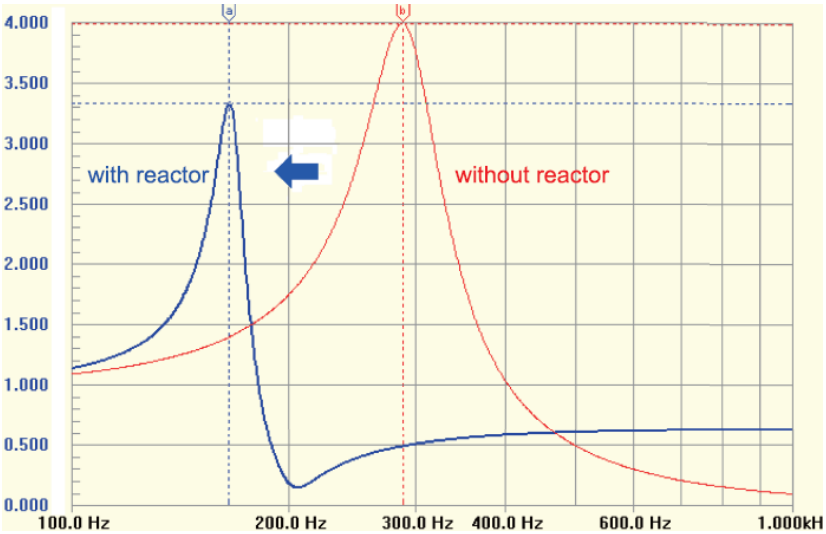
400 V
300 kwar-1500 kwar

HTEQN type reactive power compensation
Product details brochure

The advantage HTEQN type reactive power compensation equipment

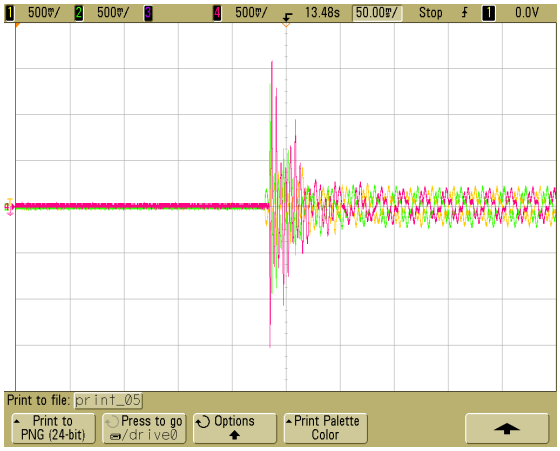
1. Reactor Elimination in Series Technology

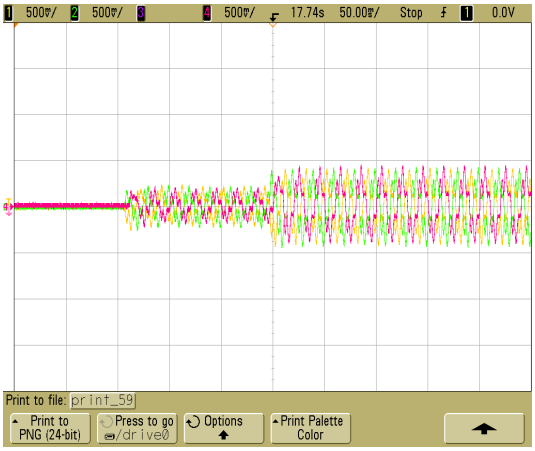
According to different field conditions, HTEQ uses 5%-7%or 12%-14%detuning reactor in series in capacity loop, transfers harmonic frequency of capacitor or electric network to harmonic frequency lower than main ones (quintuple harmonics or triple harmonics), avoid capacitor damage or even collapse of electric network caused by capacitors and harmonic resonance. The following picture is the typical capacitor/ network amplification factor graph which reflects 6% reactor in series transfers harmonic frequency of system from close to quintuple harmonics to close to triple harmonics



2, Transient-free switching tuning / detuning capacitor bank Technology

When capacitor bank is put into system in normal manner, it can produce huge transient flow impact, which would impose negative influences on capacitors, fling-cut switches and electric equipments. Consequently, it may reduce the service life of capacitors and fling-cut switches, produce great electromagnetic disturbance in power distribution system and disturb the normal operation of electric equipments. HTEQ adopts zero transitional course tuning capacitor switching technology, which can completely eliminate transient flow and disturbance when capacitor bank switches, enhance greatly the tracing speed of compensating equipments, enhance the reliability of capacitors and fling-cut switches, and extend their service life.



