



GERMAREL
GmbH

INDUSTRIAL FREQUENCY CONVERTER

400Hz 50Hz 60Hz Germany Europe

Power Range: 1kVA – 5000kVA



High-Efficiency Frequency Conversion Solutions

Custom voltage & frequency conversion with high efficiency and long-term reliability.



INPUT

- IGBT PWM rectifier / 6-pulse / 12-pulse / 3-level inverter options
- Wide input voltage range
- Input Power Factor: ≥ 0.99
- Input Current THD: $< 3\%$
- Optional dual input
- Perfect generator compatibility
- Auto soft-start function
- Optional 50Hz / 60Hz / 400Hz input
- Designed for industrial, commercial & marine applications

OPTIONS

- Communication: SNMP, MODBUS, GSM, Dry Contact
- Optional N+1 redundancy (up to 8+1)
- Parallel operation up to 16 units
- Load sharing capability
- Protection class: IP20 – IP65
- Indoor cabinet / container options
- Custom project-based designs

OUTPUT

- Output power range: 200kVA / 300kVA / 500kVA / 1000kVA
Change 1kVA up to 5000kVA
- Output Power Factor selectable: 0.8 / 0.9 / 1.0
- Pure sine wave output
- High precision voltage regulation
- Optional adjustable output voltage from screen
 - 208V – 520V
- Regenerative load compatibility
- Reverse energy absorption capability

TECHNOLOGY

- True Online Double Conversion (VFI-SS-111) & fully digital DSP control
- 15-year lifetime design & advanced electrical protection
- 500 event logs (180 parameters / Excel export)
- EPO & auto-restart after power recovery
- Short-circuit & overload protection & regenerative load support
- Optional isolation transformer & battery connection

EFFICIENCY

- High efficiency up to 96%
- Isolation Transformer
- Reduced heat generation
- Lower cooling & energy costs
- Optimized total cost of ownership
- Indoor cabinet / container options , Outdoor COntainer

NORM & STANDARDS

- Compact footprint (%30 space saving)
- Compliant with Quality, EMC and LVC IEC Standards
- Front access for easy maintenance
- MTTR reduction design
- N+1 redundancy ready
- Load sharing & synchronization
- Transfer contactors for power increase



GERMAREL
GmbH

INDUSTRIAL FREQUENCY CONVERTER

400Hz 50Hz 60Hz Germany Europe

Power Range: 1kVA – 5000kVA



Shore to Ship & Harbor Power Supply

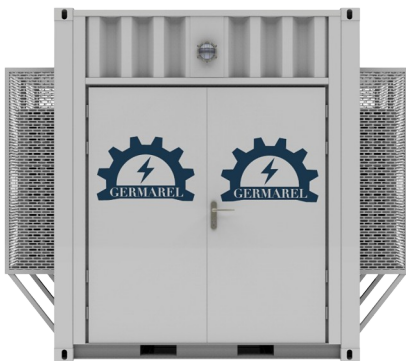
Compact, high-performance shore and harbor power frequency converters designed for global port operations.

Key Advantages

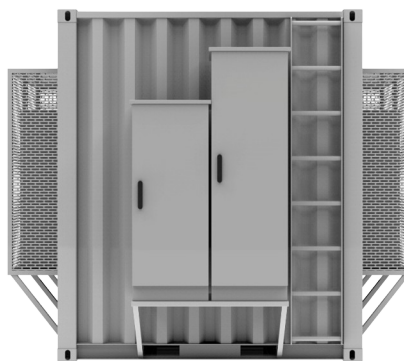
- ✓ High efficiency up to 96%
- ✓ Compact design – minimum footprint
- ✓ Low THD input current (<1%)
- ✓ High power factor (>0.99)
- ✓ Parallel operation capability
- ✓ Static & manual bypass
- ✓ Remote monitoring support
- ✓ Easy maintenance design

Applications

- Container ports
- Shipyards
- Cruise terminals
- Naval bases & frigates
- Offshore platforms
- Laboratory & test systems
- Industrial harbor facilities
- Marine & vessel power systems



