



Innovative Power Quality & Reliability Solutions

“Power Quality, Reliability
& Energy Efficiency
Solutions.”

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Our Mission

“IPQS Private Limited is a globally recognized company specializing in Power Quality, Reliability, and Energy Efficiency solutions. We set industry standards for benchmarking products worldwide.”

About Us.

Expertise in Power Solutions

IPQS specializes in Power Quality, Reliability, and Energy Efficiency solutions.

Comprehensive Energy Studies

The IPQS team conducts thorough Energy and Power Quality studies to fulfill Reactive Power requirements.

Current Scenario

75% of power disturbances originate from internal sources like factory equipment, lighting, and electronics. To mitigate these issues, Power Conditioning Equipment is essential. It prevents electronic failures, CT/PT failures, metering errors, process malfunctions, and high maintenance costs, caused by power surges, transients, and harmonics. Despite widespread problems, many organizations suffer due to lack of awareness, resulting in significant business losses.

◆ Re-Engineering Energy



Innovative Switching Devices

Designed ultra-fast switching devices to manage serving equipment, ensuring Power Quality Parameters are maintained without increased power consumption.

Power Factor Improvement

Implemented solutions to optimize both lagging and leading KVARH, enhancing Power Factor in industries with KVARH-based billing systems.

Successful Industry Implementations

Designed, developed, and successfully implemented fast-acting devices in various industries, ensuring effective Power Factor management and meeting billing standards.

SERVICES

- POWER QUALITY STUDIES AND SOLUTIONS ON RELIABILITY IMPROVEMENTS
- ROOT CAUSE ANALYSIS OF ALL PROBLEMS FACED IN OPERATIONAL EQUIPMENT'S
- ENERGY EFFICIENCY STUDIES
- TURN-KEY INSTALLATIONS
- RE-ENGINEERING ON ENERGY EFFICIENCY AND POWER RELIABILITY
- PROCESS AUTOMATION SOLUTIONS
- DESIGN CONSULTANCY ON POWER RELIABILITY AND ENERGY EFFICIENCY



SOLUTIONS

ON PQ PROBLEMS FROM IPQS

PRODUCTS



IPQS-HRTPFC - Hybrid Reactive Power Compensation Systems

Most Energy Efficient Technology in the field of Power Factor Correction

HRTPFC Saves Energy with all functions equal to RTPFC Switching Technology with drastic increase in System Life

Type of Switching	Measured Power Loss in Watts / Per kVar	Suitability	Typical Loss in Kwh /1000 kVar per year
Fixed Capacitors	0.17 to 0.20	Load Side Installation	1400
Contactor Switched APFC	0.20 to 0.25	Low Variation Load	1750
Contactor Switched APFC with 0.2 % Reactors	0.40 to 0.8	Low Variation Load	5600
Contactor Switched APFC with 7 % Reactors	3 to 4	Low Variation Load with Harmonic Generating	28000
Thyristor Switched RTPFC with 7 % Reactors	8 to 9	Low Variation Load with Harmonic Generating	63000
Thyristor Switched RTPFC with 7 % Reactors with air conditioning	8 to 9	High Variation Load with Harmonic Generating	148000
Static Var Generators	2.2 to 3 % of Amp Ratings	High Variation Load	154000

