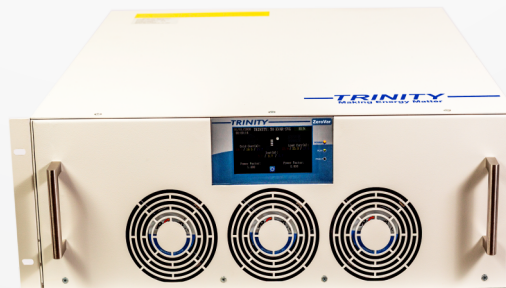




ACTIVE HARMONIC FILTERS

AHF FUNCTIONS

- ✔ MEETING USERS' REQUIREMENTS:
- ✔ PF=0.99 and THDi < 5%
- ✔ Compensation for 2- to 50-order harmonics
- ✔ Capacitive and inductive reactive power compensation
- ✔ Three-phase unbalance compensation



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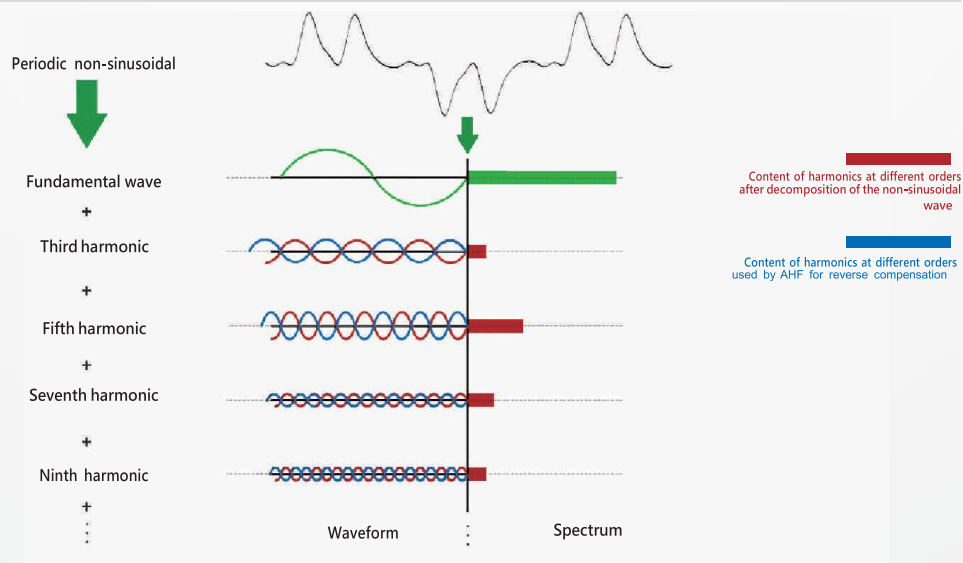
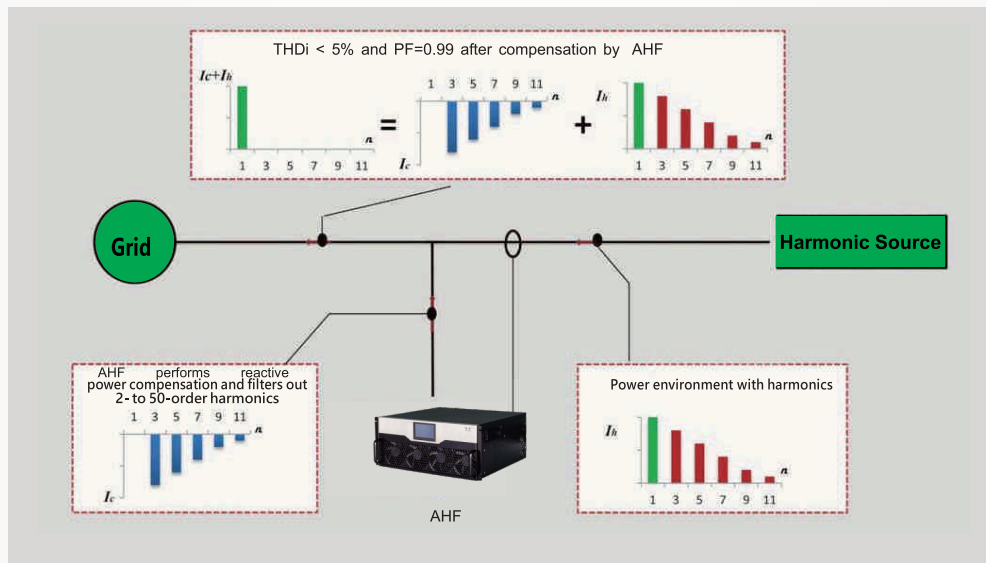
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AHF