Front



Rear



Interior Design



TECHNICAL ADVANTAGES

400Hz 50Hz 60Hz Germany Europe
Power Range: 1kVA – 5000kVA

Products	<input checked="" type="checkbox"/> Marine Frequency Converter
Usage Area	<input type="checkbox"/> Indoor <input type="checkbox"/> Outdoor <input checked="" type="checkbox"/> Marine
Power Watt	<input checked="" type="checkbox"/> 0.8PF <input type="checkbox"/> 0.9PF <input type="checkbox"/> 1.0PF
INPUT	
Input Voltage	Selectable <input type="checkbox"/> 240V <input type="checkbox"/> 380V <input checked="" type="checkbox"/> 400V <input type="checkbox"/> 415V <input type="checkbox"/> 440V <input type="checkbox"/> 600V
Input Voltage Range	<input checked="" type="checkbox"/> -%12 / +%5 (%100Load) <input checked="" type="checkbox"/> -%15 / +%10 (%90Load) <input checked="" type="checkbox"/> -%20 / +%10 (%85Load) <input type="checkbox"/> -%30 / +%30 (%75Load)
Input Isolation Transformer	Input Isolation Step Down 690V – 415V <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Input P.F. & Cable Connection	At Full Load >0.99 & <input checked="" type="checkbox"/> Bottom Cable Connection <input type="checkbox"/> Top Cable Connection <input type="checkbox"/> Backside Cable Connection
Input Frequency	Selectable <input type="checkbox"/> 50 HZ 44-66Hz <input checked="" type="checkbox"/> 60 HZ "40Hz - 70Hz"
Input Connection	<input checked="" type="checkbox"/> 3P+1N+1G START <input checked="" type="checkbox"/> Delta 3P+PE
Input Connection	<input type="checkbox"/> Dual Input <input checked="" type="checkbox"/> Single Input
Input Frequency Range	Wide Input Frequency Range "45Hz - 66Hz"
Technology	<input type="checkbox"/> Transformer Free 2L <input checked="" type="checkbox"/> Transformer Free 3L <input type="checkbox"/> With Transformer Pulse Technology
Rectifier & Harmonic Distortion THD1	<input checked="" type="checkbox"/> %1 <input type="checkbox"/> %3 <input type="checkbox"/> %7 <input type="checkbox"/> %11 <input type="checkbox"/> %30
OUTPUT	
Output Voltage	Selectable <input type="checkbox"/> 200V <input checked="" type="checkbox"/> 208V <input type="checkbox"/> 440V <input type="checkbox"/> 460V <input type="checkbox"/> 480V <input type="checkbox"/> 575V <input type="checkbox"/> 600V <input type="checkbox"/> 690V
Output Cable Connection	<input checked="" type="checkbox"/> Bottom Cable Connection <input type="checkbox"/> Top Cable Connection <input type="checkbox"/> Backside Cable Connection
Output Isolation Transformer	Step-Up Transformer (415V to 480V) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Output Frequency	Selectable <input type="checkbox"/> 50 HZ <input checked="" type="checkbox"/> 60 HZ <input type="checkbox"/> 400 HZ
Output Connection	Both <input checked="" type="checkbox"/> 3P+1N+1G <input checked="" type="checkbox"/> Delta 3P+PE
Output Frequency Range	Max ±0.1%
Recovery & Auto Start	1% Back to Band <40ms "410V – 420V" & Auto Start Adjustable From Screen
Efficiency	<input type="checkbox"/> Till %89 for Pulse Solutions <input type="checkbox"/> Till %93 <input checked="" type="checkbox"/> >%93 for %50Load & >%95 for %100 Load
THD (THDv) & Crest Factor (CF)	Linear Load Standard %1 max <2% & Non-Linear Load <5% & 3:1
Overload Capacity & Output Side	At 125% Load 10min, at 150% Load 1min at >%150 300ms & %170 Direct Off/ 0.7PF Lagging – 0.8 Leading