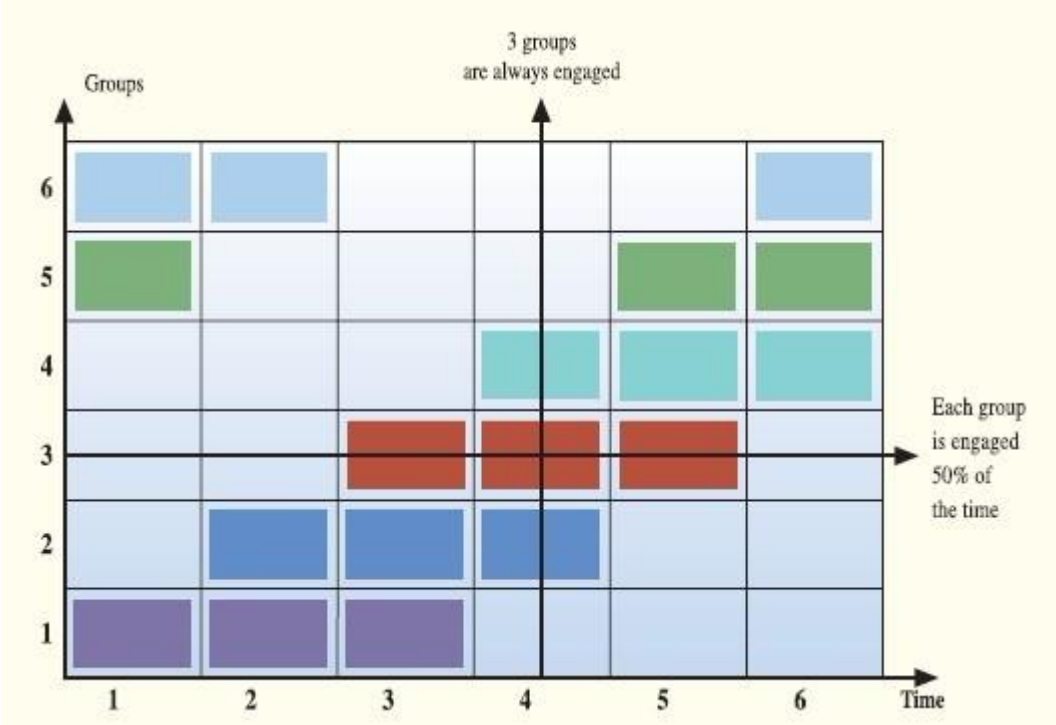


the flow when tuning / detuning capacitor bank is put into random use

Transient-free switching technology can effectively avoid input flow

3 scan mode of capacitors

HTEQ uses specific scan mode to protect capacitors. When the need for compensation capacity decreases, the capacitor bank that keeps on working for the longest time would be turned off first. When the need for compensation capacity increases, the capacitor bank that is not put into use for the longest time would be used first. When the need for compensation capacity keeps unchanged for a long time, electronic switches conduct alternate operation continually, according to the set intervals; swtiches will switch off one capacitor bank at the same time it switches on another one, thus to keep the total compensation capacity unchanged. Through such operation, it can guarantee that each capacitor bank can be put into use in alternation, avoid unbalanced operation of capacitor banks, and ensure the total external compensation capacity can meet the compensation need. Therefore, the balanced and low duty cycle can reduce the average current of capacitors, decrease their working stress and thus extend their service life.



