Nexus Power

Smarter • Safer • Greener •

Power Quality Products

AHF . SVG . SVGC . SPC

Nexus Power Solutions

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Power Quality Products

Nexus Power Solutions

Nexus Power offers world-leading clean technology to improve power quality, energy efficiency and environmental performance. Our dynamic compensation solutions- Active Harmonic Filters, SVGs - solve your power quality problems in no time. You will enjoy a swift payback on your investment: our solutions save energy, increase productivity and lifetime.

Glories

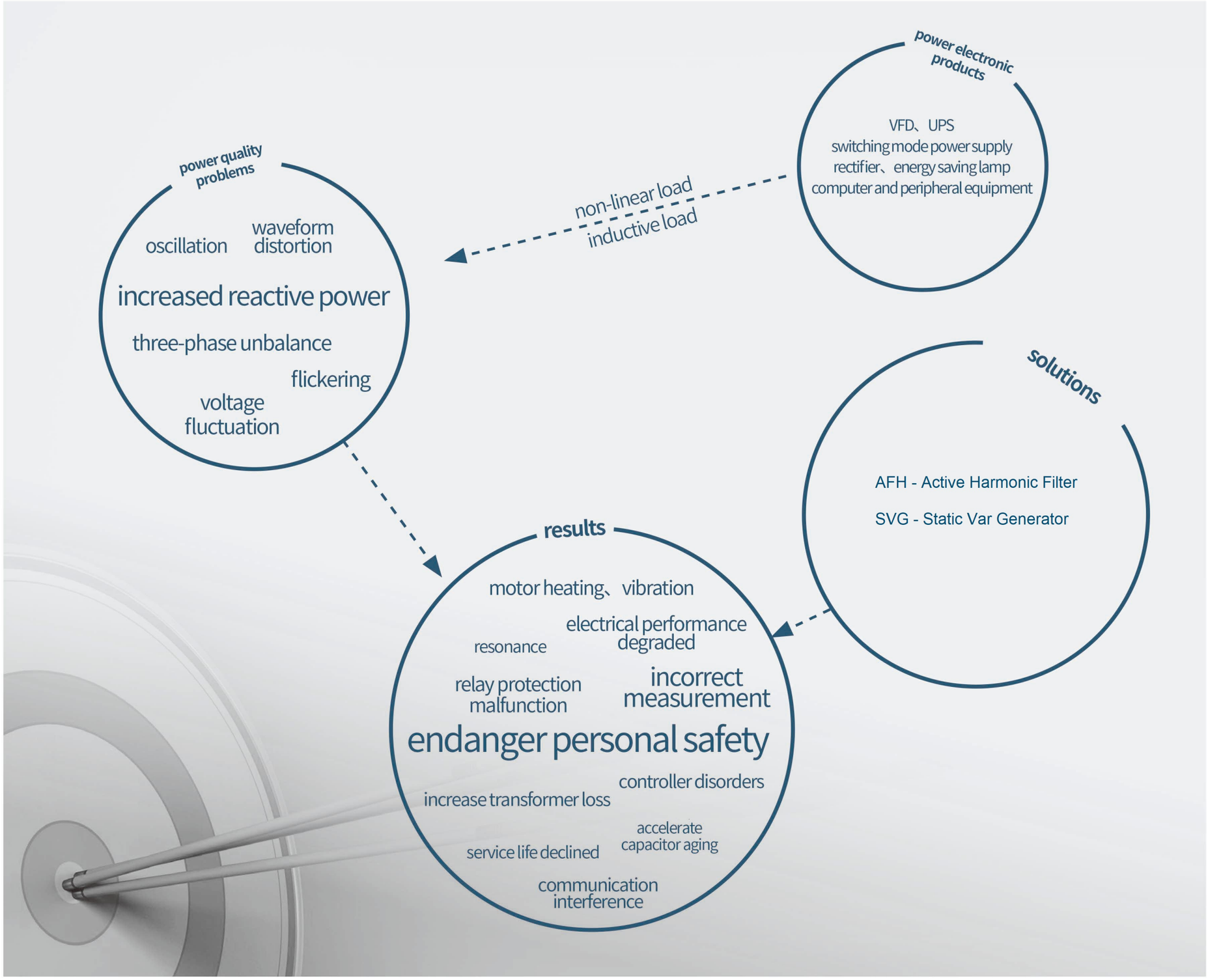
High technology enterprise, software enterprise
Type test reports, CE certification, CCS certification
15 patents for invention
54 patents for utility models
61 software copyrights

