

Harmonic filters

Type LTF thyristor-based filters

Thyristor-based compensation

Thyristor-based compensation is commonly used to improve the power factor of loads whose profile changes very rapidly. A marine shipboard, process extruder, welding and electroplating, and steel mills all are dynamic processes requiring cycle by cycle compensation to stabilize system voltage integrity.

Dynamic VAR compensation uses ultra rapid switching technologies to inject and remove capacitive reactance as demanded by rapidly changing dynamic loads. These style electrical loads require very rapid reactive power compensation schemes that cannot be satisfied with traditional switched (magnetic contactor) methods. PSS offers a complete range of rapidly switched, cycle by cycle products providing reactive power (KVAR), harmonic filtering, and voltage stability. Contact a PSS application engineer to discuss the specific needs of your system.

Thyristor-based equipment manufactured by PSS offers the fastest VAR switching capability on the market. Using thyristor (SCR) “soft-switching” techniques, our equipment injects capacitance into the power system at zero crossing to alleviate problems with switching transients. Our equipment inserts capacitance into the system within 8-10 milliseconds of sensing the lagging PF condition. That is

only $\frac{1}{2}$ to $\frac{2}{3}$ of a cycle whereas conventional techniques compensate in 40 seconds!

Benefits of subcycle switching technology and compensation

- Facility voltage is stabilized
- Facility voltage drops are reduced
- System electrical efficiency is improved
- Harmonic distortion can be minimized
- Power factor is maintained at optimum efficiency.
- Flicker can be reduced or eliminated altogether.
- Release system capacity 47
- Fast controller performs 10,000 operations per second
- Full compensation in one cycle.

Harmonic filters

Type LTF thyristor-based filters

Our rapid VAR compensation equipment supplies leading VARs when they are needed, by inserting and removing capacitive reactance from the system as demanded by dynamic loads. They use rapid switching devices and soft switching technology to rapidly insert or remove capacitive reactance from your system, and to do so without creating switching transients. VAR compensation enables users to add more loads to existing power sources, saving the costs associated with downtime and equipment for power source upgrades.

By using our rapid VAR compensation equipment to control VARs, you will reduce energy flows between the source and the equipment resulting in higher energy efficiency and voltage stability. In cases where energy costs increase with lower power factor, you will be able to reduce your energy costs. Our state of the art equipment can sense a need for reactive VAR in and complete the switching of capacitive elements within 2/3 cycle. Our proprietary controller will calculate the VAR requirements and switch the appropriate steps of capacitance to maintain your target power factor.

Ten reasons why it's important to improve your Power Factor

1. PF improvement reduces the current demanded by inductive loads and supplied by transformers or generators.
2. Your electrical equipment will run cooler.
3. Your electrical equipment will dissipate less heat in your building and reduce air conditioning costs.
4. Your electrical equipment will last longer and operate more efficiently.
5. Your peak demand will be reduced.
6. Your total energy consumption will be reduced.
7. Your system voltage drops will be reduced.
8. You will release capacity in your existing power sources.
9. You will improve your electrical system reliability.
10. Your energy bill may be reduced.

Harmonic filters

Type LTF thyristor-based filters

Product Specifications

Auxiliary Power	110 to 230VAC, 50/60Hz (consumes less than 50 watts)
VAR Capacity	Unlimited
VARs / switch	25 to 100 kVAR per switch
Response time	10 to 12 milliseconds typical (6.67 msec best)
Switch Rate	1 operation per cycle maximum
Switch legs	(2 switches 2 out of 3 phases, no neutral connections)

