UDEET ELECTRICALS

A MUMBAI BASED COMPANY

ISO 9001:2015 & CE ACCREDITED CO.

THE PERFECT POWER QUALITY SOLUTION PROVIDER

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COMPANY PROFILE

Udeet Electricals is a Mumbai based Company, started in the year 2000. We started our activities as a licensed electrical contractor. Subsequently the activities were diverted towards manufacturing of various types of electrical panels, thyristor switched automatic Power Factor correction systems and Harmonic Filters. At present we are working for Industries, Railways and various Electric Supply Companies with an objective of P.F. improvement and mitigation of harmonics in their distribution networks. In brief, our emphasis is more on giving solutions to solve poor power quality problems.

We have a modest manufacturing setup in Mumbai. We are an ISO 9001-2015 and CE certified company, and have established proper quality standards and procedures for manufacturing all the products. We at Udeet Electricals were amongst the first in

India to understand the importance of Thyristor switching of capacitors for improvement of P.F. of conventional and fast variable electrical loads. Our products are designed to take care of reactive energy problems faced by modern day industries. The company manufactures a range of products for such applications to suit to individual needs.

We are also working for Railways on their traction substations for PF improvement and harmonic mitigation. We are proud of completing few such projects successfully. Reactive energy problems have become very critical after most of State Electric supply companies in India have started the practice of charging on kVAh consumption basis. Udeet Electricals is managed by highly experienced personnel of different disciplines to manage regular activities

We also manufacture systems intended for fast switching of HV capacitors up to 11 kV. The "On" & "Off" switching duration can be minimum 5 seconds. The main intention behind developing this product is to use it as 11 kV APFC system. This product can also be used as 11 kV SOLID STATE BREAKER for switching HV capacitor banks. All those products have been developed with complete in-house technology & with all components locally available in Indian market.

Thus, the HV APFC system will operate similar to LV PF correction systems with fast PF correction time. We believe this product is developed for the first time in India by

any Indian company. It should be a very useful product for steel & such large Industries. Presently we are actively working on 33 kV solid state capacitor switching systems. Today the company has traveled a long way and has adequate infrastructure, equipments, instrumentation and manpower to meet manufacturing & developmental activities.

We envisaged the need of radical changes in the switching methods of capacitors for management of reactive energy long back. Poor power quality problems pertaining to unstable Voltage and current harmonics in the electrical distribution networks need to be addressed seriously, in present days in India. IEEE 519 STDs provide very good guide lines, which have been adopted by all electricity boards in India. Our Harmonic filters are designed and manufactured to meet those regulations. It is a fact that, now a days all the State Electricity Boards in India are emphasizing on improving power quality, energy conservation and reduction in transmission and distribution losses. We had envisaged about this possible future requirement much in advance and the potential market for equipments to suit to achieve those objectives. Fast reactive energy compensation using thyristor switched automatic power factor improvement systems at LV & HV Voltages were found the right solution to meet those requirements. Such systems have distinct advantages above conventional contactor switching equipments. At present about 3500 such systems manufactured by us are working satisfactorily in India & Abroad.

PRODUCTS

- **Thyristor switched APFC / RTPFC systems**
- **Thyristor switched APFC systems for fast & ultra-fast variable loads.**
- **Thyristor switched PF improvement systems for highly unbalanced loads.**
- **HV thyristor switched APFC systems up to 11 kV**
- **LV & HV passive harmonic filters.**
- **LV & HV Static VAR Controllers (SVCs) up to 11 kV.**
- **Solid state breakers to switch capacitors up to 11 kV**
- **“Zero” cross over thyristor switching modules**
- **LV & HV tuning & detuning inductors for use in industries.**
- **Thyristor switched PF improvement systems for solar plants**

SERVICES

1. **Electrical contracting jobs in industries.**

2. **Power & harmonic analysis jobs.**

TECHNICAL DETAILING OF OUR PRODUCTS

Thyristor switched automatic power factor correction systems for conventiona,l industrial & commercial building loads.

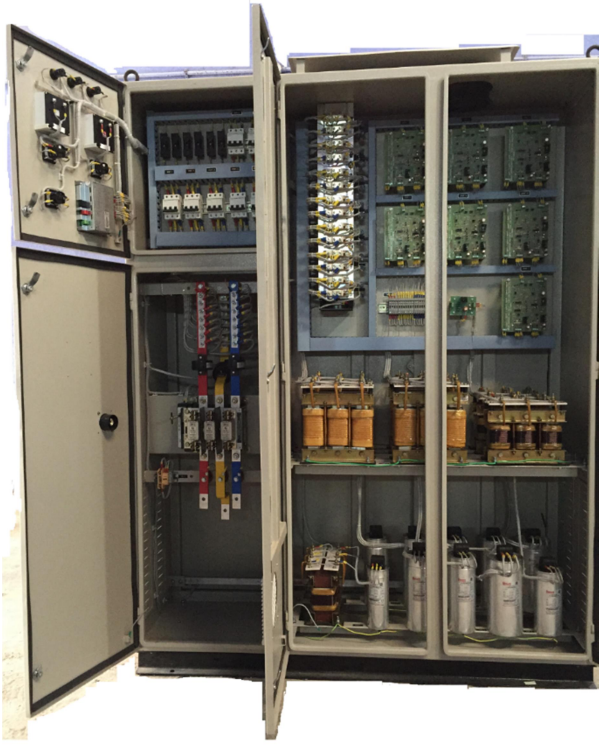
Switching of capacitors through thyristors have distinct advantages over contactor switching. Thyristor is a solid state device unlike electro-mechanical contactors. Contactor is necessarily a moving component, hence have many disadvantages, like:

a. **Capacitors draw heavy inrush current at the time of switching "ON", resulting in reduced capacitor life.**
b. **Minimum 60 seconds delay is required between two switching operations to allow capacitors to discharge. This is 600 seconds in case of HV capacitors. Thus contactor switching system cannot be used for fast variable loads. In our systems, capacitors are switched at "Zero" cross over, thus those can be switched "ON" even under fully charged condition.**
c. **In case of thyristor switching the circuits is designed to switch capacitors at "ZERO" cross over. This method allows the capacitor switching, theoretically every alternate cycle.**

d. **Such circuits are complicated but at "UDEET ELECTRICALS", we have perfected this technology.**
e. **All such systems manufactured by "UDEET ELECTRICALS" are simple to maintain. In fact complete maintenance & attending to faults can be done by a trained skilled electrician. However, maintenance of HV systems & SVCs need services of a skilled engineer.**
f. **Switching of capacitors at fast rate is of great advantage in states like Maharashtra, Uttar Pradesh, Haryana, Delhi etc, where the energy charges are calculated on the basis of kVAh consumption. Fast controlling of kVA, results in reduced energy & maximum demand charges.**

We at Udeet Electricals envisaged the need of this requirement & benefits of fast switching systems about 24 yrs back & prepared ourselves to meet the challenges. We were the "first company" in India to manufacture such systems with fully indigenous technology & locally available components.

A FINISHED PRODUCT



INTERNAL VIEW OF A FINISHED PRODUCT

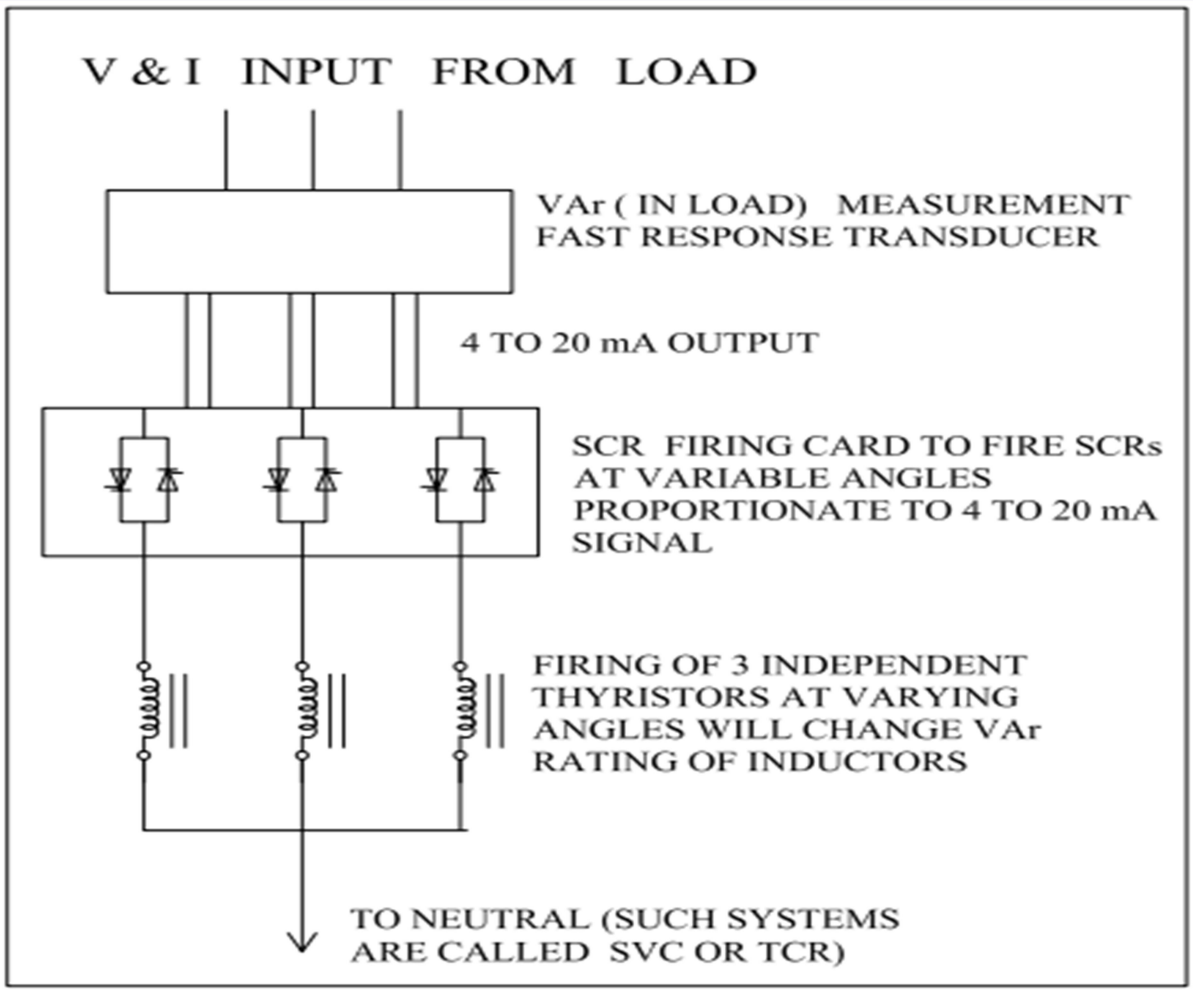
Thyristor switched PF improvement systems for fast & Ultra-fast variable loads.