IPQS-LVSDRPC

LV Series Dynamic Hybrid Reactive Power Compensation System

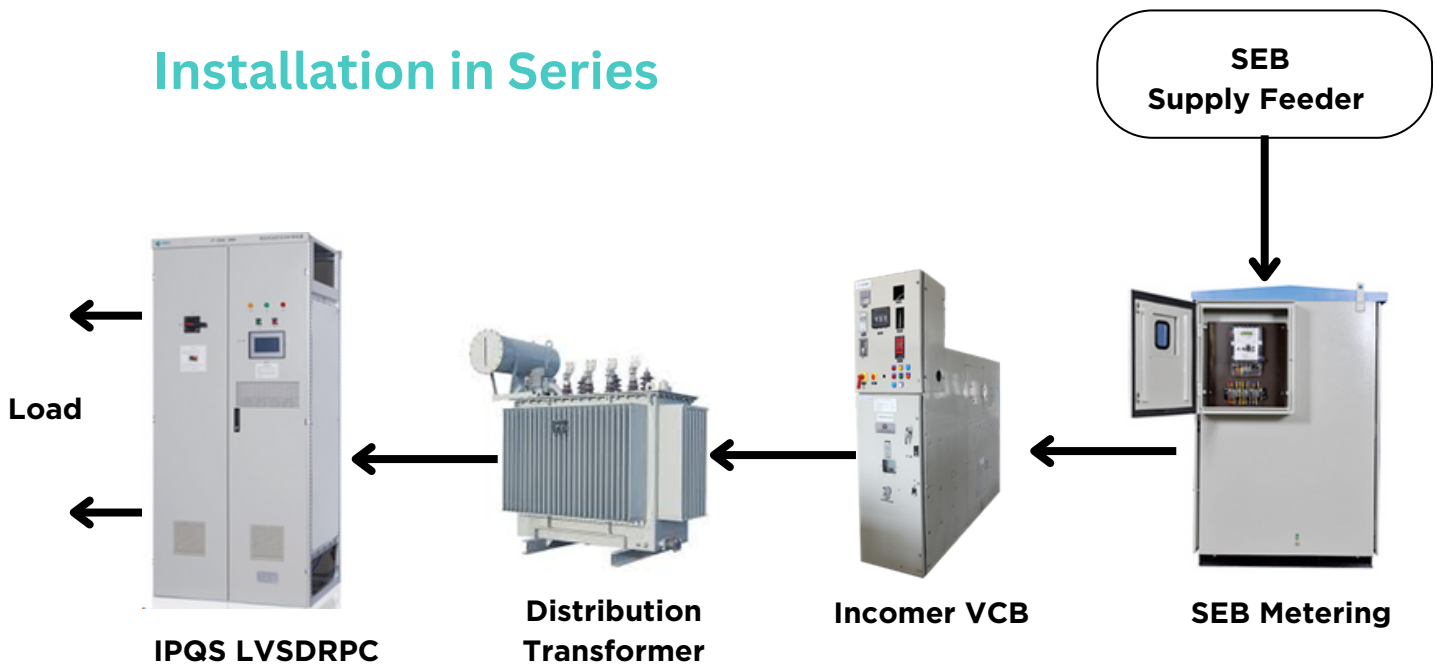
Most Suitable for Dynamic Load and existing APFC/RTPFC systems are unable to improve PF.

Applications

Hotels, Hospitals, Process Industries, Commercial Buildings etc.



