




RHF-Active 450-480-50/60-54-A

Product Features

- 
Real-Time Harmonic Filtering: Instantly detects and neutralizes harmonics across multiple frequencies, ensuring a clean power supply.
- 
Compact Design: Space-saving design allows easy integration into existing systems without compromising performance.
- 
Modular and Scalable: Easily scalable to suit different power requirements, from small installations to large industrial applications.
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Optional Remote Monitoring Capability: Available as an added feature if a custom control panel is built. Enables proactive maintenance and performance tracking, allowing users to monitor system health remotely.



Marine



Oil & Gas



Water Treatment



General Industry













Data Center



Product Description

Active harmonic filter for reduction of the harmonic distortion of variable frequency drives or other non linear loads. SiC-Power MOSFET's and Schottky Diodes allows for very high efficiency and also enables switching frequency of 40kHz, which results in efficient elimination of harmonics. This filter reduces the THD of the current from typically 35% to below 5%.

Key Benefits

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Energy Savings: Actively reduces power losses caused by harmonics, leading to noticeable energy savings and a lower electricity bill over time.
- 
Extended Equipment Lifespan: Reduces wear and tear on connected equipment by mitigating harmful harmonics, extending the service life of your electrical assets.
- 
Enhanced Power Quality: Effectively reduces harmonic distortion, improving overall power quality and minimizing electrical interference.
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Compliant with Industry Standards: Meets global harmonic compliance standards, providing peace of mind and simplifying regulatory compliance.
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Energy Efficiency: Helps optimize energy consumption by minimizing power losses, leading to cost savings over time.
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Reduced Downtime: By preventing harmonic-related issues, the filter reduces unexpected equipment failures and minimizes maintenance needs, improving system uptime.
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Reliable Performance: Designed for continuous operation, ensuring stable performance even under varying load conditions.
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Environmentally Friendly: Lowers energy consumption and reduces greenhouse gas emissions, supporting sustainable operations.
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Enhanced Safety: Decreases the risk of overheating and electrical faults caused by harmonics, promoting a safer work environment.
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Increased Power Capacity: Improves power factor and optimizes current flow, allowing existing power infrastructure to support more load without additional investments.



General Specification

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|---------------------------|--|
| Type Code - 3P3W | RHF-Active 450-480-50/60-54-A |
| Type Code - 3P4W | RHF-Active 450-480-50/60-54-N |
| Order Code - 3P3W | 35000167 |
| Order Code - 3P4W | 35000267 |
| Rated Current | 450A (Compensation Current) |
| Rated Voltage | 380-480V (+10% / -10%) |
| Rated Frequency | 50/60Hz (+/-2%) |
| Parallel Quantities | 3 x 150A |
| CT Accuracy | 0.5 or Better Accuracy |
| CT-locations | Grid or Load side (Close-Loop or Open-Loop) |
| Number of CTs | 2 • For 3P3W System & 3 • For 3P4W System |
| Topology | SiC - Power MOSFET's and Schottky Diodes |
| Function | Power Factor Correction Imbalance Compensation Harmonic Mitigation |
| Harmonics Filtering Range | Harmonic Mitigation Of Harmonics 2nd to 61st Order |
| Reaction Time | 10 ms |
| Response Time | 20 ms |
| Target Power Factor | 1-LD or LG (Leading or Lagging) |
| Switching Frequency | 30 kHz - 50 kHz |
| Cooling method | Forced Air |
| Redundancy | Unlimited (A single filter can run on its own regardless if the other filters have failed) |
| Load Balancing Capacity | Rated Capacity |
| Power Loss | 7289W |
| Typical Motor Rate | 900kW (For 35% compensation ratio target 5%) |
| Efficiency | 98.3% |
| Sys. Efficiency | >99.2% (for 900kw drive rating) |
| Transport Temperature | -10 °C to +65 °C |
| Storage Temperature | -10 °C to +55 °C |

Electrical connections, controls, and auxiliary supply

| | |
|-------------------------|---|
| Main Supply Terminals | Cable Lug M12, 2x120-2x185mm ² (2x250-2x400AWG/MCM) Tightening Torque: 24Nm (212in-lb) +/- 10% |
| Network | 3P3W (380-480V) 3P4W (380-415V) |
| Communication Ports | RS485 |
| Communication Protocols | Modbus by RTU Configuration Software |
| Interface | 10.1 inch Full HD Through Touch Screen HMI |
| Protection Function | Overvoltage / Overcurrent / Overload / Overtemperature / Resonance / DC Bus Overvoltage / Abnormal Frequency |