OPERATING PRINCIPLE

AHF checks the load current in real time through the external CT, performs computing through the internal DSP, and then tracks the harmonic components of the load current. After that, it sends the harmonic components to the internal IGBT through PWM signals to control the inverter to generate a current with a power equal to that of the harmonic and a direction reverse to that of the harmonic. Then, it injects the current into the compensation harmonic current to implement the filtering function



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TRINITY ACTIVE HARMONIC FILTER

Technical Data

Technical Data				
Rated capacity	50A	75A	100A	150A
Cooling mode	Air cooling			
Environment temperature	-20 55°C			
Parallel operation	When multiple devices are running in parallel, refer to Table 2-9 for the selection of transformer and 2.3.5 for the connection method.			
Current transformer	50:5 10000:5			
Power consumption	≤ 2.5% of rated capacity			
Requirements for air volume	≥200m ³ /h	≥350m ³ /h	≥500m ³ /h	≥800m ³ /h
Grid frequency	50Hz(47.5-52.5Hz); 60Hz(57.5-62.5Hz)			
Grid voltage	440V(350-530V)			
Connection mode	Optional with 3 phases + N + PE or 3 Phases + PE			
Protection grade	IP20			
Overall Dimension (WxHxD)	505*280*600mm			
Weight	33kg	35kg	43kg	45kg

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INSTALLATION MODE

Support rack mount & wall mount two installation methods

Appearance and Installation Dimension

AHF Dimension

The device capacity is divided into 50A,75A,100A,150A. And each device can be operated in any parallel combination, of which the external dimensions of 50A, 75A, 100A and 150A are completely the same. Please refer to the following figure for specific external dimensions.