High performance power quality technology

DSP+FPGA+ARM digital control
3-level topology structure
AHF. SVG.
Current harmonics compensation, reactive compensation, three-phase unbalance compensation
Harmonic elimination rate＞97%, PF=0.99, three-phase unbalance< 3%

Service

Technical proposal, project plan, on-site testing, data analysis, customized solution, construction guidance, regular inspection, quick maintenance
7x24 hours technical support
Offer module, cabinet and other customized products
For non-standard products, please contact us



Power Quality Products

AHF - Active Harmonic Filter

AHF (Active Harmonic Filter) is a new type power electronic product with functions of dynamic harmonic elimination (varying amplitude and frequency) and reactive power compensation (leading or lagging).

SVG — Static Var Generator

SVG (Static Var Generator) detects load current through external current transducer（CT）and analyzes reactive component of the load current by DSP controller, then control IGBT inverter to generate reactive current and compensates the load reactive current to meet the target of line power factor. It also has function of harmonic compensation.

SVGC — Hybrid Var Compensator

SVGC (Hybrid Var Compensator) integrate TSC (Thyristor Switched Capacitor) and SVG, with high cost performance.

SPC — Smart Power Quality Correct Device

SPC (Smart Power Quality Correct Device) specialize in improve power quality for distribution network, has the functions of three-phase unbalance compensation, fast regulation of reactive power and system voltage stabilization.

Keys to superior performance

Two Core Technologies of NEXUS Power Quality Products

Advanced Power Electronics Technology

Based on high-performance 3-level IGBT topology, using high efficiency IGBT drive circuit and safety protection mechanism.

Control Method

Intelligent closed-loop control algorithm

high speed semiconductor

high speed data processor

High-Performance Control

On the strength of DSP+FPGA high speed control platform, achieving harmonic and reactive calculation, realizing closed-loop current control through advanced control algorithm.

harmonic elimination: 2-61 order

97% elimination rate

PF > 0.99

three-phase balancing

NEXUS
Active Harmonic Filter

NEXUS Active Harmonic Filter (AHF) is a new type power electronic product with functions of dynamic harmonic elimination (varying amplitude and frequency) and reactive power compensation (leading or lagging).

CE

AHF

Technical Features

* Wall-mounted

Abundant compensation functions:

- Whole compensation or selectable
- Reactive compensation (capacitive & inductive)
- Three-phase unbalance compensation
- Harmonic elimination rate＞97%
- PF>0.99

Advanced system performance:

- 3-level topology structure
- DSP+FPGA, high speed digital control
- Automatic resonance avoiding, automatic lim iter without overload
- Protection: overvoltage, overcurrent, over tem perature. etc.
- Communication: Ethernet, RS485. etc.

Flexible application:

- Modular design, small size, expandable, easy installation and maintenance, maximum 16 modules in parallel
- Multiple types: wall-mounted/cabinets
- Line structures: three-phase three-wire/t-hree-phase four-wire
- Maximum 10 cabinets in parallel

Safety and reliability:

- Advanced IGBT chip
- Texas Instrument DSP chip, high speed and reliable performance
- Perfect protection

User-friendly:

- Standard 7 inch colorized touch screen
- Graphic interface, display various power quality parameters
- Easy operation

* HMI on module (optional)