Mechanical Properties

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|--------------------------|--------------------------|
| Mounting Type | Cabinet |
| Dimension (W x D x H) mm | 808*668*2158 - Frame A16 |
| Weight | 319kg |
| Colour | White |

Environment Requirement

| | |
|---------------------|--|
| Altitude | <2000m, Derating 10%/1000m, Max 4000m |
| Ambient Temperature | °C / Max ambient temperature with derating 55°C ≥ Td' > 50°C, (Capacity) : 80%; 50°C ≥ Td' > 45°C, (Capacity) : 90%; 45°C ≥ Td' > 40°C, (Capacity) : 95%; 40°C ≥ Td', (Capacity) : 100%; |
| Humidity | 5....95% - (Non-condensing) During Operation |
| Deg of protection | IP54 |

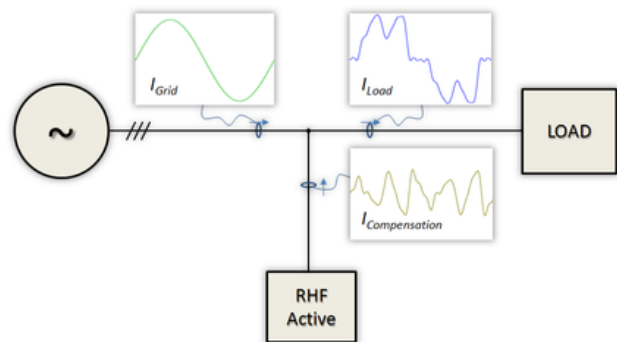
Standard & Requirement

| | |
|---------------------|---|
| Standard Compliance | IEC/EN61000-2-2/ -4 IEC/EN61000-2-2/ -4 / -12 IEEE 519-2022 ER G5/4 EN IEC 61439-1:2021-10 <i>*UL on Request</i> |
|---------------------|---|