Thyristors are capable of switching capacitors at "Zero" potential difference between the capacitor Voltage & incoming mains Voltage. Thus we can switch "ON" the capacitors even under fully charged condition.

Thus this technology is useful in PF correction of fast variable loads like in steel rolling mills, spot welders, arc welders, seam welders etc. Moreover welders normally use single phase input supply causing heavy imbalance & very low PF. We manufacture system to take care of both the requirements.

Thyristor switched PF improvement systems for fast variable & highly unbalanced loads.

For such applications VAr controllers using TCRs is the most suitable solution. There is very little electronics & software, which makes this product, user friendly, unlike SVGs . TCRs manufactured by us improve PF to a value better than 0.99 under worst conditions. Those are normally used along with thyristor switched APFC panels.


V & I INPUT FROM LOAD
VAr (IN LOAD) MEASUREMENT
FAST RESPONSE TRANSDUCER
4 TO 20 mA OUTPUT
SCR FIRING CARD TO FIRE SCRs
AT VARIABLE ANGLES
PROPORTIONATE TO 4 TO 20 mA
SIGNAL
FIRING OF 3 INDEPENDENT
THYRISTORS AT VARYING
ANGLES WILL CHANGE VAr
RATING OF INDUCTORS
TO NEUTRAL (SUCH SYSTEMS
ARE CALLED SVC OR TCR)

High Voltage thyristor switched APFC systems up to 11 kV for use in Steel industries or for such large loads.

Most of the steel industries consume very high power at high Voltages. Consumers normally divide capacitors between HV & LV Voltage levels. This is a good practice, but it is un-economical & cumbersome. We have thyristor switching systems for capacitors up to 11kV. This system enables HV capacitors to be switched "ON" & Switched "OFF" every 5 seconds. Thus the system works as an fast response APFC at 11 kV. We are in process of developing such systems suitable for 33 kV applications. We expect it to be perfected for use in industries shortly.

This capacitor switching system is also used as a Solid state breaker for switching capacitors up to 11 kV. There is no limitation on number of "switchings" in any time duration. The operation can be automated or connected with the load using proper interface.

LV & HV passive harmonic filter.

We also make LV & HV passive harmonic filters. It is a known fact that active harmonic filters are not real filters, since those do not protect internal devices from

being damaged due to harmonics down the line. Whereas, passive harmonic filters really filter out harmonics making those really suitable for the consumer & to meet IEE-519 standards. Active harmonic filters are not beneficial to the consumer but those are useful in meeting the distortion standards set by various electricity boards.

Low & High Voltage static VAr controllers (SVC/ TCRs) up to 11 kV.

We also manufacture dedicated static VAr controllers for LV & HV applications for PF improvement of unbalanced & highly variable loads.

"Zero" cross over thyristor switching modules for use by APFC panel manufacturers.

Many panel builders prefer manufacturing thyristor switched APFC panels but do not have the required technology. We provide thyristor switching modules for panel builders. Those are used with detuning series reactors which are also manufactured & supplied by us. If needed technical input is also provided.

Thyristor switched PF improvement systems for sites where solar power generation systems are installed.

Solar power generating plants export the power in the grid & import in the night. This situation changes to some extend, especially in rainy season when the sky is cloudy.

When the solar power plant is in import mode the PF is normally leading. This adds to kVAh consumption. It is little tricky to deal with this condition. However, we have installed PF correction systems at such places & have solved the problems successfully.

We also manufacture various types of PCCs, MCCs, control & VFD panels etc. for supply to industries.

SERVICES

Electrical contracting jobs in industries.

We are a licensed electrical contractor. Hence, we regularly carry out electrical jobs in industries

Power & harmonic analysis jobs in industries, malls, large showrooms, solar power plants etc

We have properly calibrated power cum harmonic analyser & other measuring instruments. Thus, we carry out power cum harmonic analysis studies in industries, commercial complexes, railways etc on regular basis.

CONTACT US

FOR ALL TECHNICAL QUARRIES

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