



ACTIVE HARMONIC FILTER SONEL APF



EXPERIENCE AND RELIABILITY



Product Introduction

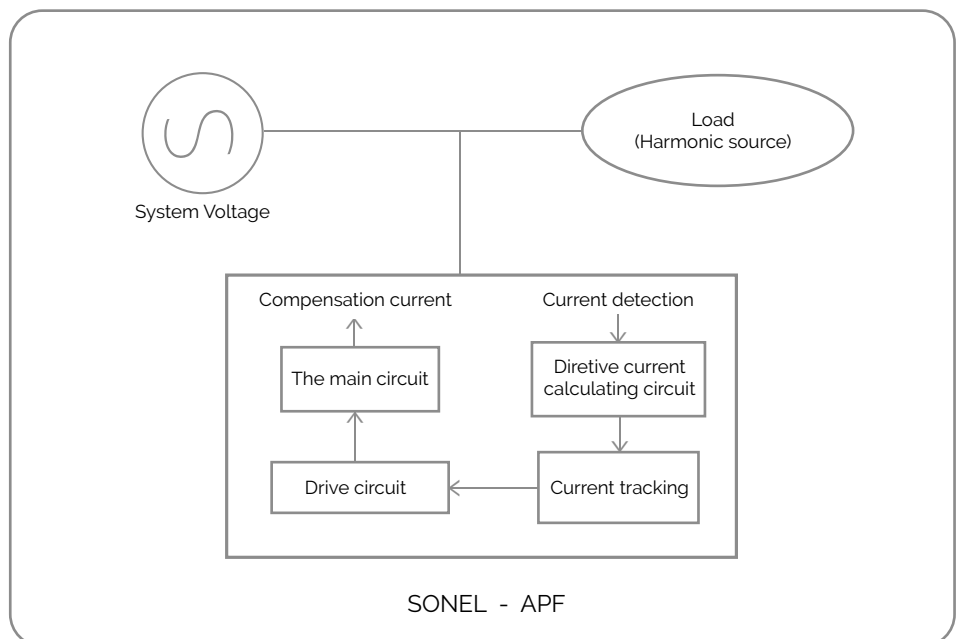
SONEL APF series low voltage active power filter is the newest generation and all digital harmonic elimination device which is developed by our own company. Comparing with the traditional technology, it has advantage such as faster speed, smaller appearance, stronger function and easy to install, debug and maintain. These advantages make active power filter easy to solve power quality problems. Except for the dynamic compensation for harmonics, APF also can realize reactive power compensation, solve the voltage fluctuations and flicker etc., power quality problems. Meanwhile APF adopts the most advance control technology to achieve full automation control and it is the first choice device to eliminate the harmonic.

Working Principle

ADF adopts power electronic technology. Its main components are controller, converter, DC - link capacitor, connection reactor and so on. APF control system includes DSP + FPGA, directive current calculating circuit and current tracking control circuit to realize parameter setting and control instruction etc. function. APF device principle is shown below :

ADF device detects load current by CT and calculates by internal DSP, then extracting the harmonic part from the load current and send to internal IGBT through PWM signal, so as to control the inverter to generate harmonic current which is equal and opposite of load harmonic current, and then this harmonic current will be put into the power grid and realize the filtering function.

More Professional, more comprehensive,
always LEADING!



SONEL - APF

APF Device Principle

Technical Specifications

Parameter	Value
Wiring type	3P4L
Work voltage	380V ± 20%
Work frequency	50Hz / 60Hz
Dynamic full response time	Open loop ≤ 5ms; Closed loop ≤ 10ms
Function	harmonic treatment; reactive power compensation; reactive power & harmonic treatment integrates compensation
Loss	< 3%
Filtering range	2 - 51 harmonic orders
Filtering effect	Filtering rate > 90%
Protection type	Short circuit, under voltage, overload, phase loss, over pressure, over temperature, over current protection
Protection grade	IP30; other IP degree can be customized.
Cooling way	Forced air cooling
Working environment temperature	-25°C ~ +40°C
Working environment humidity	≤ 90% RH no condensation
Storage environment temperature	-40°C ~ +65°C
Altitude height	≤ 2000m; >2000m, automatic de-rating 1% 100m
Installation environment	It should be indoor installation, no fire, no explosion, no chemical corrosion, no conductive dust and keep away from the vibration.
Communication mode	Electro - optical communication
Installation type	Wall hanging type, drawer type, cabinet type
Compensation current	30 ~ 1200A



Automatic overload Suppression

Device is independent of power grid impedance and system impedance and it won't have any influence by the changes of the power grid impedance and the system impedance. Automatic overload suppression and no resonance risk.