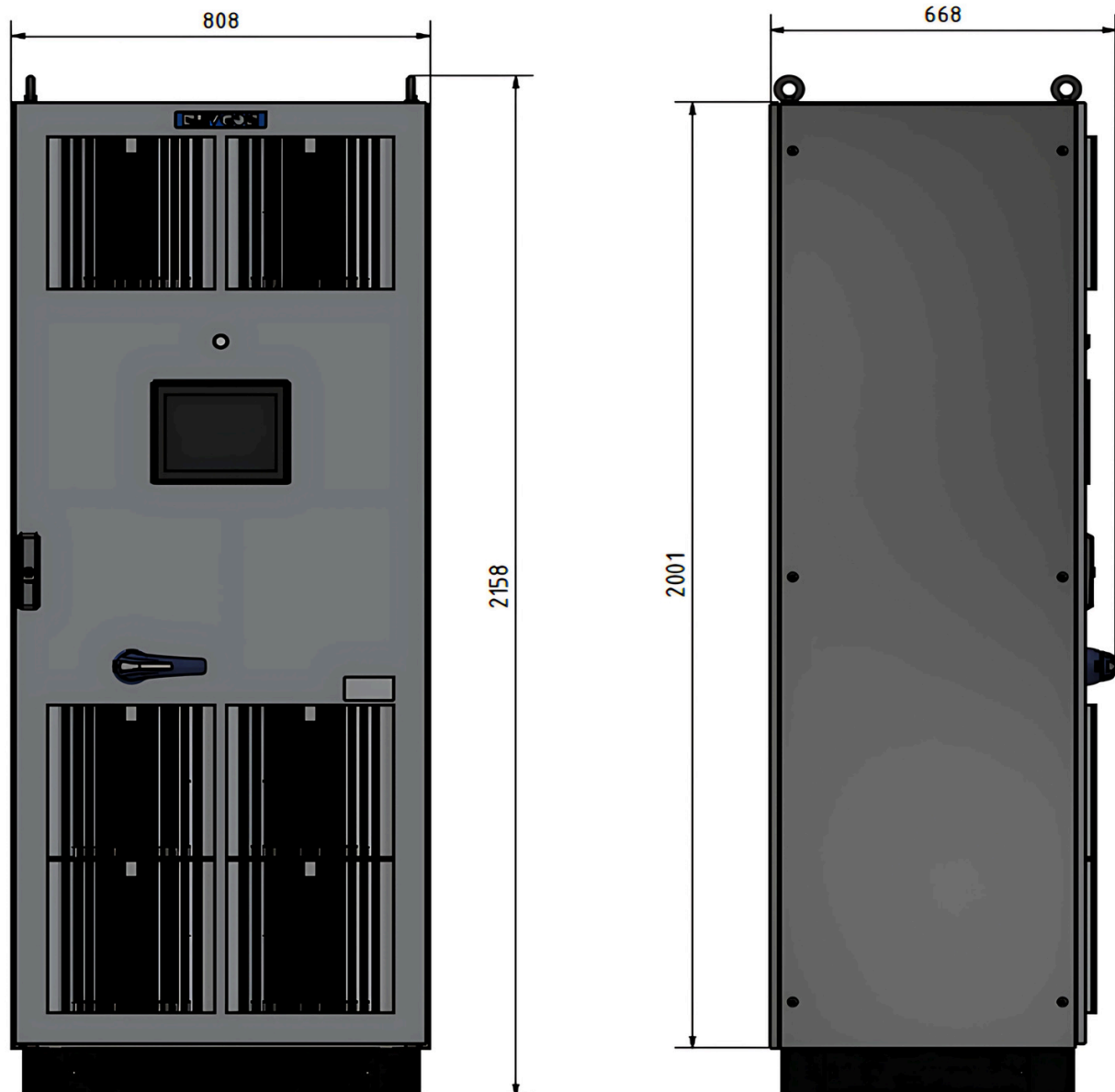
Working principle RHF-Active

Active Harmonic Filters are parallel filter circuits injecting harmonics into the supply. These Harmonics have phase shift of 180° compared to the harmonics in the system. Therefore the injected Harmonics are eliminating the Harmonics seen from the mains supply. The following picture helps to verify the principle.

