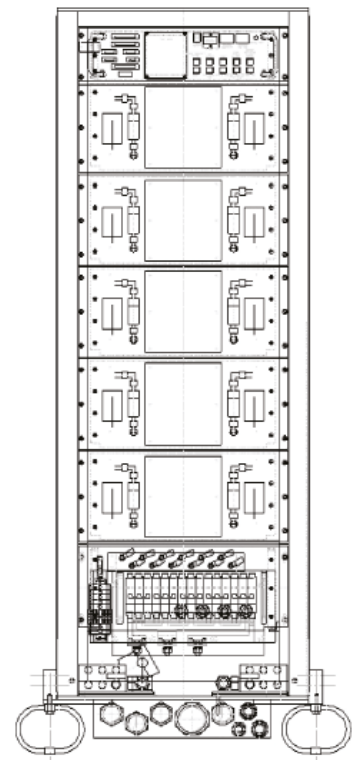
Modular, 19" Slide in modules
 Fault detection, fault analysing and display

Control & Monitoring

PWR mod fault
 Temp fault
 Water flow fault
 Input voltage AVL
 PSU fault
 FAN fault



Simplified block diagram



Cabinet drawing

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