COMMUNICATION	
Options	<input checked="" type="checkbox"/> RS232 Standard <input checked="" type="checkbox"/> RS485/ Modbus <input type="checkbox"/> SNMP <input checked="" type="checkbox"/> Dry Contact Card <input type="checkbox"/> External Screen <input type="checkbox"/> GPRS- GSM Control
Protocol	SEC, TELNET
Communication Alerts & Logging	500 Event Logs & 180 Parameters for Each Log "As Excel Sheet" "Optional Parallel"
STANDARDS	
Quality & Used Electrical Parts	ISO 9001 - ISO 14001 - ISO 18001 & IGBT Infenion or Mitsubishi & Electrical parts are made in Korea, Europe & Turkey
Performance	EN62040 -3 (VFI-SS-111)
EMC/LVD	EN62040 - 2 / EN62040 -1 EN60950
GENERAL	
Storage & Running Temperature	Standard +5°C~35°C & <input type="checkbox"/> 0°C~40°C <input checked="" type="checkbox"/> 0°C~45°C <input type="checkbox"/> -5°C~55°C <input type="checkbox"/> -10°C~40°C
Electrical Protection	Over & Low Frequency / Over & Low Voltage / Over Current / Over Temperature Protection Degradation
Protection Class	Indoor <input checked="" type="checkbox"/> IP20 <input type="checkbox"/> IP21 <input type="checkbox"/> IP23 <input type="checkbox"/> IP33 <input type="checkbox"/> IP44 <input type="checkbox"/> IP55 <input type="checkbox"/> IP65
Chassis & Humidity & Noise	Anti-Static Anti Rust Coated Painting Protection & 0-95% & 65 Db Maximum
Screen	Mimic Diagram Languages English, German <input type="checkbox"/> 2x16 <input type="checkbox"/> 4x20 <input checked="" type="checkbox"/> 320mmx240mm <input type="checkbox"/> Outdoor screen
Altitude	@40°C & after 1000Meter for each hundred meter %1 Loss <input checked="" type="checkbox"/> Till 1000m <input type="checkbox"/> Till 1500m <input type="checkbox"/> Till 2000m <input type="checkbox"/> > 2000m
Cabinet Color	<input checked="" type="checkbox"/> Ral 7060 <input type="checkbox"/> Ral 7035 <input type="checkbox"/> Ral 7032 <input type="checkbox"/> Ral 7016 <input type="checkbox"/> Ral 1014 <input checked="" type="checkbox"/> Black
Parallel Operation	<input checked="" type="checkbox"/> Single <input type="checkbox"/> Redundant till 3s transfer time Hot Paralleling Sycn. Tech. => <input type="checkbox"/> 2pcs <input type="checkbox"/> 3pcs <input type="checkbox"/> 4pcs <input type="checkbox"/> 6pcs <input type="checkbox"/> 8pcs
EPO (Emergency Power Off)	<input checked="" type="checkbox"/> Standard for IP20 <input type="checkbox"/> Optional for Outdoor with external screen
Certification	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> SGS <input type="checkbox"/> SASO <input checked="" type="checkbox"/> IEC <input type="checkbox"/> BV Marine <input checked="" type="checkbox"/> BV General <input type="checkbox"/> Soncap
Vibration & Earthquake design	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Vibration Reduce <input type="checkbox"/> Seismic Standard <input type="checkbox"/> Seismic Customized
Dimensions (WxDxH) (cm) FC	<input type="checkbox"/> 125X110x205 / (970kg) <input checked="" type="checkbox"/> 235X100x210 / (1980kg) <input type="checkbox"/> 360x220x240 / (3670kg) <input type="checkbox"/> 420x220x240 / (4880kg)
Dimensions (WxDxH) (cm) ALL	1) FC: 235x85x210 / (1980kg)* – 2)Transformer: 1210mmx1065mx1240mm – (2430kg) Dimensions may vary according to project or customer requirements.