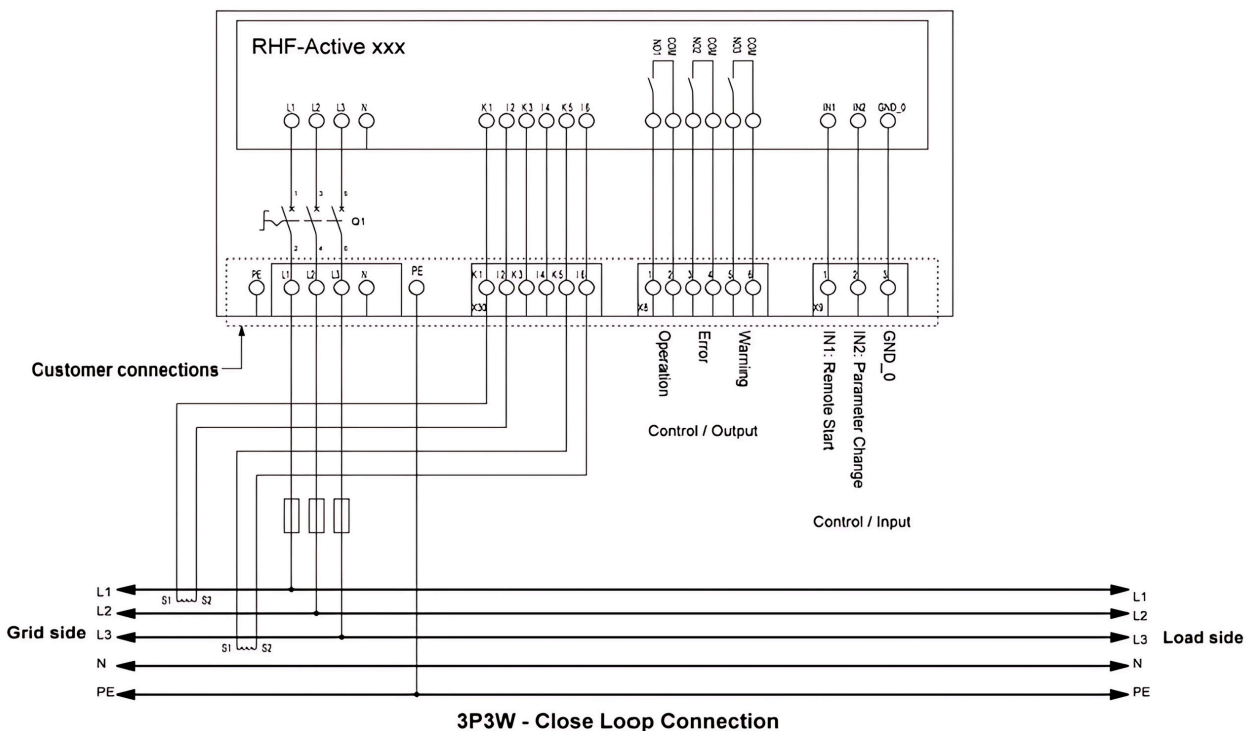
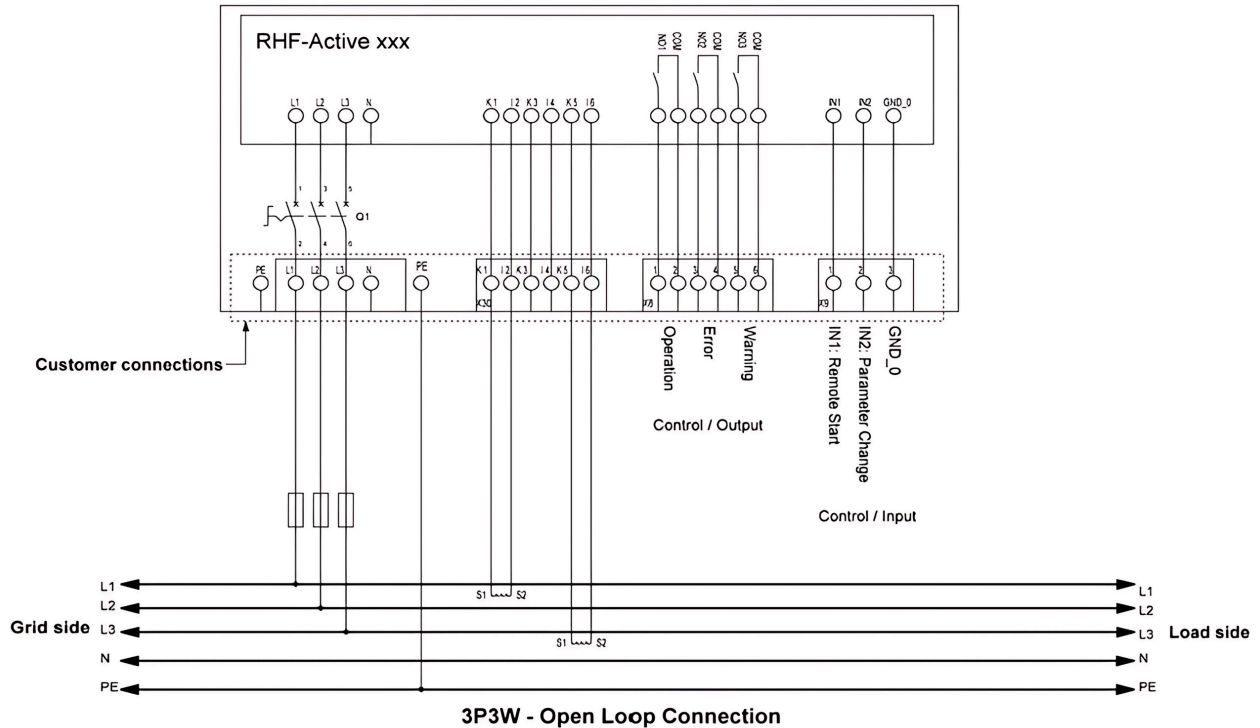
The REVCON RHF-Active, do not require any expensive commissioning on site. After power up, the unit will do self commissioning in order to reach the best possible performance, but of course individual settings are also possible. Beside harmonic mitigation of harmonics from the 2nd to 61st order, the RHF-Active offer compensation functions such as power factor correction and imbalance compensation.



Physical dimensions filter RHF-Active 450-480-50/60-54-X



Wiring Principle 3P3W



Wiring Principle 3P4W

