

Solid State Switched PFC

Power Factor Correction - The Modern Way

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There is an increasing demand to improve the quality of supply through Power Factor Correction, reduction in harmonics and reduction in voltage fluctuation. The solution to this is our OPTIVAR type of Solid State Switched Capacitor Banks.

The OPTIVAR Solid State Switched Capacitor Banks have been designed to replace the conventional Automatic Power Factor Correction systems, which are limited by their switching delay and number of switching operations.

The Optivar system has gone through continual development over the last 6 years with enhancements using the latest state of the art switching technology.

This technology provides huge financial and technical benefits for most power factor correction and filter applications.



Conventional Automatic Power Factor Correction Systems

Conventional automatic PFC systems operate using slow acting controllers that switch capacitors into circuit with cumbersome mechanical contactors. The system is limited to installations where the loads vary slowly. The inherent shortfalls of the mechanical based design is highlighted by its inability to cope with today's ever increasing need for fast response systems where load changes are rapid.

OPTIVAR, Solid State Switched Capacitor Banks

Unlike conventional systems, the capacitors are switched into circuit with thyristors instead of contactors. The thyristors are designed to provide fast switching of the capacitor steps typically 20 milliseconds or 50 switching operations per second. The unique "Zero Crossing" design ensures that inrush currents are eliminated.

The power factor is measured by a specially designed fast acting control relay with a sensing time of approximately 40 milliseconds.

STANDARD RATINGS

OPTIVAR, Solid State Switched Capacitor Banks are manufactured in the standard sizes. Custom designs are available on request.

APPLICATIONS

OPTIVAR, Solid State Switched Capacitor Banks can be used for all Power Factor Correction applications but are especially designed for those where very fast load fluctuations exist and conventional PFC systems response times are unsuitable.

The very high speed switching operation is designed for dynamic power factor compensation.



Custom made system with a separate compartment for reactors

The OPTIVAR system can be used for, but is not limited to the following applications:

Type of Loads

- Large motors e.g. Timber mills
- Lifts
- Cranes
- Crushing, Bailing etc.
- Welding Applications
- Induction Furnaces

Benefits

- Power Factor Improvement
- Reduction in Electricity cost or kVAR penalty charges
- Reduction in load
- Extra load can be added to existing transformer
- Reduction in voltage variation during load changes
- Reduction of harmonics, mainly 5th and 7th
- No replacement of "worn out" contactors

AUSTRALIAN MADE

The OPTIVAR, Solid State Switched Capacitor Banks are designed and manufactured in Australia by Capacitor Technologies Pty Ltd. They are tested to Australian Standards with quality control to AS/NZ ISO 9001 ensuring high quality of manufactured product and traceability.

FEATURES

- Excellent High Speed Power Factor Control.
- Fast Voltage Control.
- Harmonic Blocking reactors to prevent resonance conditions and to reduce existing system harmonics.
- Modular construction for easy maintenance and simple extension of capacitor rating.
- Suitable for indoor or outdoor application.

STANDARD SPECIFICATIONS

DESIGN: Mild steel cabinet, powder coated, standard electrical orange.

RATED VOLTAGE: 415V, 3 Phase, 50 Hz.

PROTECTION: IP 31 Standard, IP 51 & 54 also available.

RATING: Refer standard rating table. Other ratings and voltages available on request.

CAPACITORS: Low loss, self healing, type LKT aluminium cans with overpressure safety device. Temperature rating 60°C to ICE 831-1/2, EN 6083-1 & VDE 0560 part 41.

REACTORS: 3 phase low loss reactors with low flux density. Detuning frequency 189Hz.

STEP SIZE: 50 kVAR standard, small units 25 kVAR, other ratings on request.

SWITCHING TIME: System: < 60msec, Thyristors only < 20msec.

CUSTOM DESIGN: Other ratings and voltages are also available on request

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