Germarel GmbH reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Germarel GmbH products previously or subsequently sold. Germarel GmbH does not guarantee the items of the accuracy and completeness.

NOTE: CUSTOMIZED SOLUTIONS ARE POSSIBLE, PLEASE ASK FOR THE NEEDED SOLUTION



ENCLOSURE SIZES & CONFIGURATIONS



Engineered to fit your project

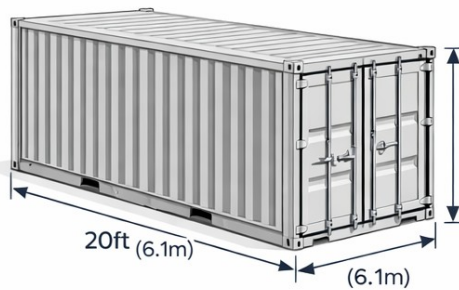
Our systems are fully customizable in terms of dimensions, capacity and configuration to meet specific project requirements.

Outdoor

Indoor



10ft CONTAINER



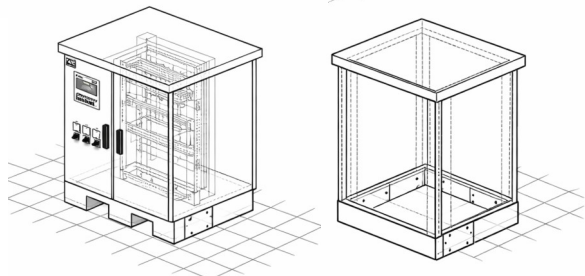
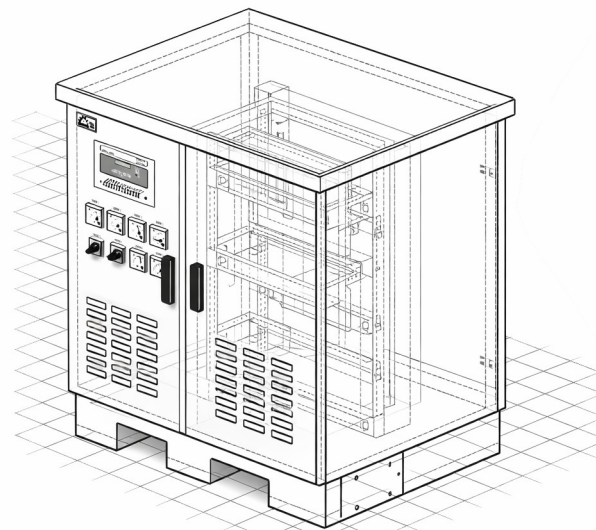
20ft CONTAINER



40ft CONTAINER



40ft HIGH CUBE CONTAINER





REFERENCES



Global Project Network

Established international references for over 55 years



Damen Shipyards
Netherlands



Rheinmetall
Germany / Canada



Malaysian Navy
Malaysia



Tunisian Navy
Tunisia



Cummins
USA



Sesco
Saudi Arabia



PT PAL
Indonesia



SC Global Defense
Romania



Nigerian Consulate
Nigeria



RA International
UAE

PROJECTS IN 20+ COUNTRIES

Turkey · UK · Afghanistan · KSA · Spain · Nigeria · Malaysia · UAE · Indonesia
· Romania · Tunisia · Vietnam · Denmark · Angola · Congo · Jamaica · Kenya
· Zanzibar ...

View all projects:

www.germarel.de/references





Smart Power Conversion Solutions

We design reliable power conversion systems for industrial and marine applications worldwide. Engineered for high efficiency and built for long-term performance.

Worldwide installation, commissioning and after-sales support.

Our expert engineers deliver fast and reliable service across Europe and worldwide.



COPYRIGHT

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of GERMAREL GmbH.

© 2026 GERMAREL GmbH

All rights reserved.



GERMAREL
GmbH

STARTPLATZ – Im Mediapark 5
50670 Köln (Cologne) Germany

Tel: +49 174 790 2498
E-Mail: sales@germarel.de

www.germarel.de