4. High-speed real-time tracking compensation Technology

HTEQ controller uses instantaneous reactive power theory to real-time calculation reactive power the system needs. Meanwhile it also adopts solid electronic switches to switch tuning / detuning capacitor bank during zero-transitional course, which means it can avoid surge current caused when traditional contractor switches capacitor, and it also can switch all needed capacitor banks within 20ms. All the information such as electric parameters, states of system, and detailed records of historical events can be displayed on LCD widescreen. It can also upload data to computer system through com ports, to form centralized lubrication system.

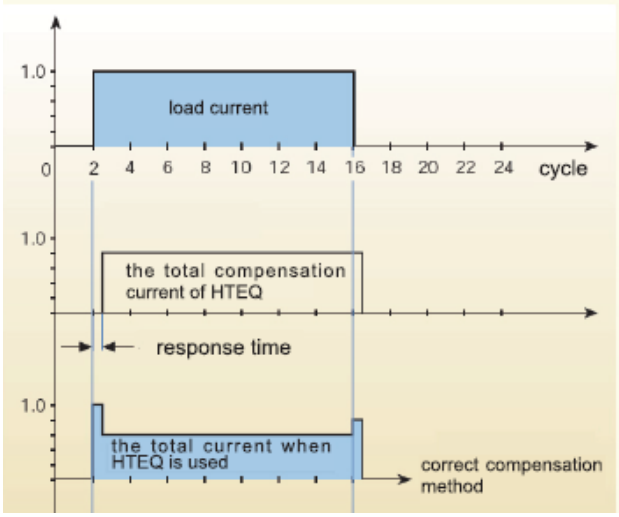
High-speed HTEQ is an ideal solution to the control of power quality. In power distribution system, high-speed HTEQ can reach almost perfect effects in the aspects of power factor control, electric network voltage stabilization, and energy saving and cost reducing.

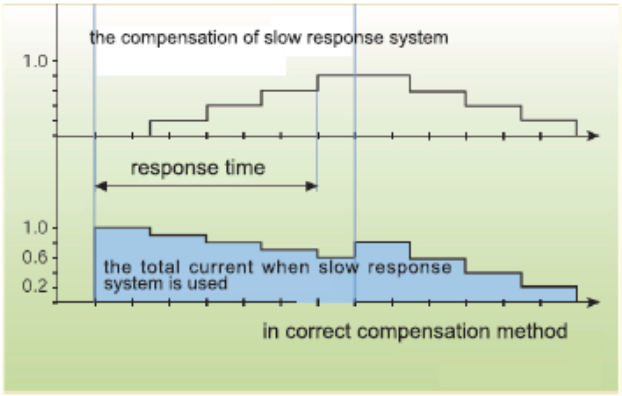
In the power distribution system where active power changes rapidly, high-speed HTEQ is the only proper compensation method. Low-speed compensation system or quasi-realtime compensation system will lower power quality, produce electrical energy waste, or even cause system resonance. The following example is the comparative result of rapidly changing reactive power compensation by high-speed HTEQ system and quasi-realtime compensation system respectively.

The top half of the diagram shows the compensation effects by high-speed HTEQ system. When load current increases suddenly, high-speed HTEQ would put into use all needed capacitors within 20ms, and the total current would obviously decrease. When load is removed, high-speed HTEQ would swtich off all relevant capacitors within 20ms.

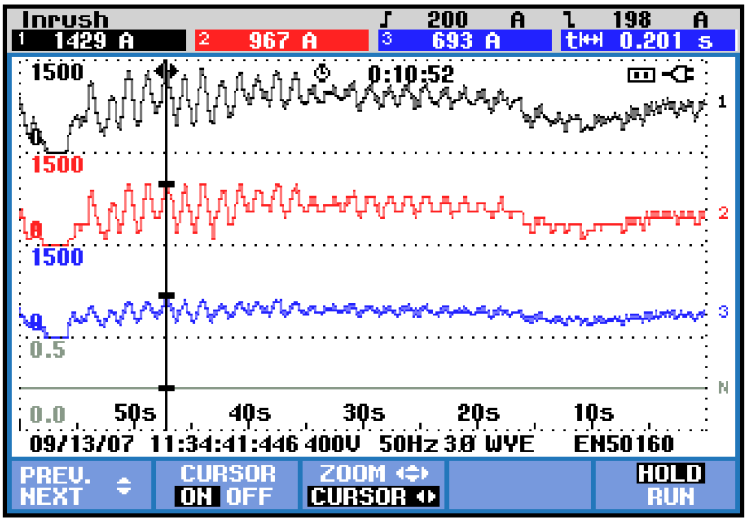
The latter part of the diagram shows the incorrect compensation mode by quasi-realtime compensation system. In the system, swtiching one groups capacitors requires 3 cycles, and