Installation in Series



IPQS-MVSSDRPC

MV Static Series Dynamic Reactive Power Compensation System

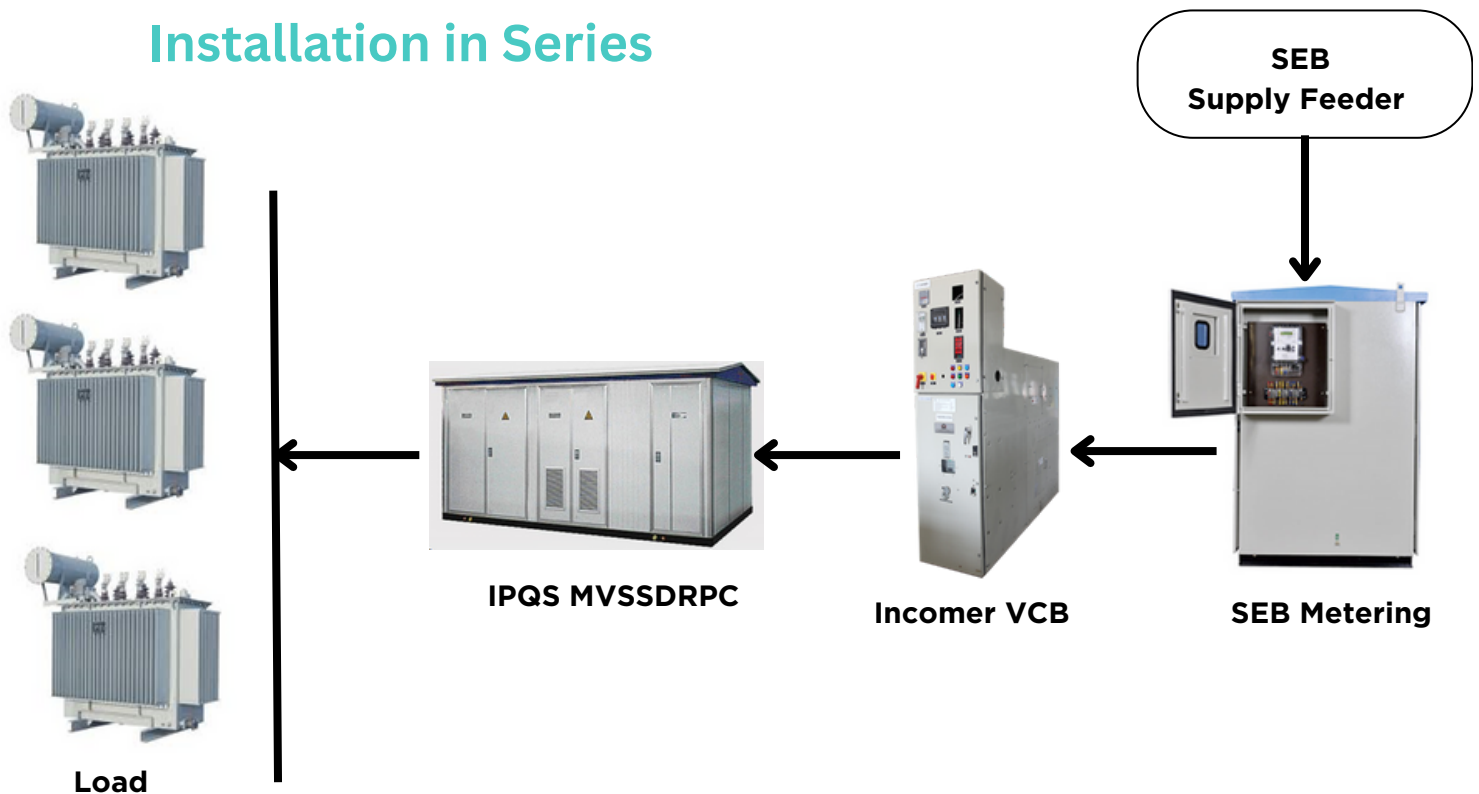
Best Suitable for Dynamic Load and existing APFC/RTPFC installed at respective transformers are unable to improve PF and for fine tuning of PF without increase in Kvarh Lead and Lag both.

Applications

Large Steel Processing Plants, Defense Premises, Airports, Railway Powering stations, Metro Powering stations, Industries spread over large premises with multiple transformers etc.



