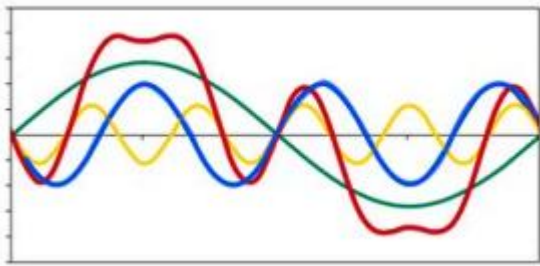




What are Harmonics?

Harmonic voltages (harmonics) have the potential to cause equipment malfunction, overheating and hardware damage. They are a result of the distortion of normal electrical current that is caused by non-linear electrical loads. These non-linear power supplies draw current in high-amplitude short pulses that create significant distortion in the electrical current and voltage wave shape, also known as harmonic distortion. Harmonic distortion is measured as total harmonic distortion (THD).

The distortion travels back into the power source and can affect other equipment connected to the same source. Most power systems will experience problems when harmonics become a significant component of the overall load.



Caption:
■ Non sinusoidal waveform
■ First harmonic (fundamental)
■ Third harmonic
■ Fifth harmonic

Problems Caused by Harmonics

Harmonic voltages in electricity supply can cause equipment and machinery to behave erratically or entirely malfunction. However, it can go completely undetected and misdiagnosed.

Cause		Effect		Problems
Rise of the total current harmonic distortion (THD).	>	Current increase in conductors, temperature increase in conductors, possible insulation loss in conductors, malfunction in PLC.	>	Economic losses due to production down times.
Unwanted tripping of circuit breakers and residual current devices.	>	Power cuts in production lines.	>	Economic losses due to production down times.
Increase in transformer temperature.	>	Premature ageing of the transformer.	>	Extra costs in maintenance.
Decrease in UPS performance.	>	Need to expand UPS.	>	Installation extra costs and risk of production downtime and data loss.
Decrease in motor performance.	>	Premature ageing of motors.	>	Extra costs in maintenance.

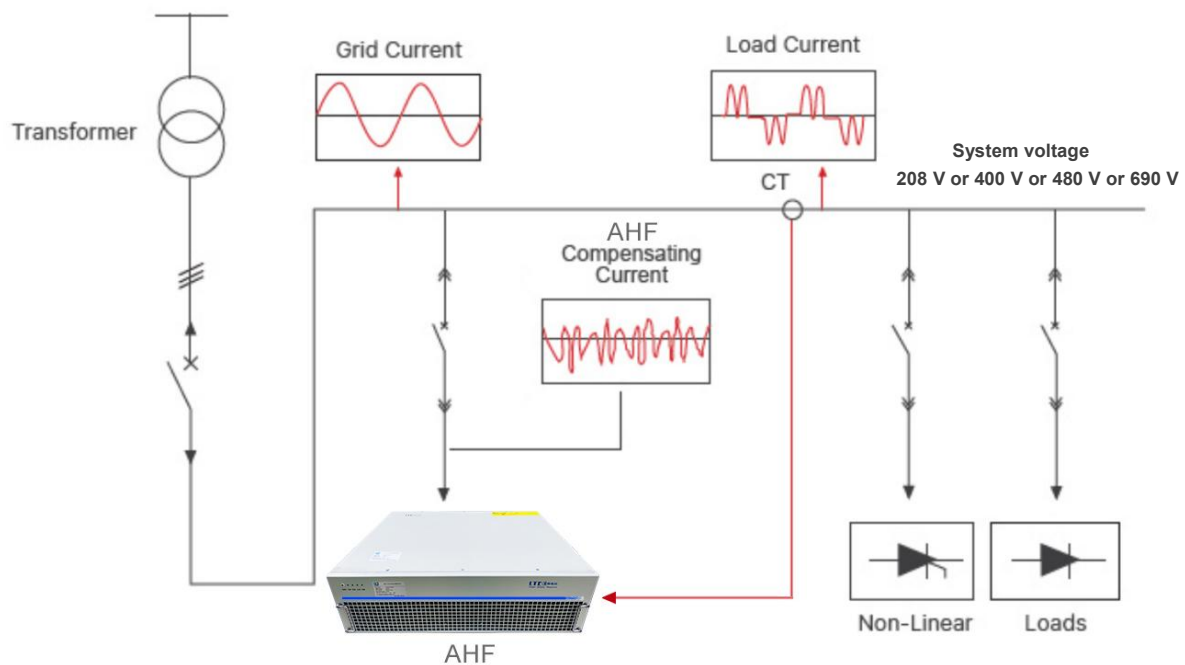
Active Harmonic Filter (AHF)

AHF are filters, and a perfect comprehensive solution to power quality problems with the grid such as harmonics, reactive power, and three-phase load imbalance. AHF can be used to filter out harmonics in the power system which are significantly below the switching frequency of the filter.