swtiching all four groups requires 12 cycles. Due to the time delay of switching, compensation capacitor would be added step by step, and the total current is also reduced step by step. As to the time delay of removal, capacitor is turned off gradually, and overcompensation current thus appears. However, for the fast-changing reactive power, such compensation effects will impose negative impacts. There would be an increase in total system current instead of decrease, and overcompensation or undercompensation can result in voltage fluctuation and flicker.





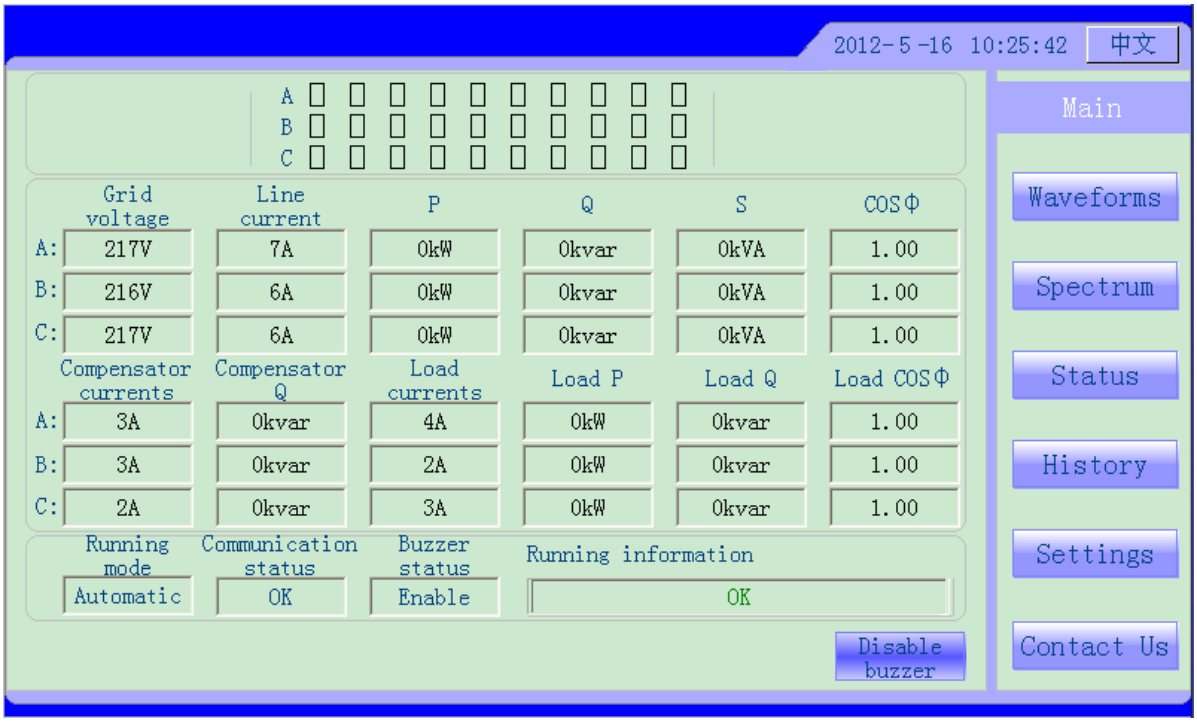
The following diagram is the measured data of real-time tracing compensation effects by HTEQ series high-speed dynamic reactive power compensator for harmonic elimination. The black curve stands for the load current with rapid fluctuation; the red curve stands for the real-time tracing compensation current; and the blue curve stands for compensated side current. The tracing by HTEQ is rapid and correct. Before compensation, the load summit current is as high as 1423 A, while after compensation it falls to 693 A. And the current fluctuation amplitude falls from around 900 A to around 350 A.