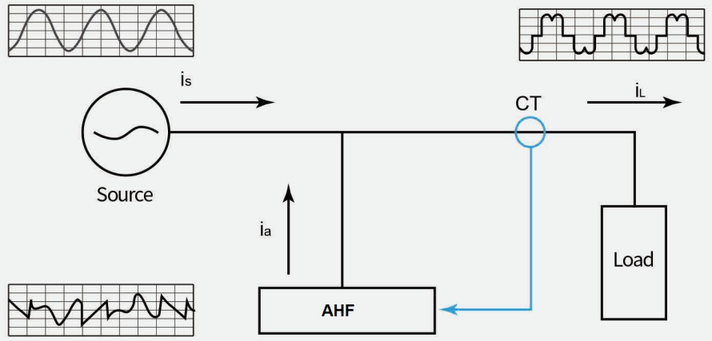
Energy saving:

- Low loss: automatic hibernation/ awakening
- Low noise: intelligent variable speed cooling fan

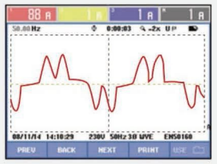
AHF

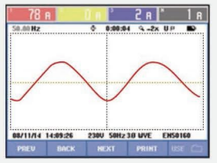
Working Principles

AHF detects load current through external current transducer（CT）on-line and analyzes harmonic component of the load current by DSP controller, then generates PWM signal to fire IGBT. Comparing to the load current harmonic, AHF will inject a current with same amplitude and opposite direction to source, finally to eliminate current harmonics on line side.



AHF Working Principle Diagram





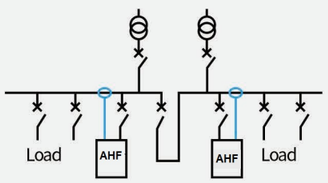
Source Current

Typical Electrical Design

NEXUS range AHF has different compensation method according to the power distribution system structure. It can provide total compensation, local compensation or on-site compensation.

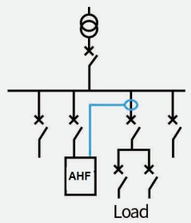
Total Compensation

In the mixed power distribution system, including large number of nonlinear loads, but capacity of single nonlinear load is small.



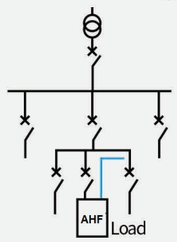
Local Compensation

When nonlinear loads concentrate upon some branches.



On-site Compensation

When nonlinear loads concentrate upon certain branch, and the capacity of single nonlinear load is large.



AHF Product Model

NC – Enterprise Code

AH – Active Power Filter

4L – 3L: three-wire; 4L: four-wire

400 – Rated Voltage: 400VAC / 480VAC / 690VAC

300 – Rated Current: 30~750A(400VAC) 100~600A(480VAC) 100~500A(690VAC)

G – G: Cabinet; H: Wall-mounted; M: Module

rated current	30/50/60A	100A	150/160A	100~750A	100~600A	100~500A
rated voltage	400V（239V~458V）				480V（383V~576V）	690V（483V~794V）
controller	DSP based full-digital control					
compensation current of neutral line	triple phase current					
filter capacity	2～61 order （selectable or whole compensation）					
harmonic elimination rate	>97%					
Line frequency	50Hz/60Hz ±5%					
line structure	three-phase three-wire /three-phase four-wire					
topology	three-level NPC					
three-phase unbalance compensation capacity	<3%					
reactive compensation	-1～1 (adjustable)					
response time	<5ms complete response ;<25us transient response					
automatic current limiting	yes					
switching frequency	20 kHz (adjustable)					
cooling method	air cooling, speed adjustable					
noise level	<60dBA					
efficiency	⩾97%					
protection function	overvoltage, undervoltage, overcurrent, over-temperature etc.					
HMI	standard 7 inch colorized touch screen or customized					
communication interface	RS485/CAN/internet access					
installation	wall-mounted/cabinet			cabinet		
color	RAL7035(optional)					
storage temperature	-40~70°C					
operation temperature	-10~50°C					
humidity	<95% non-condensing					
altitude	<1500m (derating when exceed 1500m)					
enclosure	IP21 or customized					