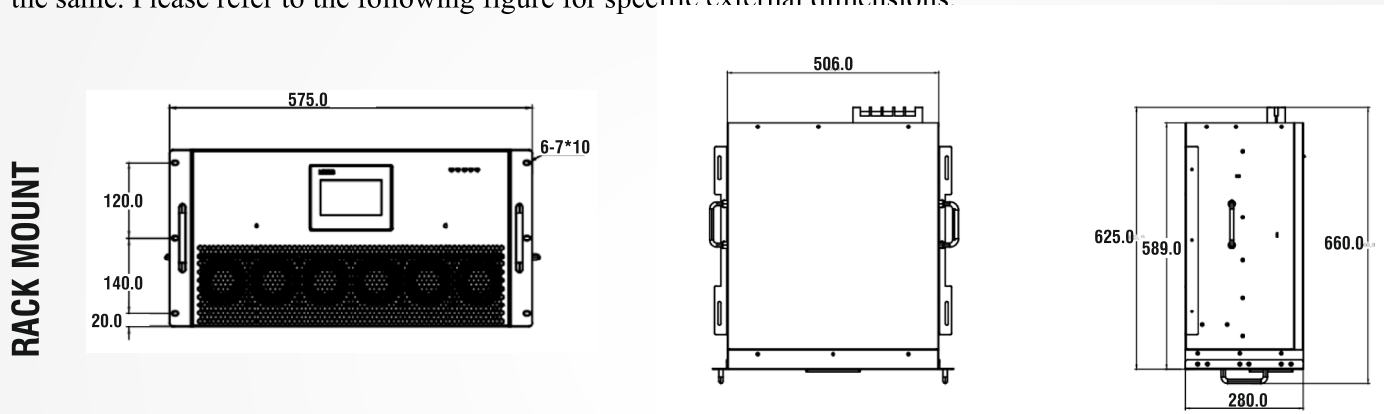


Figure 1 - 1 Overall Dimension Drawing (Unit: mm) of Rack AHF Module

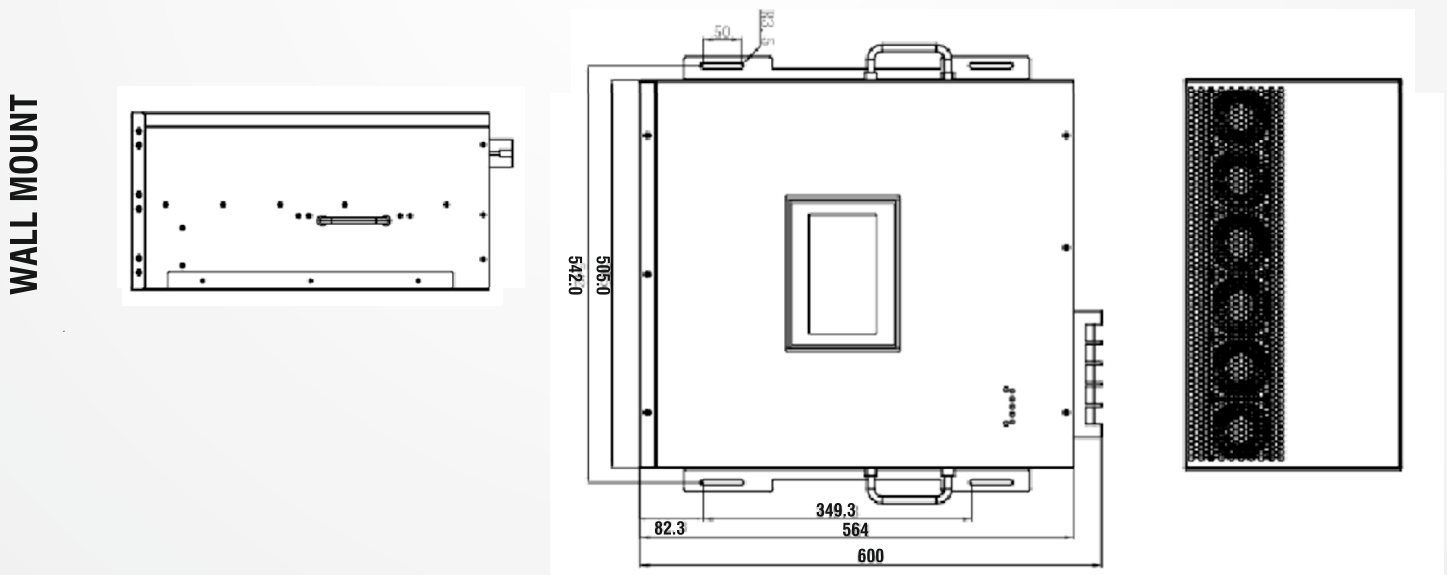


Figure 1 - 2 Overall Dimension Drawing (Unit: mm) of wall mounted Module

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ACTIVE HARMONIC FILTERS

Device Parameters	
Operating voltage	440V
Operating frequency	50/60Hz
Main circuit structure	Three Phase Four Wire/Three Phases Three wires
Rated capacity(Module)	50A, 75A, 100A, 150A
Circuit topology	Three-level structure
Multi devices in parallel	Up to 12 sets can be connected in parallel
Response time	≤5ms
Efficiency of single machine	not less than 98%
Working mode	Harmonic compensation, reactive power compensation, three-phase load unbalance compensation.
Harmonic filtering	The device can filter out harmonics 2 nd to 50 th odd orders at the same time(Full), and specific order harmonics(between 2 nd to 50 th odd) can be filtered out by setting(selective)
Current limit	The compensating current is automatically limited within the rated current range.
Compensation effect (At sufficient capacity)	Total harmonic current distortion rate (THDi) ≤ 5%; Reactive power factor ≥0.99; Three-phase unbalance degree≤ 5%;
Display Interface	External 7" HMI or built-in HMI
Display status	Displayed in a data mode
Operations	Manual start, automatic start
Communication	RS485, Modbus communication protocol
Environment temperature	-20 ~ 55 °C (rated power output)
Storage temperature	-30 ~ 70°C
Relative humidity	95 % at a maximum, no condensation
Altitude	Below 1500 meters above sea level
Cooling requirements	Require well ventilation, and the air vent can be opened through the cabinet door, or a fan installed in the cabinet.

Note:

1. The above parameters can be reached when the compensating current reaches 50% of the rated capacity and above.
2. If devices need mitigate even order harmonics, inform us in advance.
3. If devices need control capacitors, inform us in advance.

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APPLICATION NOTE

HARMONICS COMPENSATION

BELOW DESIGN FORMULAS JUST FOR DESIGNER REFER

$$I_h = K \times I_N \times \frac{THD_i}{\sqrt{1+THD_i^2}} \quad (1)$$

Note: I_N ——— Equipment rated current
 K ——— Load rate
 THD_i ——— Load distortion rate

INDUSTRY STANDARD CAPACITY POLLING LIST

This list just for reference

industry Transformer capacity/KVA	compensation capacity choice polling list					
	metro, airport tunnel	communication commercial building, bank	medicine industry	automobile manufacture shipping manufacture	Chemical industry Petroleum	Metallurgy industry
THDI distortion rate	15%	20%	25%	30%	35%	40%
200	50A	50A	100A	100A	100A	100A
250	50A	100A	100A	100A	150A	150A
315	100A	100A	150A	150A	150A	200A
400	100A	150A	150A	200A	200A	250A
500	100A	150A	200A	200A	250A	300A
630	150A	200A	250A	300A	350A	400A
800	200A	250A	300A	350A	450A	500A
1000	200A	300A	400A	450A	550A	600A
1250	300A	350A	450A	550A	650A	750A
1600	350A	500A	600A	700A	850A	950A
2000	450A	600A	750A	900A	1050 A	1200A
2500	550A	750A	900A	1150A	1300A	1500A

NOTE: AHF capacity got from 80% load of transformer capacity

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