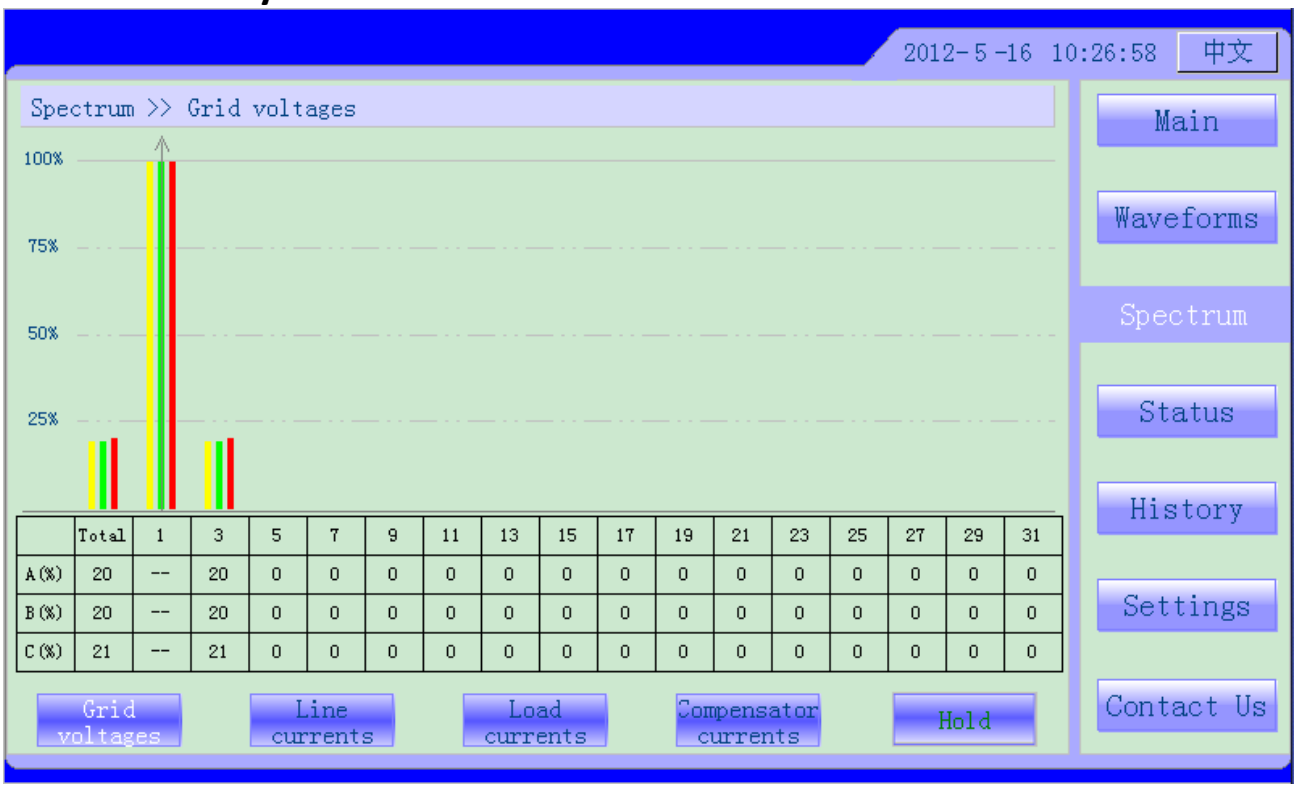
Controller picture:

http://market.drivemotor.biz

Main page



Harmonic analyze



On-site installation pictuers


DANGER
Sub1


DANGER
Main