Installation in Series



IPQS-MV/HV SSRPG

Shunt Static Reactive Power Generator Direct Coupled - 11 KV up to 110KV

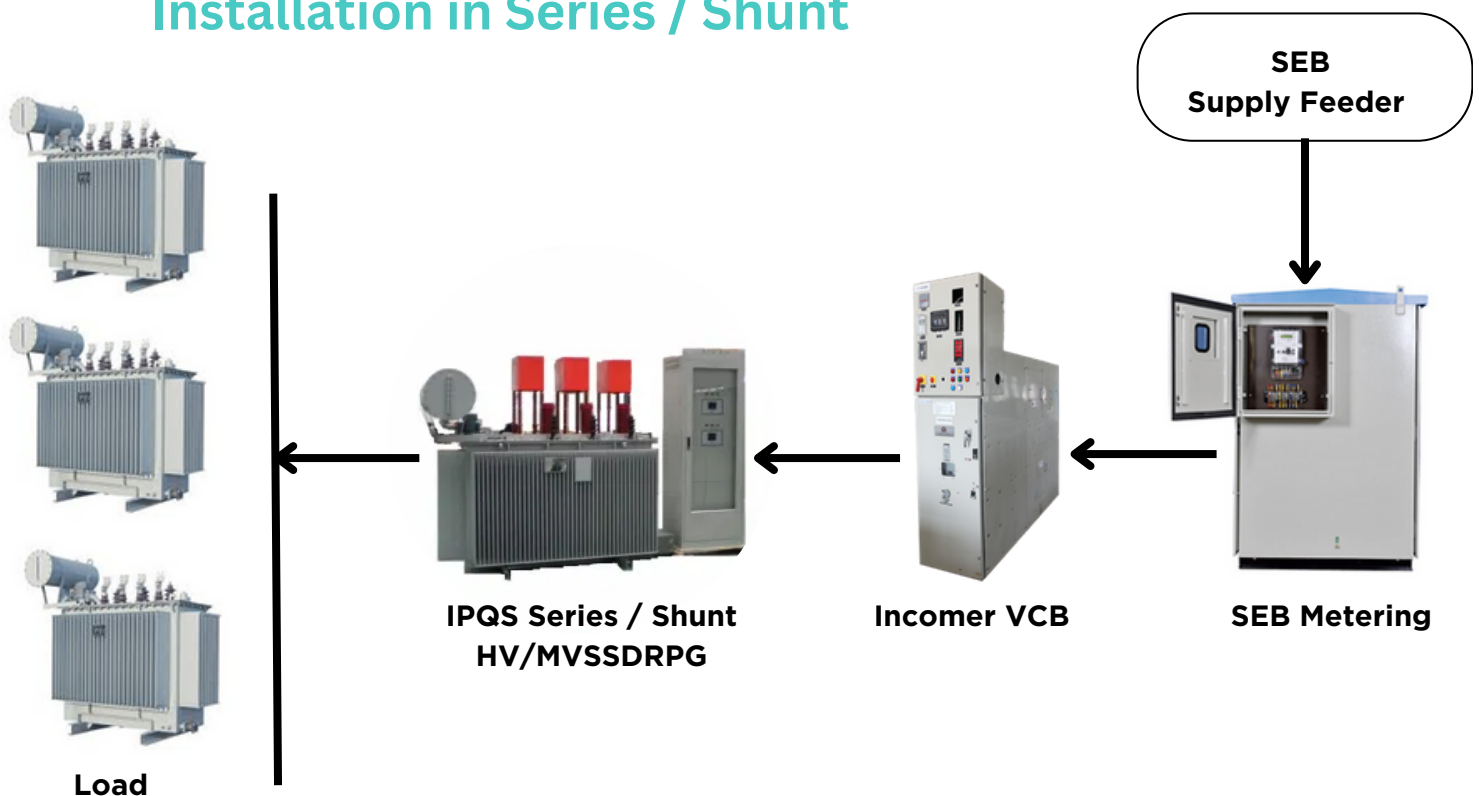
Best applicable for Maintaining PF nearby unity precisely, avoiding higher voltage issues during switching large loads, Solar plants and Wind mills, to stabilize voltage.

Benefits :

- Direct connection to MV main incoming (Series/Shunt) for simplified installation.
- Easy maintenance and monitoring.
- Consistent PF maintenance above 0.998++ in lagging and leading scenarios.
- Enhances the lifespan of installed Power Factor Correction (PFC) systems at the distribution level.
- Improves overall system reliability.



Installation in Series / Shunt



Application Features:

- Active compensation system handles reactive power from 3 to 100% capacity.
- Manages inductive power and controls capacitive power during dynamic loading.
- Facilitates passive harmonic filtration and bidirectional voltage regulation.
- Reactive Power control based on Changing Impedance through fully loading reactor.

Design Features:

Available rating and voltages
 11 KV to 33 KV : 250 to 10000 KVAR
 33 and Above : 5000 to 25000 KVAR

Capable for Continuous variation from 2 to 100 % statically Close circle power control



Additional advantages :

- **Direct connection to HV / MV without step up transformer**
- **Can be used with Existing capacitor banks for dynamic control without switching off the capacitors**
- **Functions with SVC**
- **Low Cost**
- **More Reliable**
- **Very low harmonic distortion less than 3 %**
- **Easy for maintenance and more reliable**
- **Simple installation, Reduces installation cost and saves space.**

Applications :

- **Power Factor Correction**
- **Voltage Regulation and stabilization**
- **Boost capacity of transmission systems**
- **Reducing network losses**

Applications Areas :

- **Steel Processing Plants having Induction / Arc Furnaces**
- **Cement Plants, Rolling Mills, Mining installations**
- **Solar and Wind power generation stations,**
- **Grid voltage stabilization in distribution and transmission systems**
- **Large Railway and defense premises**

SAIHMS

Surge Arrester Insulator Health Monitoring System

Surge arrester failures often lead to short-circuits and external damage. IPQS addresses this with innovative technology for monitoring and maintaining surge arrester health.