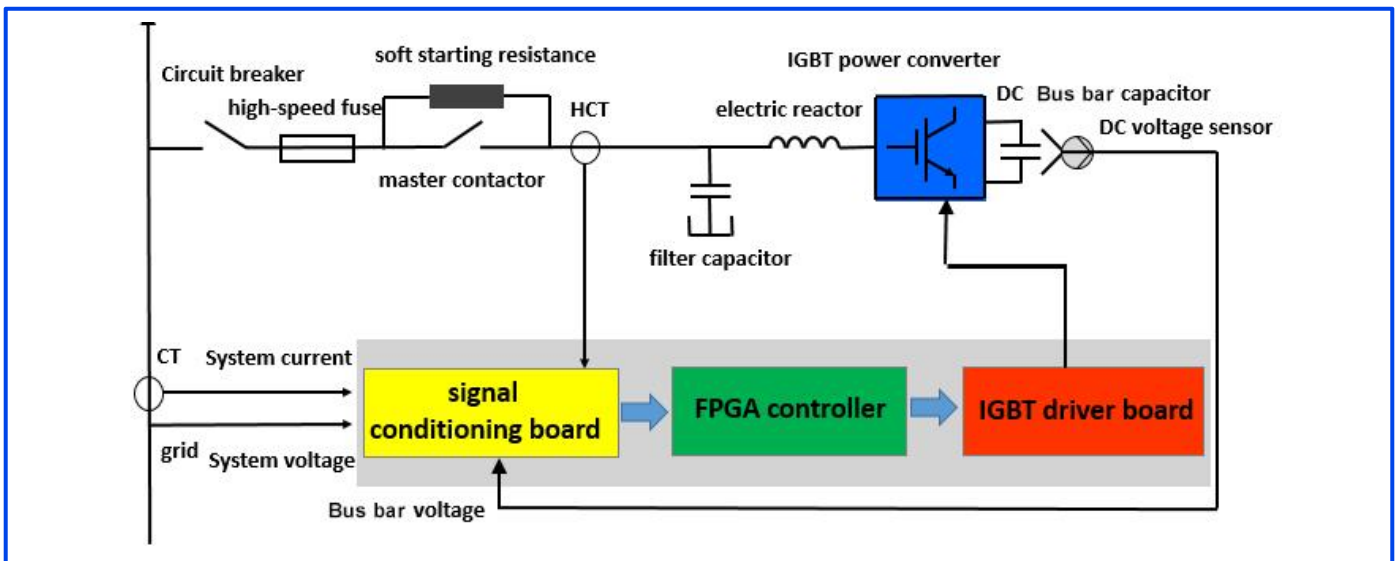
AHF are used to filter out both higher and lower order of harmonics in an electrical system.



