New Generation Precise Filter Technology with Modular Design
Widely used in Data Centers, IT Industries and process industries such as Cement, Metal, Chemicals and Pharmaceuticals etc.
Ensures the Total Current Harmonic Distortion <5%
Complete protection mechanism & intelligent air cooling technology
Supports flexible configuration and capability to expand vertically as well as horizontally.
Compatible with diesel generators & harsh ambient (Temp up to 50 Deg. C)
Eliminate Harmonics, so risk of resonance can be avoided.
Highly flexible and scalable solution
Lower Current could reduce thermal loss in power cables & transformer
Reduce Voltage Distortion and Fluctuation to extend service time of electric devices
Suppressing harmonics and reactive power can reduce the total current, so more loads can be driven by the same transformer.
Can increase power factor to avoid reactive power penalty
Can compensate from 2nd to 50th order harmonics.

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Active Filtering Principle
Active filters are power electronic devices connected in parallel with the load to be compensated. The device can be thought of as a controlled current source, which provides any kind of current waveform in real time. When connected in parallel with the non-linear load, its harmonic currents are compensated and the network is loaded with fundamental current only. The control system monitors the relevant parameters of the network and is capable of detecting and instantaneously reacting to any disturbance in the load current.

New Generation Harmonic Filter Technology with Modular Design
Our AHF series is an advanced modular Active Harmonic Filter (AHF) system. The AHF system is constructed of one or several filter modules with system controller.

Filter modules and controller, both are embedded in our standard cabinets. CT terminations are fixed in a standard cabinet, and the AHF capacity can be configured accordingly to user requirement.

The filter capacity can be easily expanded at the user’s site by adding extra filter modules as per site requirement.

Harmonic Suppression Benefits
- Eliminates harmonic current and improves the voltage waveform
- Ensures the Total Harmonic Distortion of grid Voltage < 3%*
- Reduces additional power loss in cables, and wire wound components. Help to improve the reliability of cables, switchgears, etc.

Adaptability
- Compatible with diesel generators
- Wider range of input voltage, frequency and faster response time
- Low thermal loss
- Compensates a wide range of harmonics from 2nd order to 50th order harmonics.

Flexibility
- Designers have more choices with flexible configuration
- Capability to expand vertically as well as horizontally
- Higher operating temperature up to 50 Deg. C.

Reliability
- IGBT paralleling technology
- Intelligent air cooling technology
- High quality components of international brands
- Advanced production technology

Active Filtering Working Principle
Harmonic Current Source
Powernac Active Filter
Result
**Industry**
- Automotive
- Arc Welding
- Metal
- Cement
- Chemicals
- Pharmaceuticals
- Textiles
- Petrochemicals
- Water and waste water treatment
- Lifts, port cranes
- Pulp and paper
- Wind farms and solar power
- Crushers and shredders...

**Features**
- Fast and accurate performance
- Compact size & modular concept
- Modular cubicle and system design
- User friendly Controller
- Communications option
- Easily expandable at site
- Can be easily configured with Real Time Power Factor Correction System to form Hybrid configuration

**Customer Benefits**
- Fast return on investment
- One solution for Harmonics and Power Factor Correction
- Performance meets/exceeds utility criteria
- Redundant and flexible
- Easy to commission and operate
- Communicates with SCADA
- Remote access possible

**Commercial**
- Data Centers and IT-facilities
- Offices and buildings
- Traction and Metro stations
- Airports
- Shopping Malls
- Fluorescent or HID lighting
- Hospitals
### Technical Specifications

#### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Voltage</td>
<td>AC 415V +20% to - 20% (Other Voltages on request)</td>
</tr>
<tr>
<td>Electric Connection</td>
<td>3P3W/3P4W</td>
</tr>
<tr>
<td>Rated Frequency</td>
<td>50Hz (60Hz) +/- 10%</td>
</tr>
<tr>
<td>Input Voltage THT with stand</td>
<td>Up to 15%</td>
</tr>
<tr>
<td>Harmonic compensation range</td>
<td>2nd ~ 50th order (Selectable)</td>
</tr>
<tr>
<td>Harmonic compensation degree</td>
<td>0 ~ 100% (Selectable)</td>
</tr>
<tr>
<td>Harmonic Elimination Rate</td>
<td>Up to 98%, grid side after elimination THD&lt; 3%, THDi&lt; 5%*</td>
</tr>
<tr>
<td>Reactive Power Compensation Capacity</td>
<td>Positive, Negative, Zero Sequence Reactive</td>
</tr>
<tr>
<td>Full response time</td>
<td>&lt; 20ms</td>
</tr>
<tr>
<td>Instant response time</td>
<td>&lt; 100us</td>
</tr>
<tr>
<td>Thermal Loss</td>
<td>≤ 3%</td>
</tr>
<tr>
<td>Output Current Limitation</td>
<td>Automatic ( 100% rated current )</td>
</tr>
<tr>
<td>MTBF</td>
<td>&gt; 100,000 hours</td>
</tr>
</tbody>
</table>

#### Control Technology

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switching Frequency</td>
<td>60kHz</td>
</tr>
<tr>
<td>Controller</td>
<td>DSP control</td>
</tr>
<tr>
<td>Communication</td>
<td>Modbus Protocol, RS232/485</td>
</tr>
</tbody>
</table>

#### Physical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratings</td>
<td>50/75/150 Amp, 100 Amp, 200/300 Amp, 400/500 Amp</td>
</tr>
<tr>
<td>Dimensions (W x D x H)</td>
<td>600x800x1400, 850x1050x725, 850x1050x1525, 850x1050x1825</td>
</tr>
<tr>
<td>Weight</td>
<td>100/110/160 Kg, 160 Kg, 210/330 Kg, 410/490 Kg</td>
</tr>
<tr>
<td>IP Grade</td>
<td>IP20, IP20, IP20, IP20</td>
</tr>
<tr>
<td>Noise</td>
<td>&lt; 65dB(A), &lt;70dB @ 1 meter in front of the module</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Intelligent forced air cooling</td>
</tr>
</tbody>
</table>

#### Environmental Requirement

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>Ambient Temperature</td>
<td>-10~50 °C</td>
</tr>
<tr>
<td>Relative Humidity (RH)</td>
<td>0~95% (Non-condensing)</td>
</tr>
<tr>
<td>Altitude</td>
<td>≤ 1000m Rated Capacity, 1000-2000m (derating 1% per 100m)</td>
</tr>
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</table>