Key Components:

Sensor, Trans Receiver, Smart Monitoring Software



Unique Features and benefits:

Continuous Monitoring:

Monitors leakage current with continuous online analysis, estimating life deterioration and future expectancy based on historical data.

Precision in Measurement:

Offers a highly accurate and error-free measurement methodology.

Streamlined Maintenance Planning:

Facilitates easy planning for preventive maintenance, allowing timely replacement and cleaning.

Extended Equipment Life:

Enhances the lifespan of surge arresters, insulators, etc.

Significant Failure Reduction:

Drastically reduces surge arrester failures.

Access to online data of Surge Arrester with intelligent analysis help in operational reliability, Efficiency and sustainability via Realtime monitoring

- Ready data with complete analysis on App (Android and IOS).
- Recorded data available on cloud / web browser
- Maintenance prone Surge arresters can be easily tracked and mapped
- Alerts / warnings on emails, mobile numbers on lowering the life before failure
- All data accessible at any time from App and Web.
- Historical data can be chosen within required time frames for analysis.
- Data of Leakage current, Surge Counts, weather conditions, Temperatures last event logged data with time stampings available on figure tips.

Turnkey Projects Expertise



MVRPC

MV Reactive Power Compensation
system (MV APFC)



MV Capacitor Reactor Turnkey Projects

Customized Solutions
on Harmonics, Transients, Voltage
Dips-Swells, Voltage Stabilization,
EMI EMC, Frequent Faults etc.



CUSTOMER INSTALLATIONS

OUR SUPPORT TO CUSTOMERS AND ISSUES RESOLVED



Large Premises Installation

- Unable to maintain PF above 0.78
- kWh kVah Gap between 90000 Units to 140000 Units.
- Loosing @ 12 to 16 Lakhs per month.

Challenges:

- Installation spread over 10 sq km area, 28+ Transformers, difficult to maintain PFCs
- 2 MW x 2 Nos solar plants causing dynamic power requirement.
- Cable and OH line capacitance causing capacitive reactive power damping

MV Series Static Series Dynamic Reactive Power Compensator) FOR GUARANTEED PF ABOVE 0.998



CUSTOMER INSTALLATIONS

OUR SUPPORT TO CUSTOMERS AND ISSUES RESOLVED STEEL PLANT



Large Premises Installation

- 6.6 KV Motor current was high causing voltage drop across cables, laid to the Jetty from plant and inhouse load
- Causing frequent tripping's.



Challenges:

- Cable Length was 2.5 km causing voltage drop and rise in the damping and system drawing higher currents
- 1.2 MW x 8 Nos motors with damping current causing dynamic power requirement.
- Cable and OH line capacitance causing capacitive reactive power damping

CUSTOMER INSTALLATIONS

OUR SUPPORT TO CUSTOMERS AND ISSUE RESOLVED STEEL PLANT & STEEL ROLLING



Large Premises Installation

- 220 KV Feeder Power Factor was 0.992, was unable to maintain even after Capacitor addition.
- Causing loss of @ 3.5 Lakhs kVah units amounting @ 24 Lakhs Rs per month.

Challenges:

- Multiple Furnace + Aux load transformers
- Rolling mill load was extreme dynamic
- HT Capacitor bank switching was causing breaker contact burnouts frequently.
- Induction Heater of 5 mw was resulting in sudden variation in reactive power demand



- kWh and kVah Gap reduced from 3.2 Lakhs to 0.60 Lakhs units
- Savings in Rs. @ 18 Lakhs+
- MV Capacitor switching reduced from 40 operations a day to 12 operations a day.

CUSTOMER INSTALLATIONS

INDOOR MV SWITCHED CAPACITOR REACTOR PROJECT 16 MVAR





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