How Active Harmonic Filters Work



Schematic Diagram of AHF Internal Control



AHF specifications

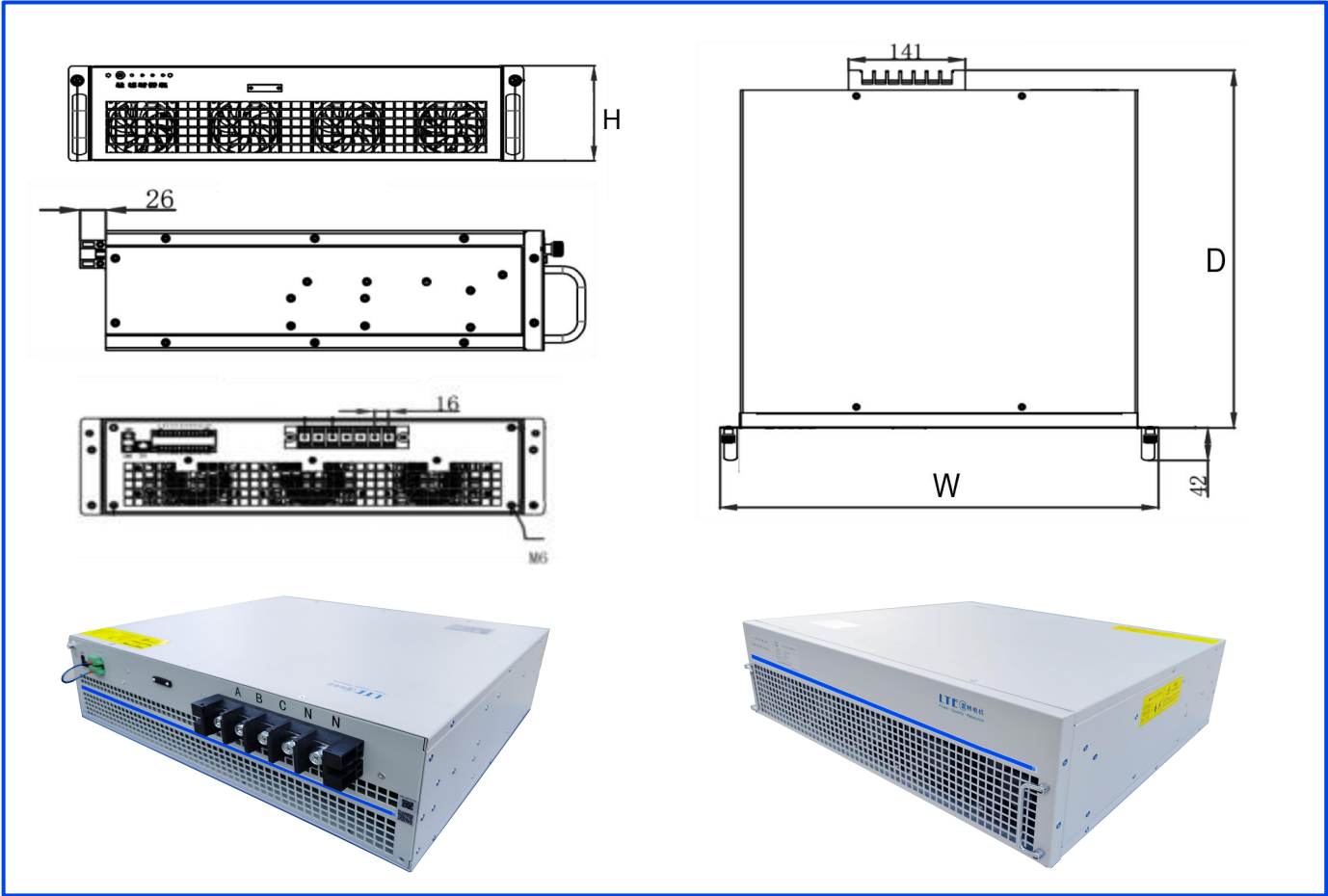
Product type	Active harmonic filter for reduction of the harmonic distortion of variable frequency drives or other non linear loads. IGBT unit control allows for very high efficiency and also enables filtering up to 50th harmonics, which results in efficient elimination of high harmonics.
Topology	IGBT - High speed 5 IGBT in TRENCHSTOP™ 5 technology co-packed with full rated RAPID fast and soft anti parallel diode
Supply voltage	3 phase • 208 V - 400 V - 480 V - 690 V (-20% / +20%) 50 Hz / 60 Hz (-10/+ 10%)
Compensation	- Harmonic Mitigation of Harmonics 2nd to 50th order - Power Factor Correction - Imbalance compensation
Rated current	30 A - 50 A - 75A - 100 A - 150 A (compensation current)
CT accuracy	0.5 or higher
Standards and requirements	IEEE519, IEC62477
Humidity	5.....95% - (non-condensing) during operation
Ambient temp.	min. -10 °C max. 40 °C
Altitude	< 2000 m derating above 1000 m: - 5 % / 1000 m (up to 4000 m)
Specific data	
Active loss	< 2.5 %
Efficiency	> 97.5 %
Electrical connections, controls and requirement	
Protection level	Module IP20, electronic layer IP42 (IP54 can be customized)
Anti-pollution level	Level 2 (level 3 can be customized)

208 V / 400 V System voltage (50 Hz / 60 Hz)

Dimensions	Specification of module	30 A	50 A	75 A	100 A	150 A
	Weight of module	13 kg	24 kg or 25 kg	24 kg or 25 kg	38 kg	39 kg
	Size of module W*D*H (rack type)	480*130*440	480*200*530 or 680*200*530	480*200*530 or 680*200*530	680*200*580	680*200*580
	Size of module with controller W*D*H (wall-mounted type)	480*130*440	480*200*530 or 680*200*530	480*200*530 or 680*200*530	680*200*580	
	Color	Standard color 7035, black and blue can be customized				

480 V / 690 V System voltage (50 Hz / 60 Hz)

Dimensions	Specification of module	50 A	100 A
	Weight of module	55 kg	55 kg
	Size of module W*D*H (rack type)	680*200*580	680*200*580
	Size of module with controller W*D*H (wall-mounted type)	680*200*580	680*200*580
	Color	Standard color 7035, black and blue can be customized	





Sino-German joint venture

About LTEC

We have specialized in the production of reactors, capacitors, filters, and transformers since 2004. Our primary production plant in Kunshan City spans an area of 20,000 square meters and is located just a one-hour drive from Shanghai Pudong International Airport (PVG).

Our R&D teams are based in Gelsenkirchen and Taipei, and we hold approximately 120 patents related to our products.

In 2023, **Drosseln GmbH** invested in **Jiangsu LTEC Electric Co., Ltd.**, forming a Sino-German joint venture with the purpose of enhancing competitiveness in the Asian market.

We provide our customers with world-class LV and HV products, along with reliable technology and friendly, flexible customer support. Additionally, we develop **"tailor-made"** products and solutions tailored to your applications.

Our products have been exported to the United States, Germany, the United Kingdom, Israel, Australia, and more than **60** countries and regions worldwide.

Just contact us

We are right here waiting for you...