Soft Start

Adopt soft start scheme which can eliminate the interference for power grid when switching on or off and achieve no-impact start for power grid, automatic detecting and tracking the changes for power grid harmonic and no need man watch over.



Full Modular Design

Full modular design has self - diagnosis and self - recovery function, as well as perfect protection and operation status records. It won't influence user's normal power supply for installation, debugging, maintenance, switching off and other operation.



Original Imported

Good filtering harmonic effect, adopt original imported core components, sufficient capacity design, strong overload capacity, stable, reliable and durable

Selection Table



Model (Cabinet type)	Compensation Current	Dimension
SONEL-APF0,4/50-3P4L-A	50 A	Width x depth x height 800 x 800 x 2200 (Customizable)
SONEL-APF0,4/75-3P4L-A	75 A	
SONEL-APF0,4/100-3P4L-A	100 A	
SONEL-APF0,4/125-3P4L-A	125 A	
SONEL-APF0,4/150-3P4L-A	150 A	
SONEL-APF0,4/200-3P4L-A	200 A	
SONEL-APF0,4/250-3P4L-A	250 A	
SONEL-APF0,4/300-3P4L-A	300 A	
SONEL-APF0,4/400-3P4L-A	400 A	



Model (Wall hanging type)	Compensation Current	Dimension
SONEL-APF0,4/35-3P4L-B	35 A	Width x depth x height 463 x 265 x 703 (Customizable)
SONEL-APF0,4/75-3P4L-B	50 A	
SONEL-APF0,4/75-3P4L-B	75 A	
SONEL-APF0,4/100-3P4L-B	100 A	



Model (Drawer type)	Compensation Current	Dimension
SONEL-APF0,4/35-3P4L-C	35 A	Width x depth x height 457 x 630 x 253 (Customizable)
SONEL-APF0,4/50-3P4L-C	50 A	
SONEL-APF0,4/75-3P4L-C	75 A	
SONEL-APF0,4/100-3P4L-C	100 A	

The Harmonic Current Calculation

1. Model selection is according to the rated current

$$I_H = I_N \times \text{THDI}$$

I_H Harmonic current content

I_N System rated current

THDI Total harmonic distortion rate

2. Model selection is according to the load situation

$$I_H = \theta_L \times I_N \times \text{THDI}$$

I_H Harmonic current content

I_N System rated current

THDI Total harmonic distortion rate

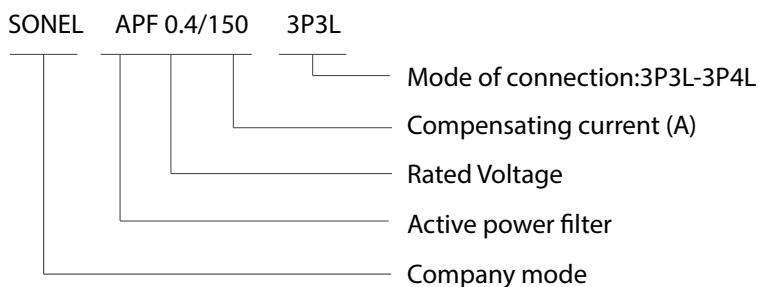
θ_L Non linear electrical device's actual operating load rate

Characteristics

All or selected specific times harmonic compensation, maximum 50 times.	Compensating power factor
Multiple language control and display panel	Operation navigation settings and parameters selection
PC operational software	Fault diagnose and maintenance system
Present power quality display	Remote manipulation
Current transformer selection range, primary side current (50A to 5000A)	Adopt to the whole global market (CE, UL certificates)
All digital (the third generation active filter)	Fast control (effective compensation harmonic)
Current transformer can be connected upstream and downstream of the filter (easy to connect)	Unequal capacity cascade (cost saving)
Large Range current transformer (flexible)	High performance internal component (maintenance interval MTBF > 100000h)
User-friendly debug (easy to use)	Advanced Pc analysis tool (online power grid monitoring)
TCP/IP connection (remote maintenance)	High overload performance (outstanding compensation dynamic load performance)

Application and Selection

MODEL ILLUSTRATION



PARAMETER SELECTION

- Current transformer parameter
- Capacity
- Wiring System

