

# Power Quality Compensator Skid Solutions

MEPPI'S CUSTOMIZED  
VOLT-VAR CONTROL (VVC)  
POWER QUALITY (PQ)  
SYSTEMS



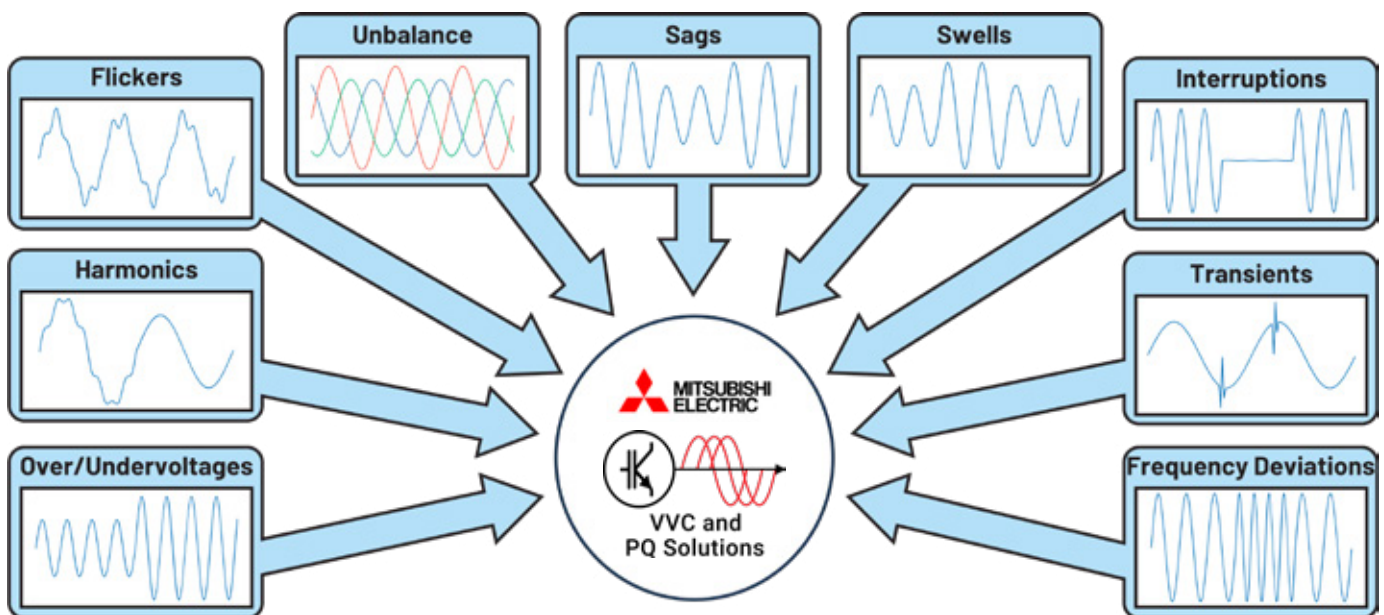
# SOLVE POWER QUALITY ISSUES WITH MEPPI's PQC

## THE IMPORTANCE OF POWER QUALITY

Power quality refers to the level of consistency, reliability, and stability of electrical power. Any deviation from the expected levels of power quality can cause negative consequences, such as equipment damage or malfunction, system shutdown, and data loss.

Power quality has found a renewed interest due to changing power generation modes and consumption dynamics. The unprecedented growth in renewable sources at different voltage levels has increased the amount of power quality related issues. Consumption patterns have also seen a wide transformation due to unsynchronized and nonlinear loads added at multiple entry points along the power grid.

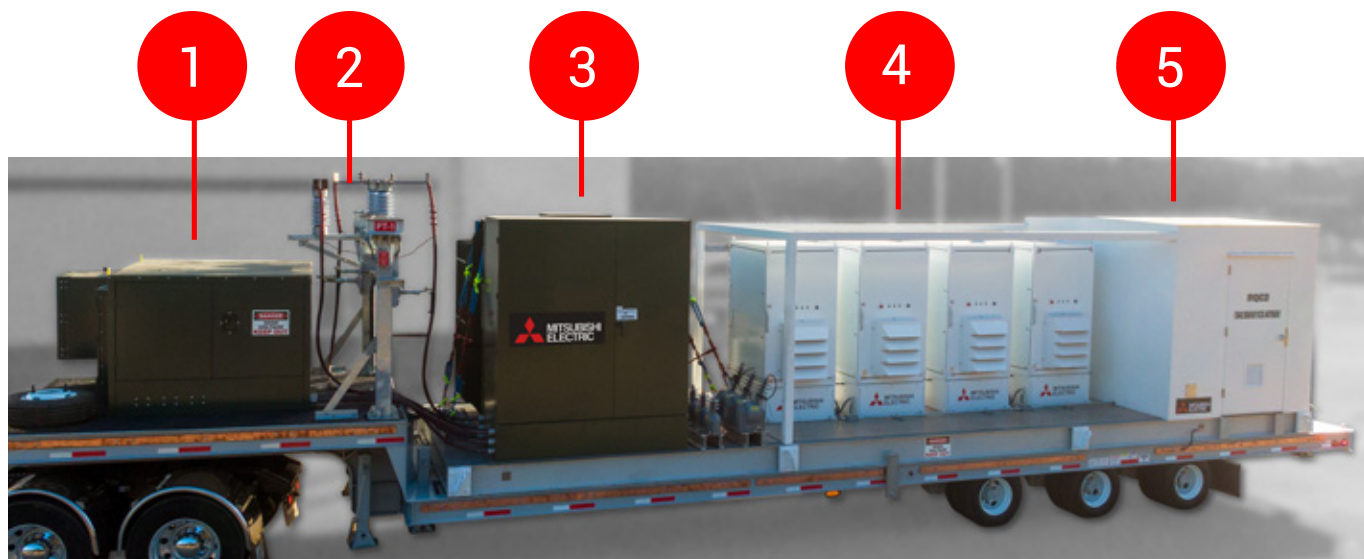
## WHAT ARE THE POWER QUALITY ISSUES?



## THE SOLUTION

The solution to these common power quality issues can be to install a Mitsubishi Electric Power Products, Inc. (MEPPI) PQC system, which will sense the voltage changes automatically and will inject or absorb reactive power to correct the voltage violation and restore balance. Our flagship product, the Power Quality Compensator (PQC), is a  $\pm 1$  MVA, 3 phase dynamic power conversion system that can operate in a 2 or 4 quadrant power control mode.

With its flexibility, advanced features, and ability to run multiple operational modes simultaneously, the PQC is the perfect solution for improving power quality, stability, resiliency, and overall power grid reliability.



- 1 Recloser Switch: A customer specified remote controllable switch that provides system protection and isolation from the utility grid during commissioning or service intervals.
- 2 Voltage Transducer: A precision measurement device that provides continuous and dynamic voltage feedback by measuring grid characteristics in real time.
- 3 Medium Voltage (up to 34.5kV) Isolation Transformer: Provides the necessary impedance, isolation, and voltage levels required for safe and highly reliable system operation.
- 4 Power Converters: Delivers utility-class, bi-directional power conditioning and can connect to DC energy storage devices like Lithium-Ion batteries and Super Capacitors. These inverters can respond in less than a cycle and provide one way efficiency greater than 98% and can operate in nearly any environment.
- 5 Control System: Measures in real time utility power base characteristics such as voltage, current, frequency, and provides application-focused operation modes for the most common power quality problems.

## ***Power Quality Compensator (PQC)***

- ◆ Dynamic reactive power response with output characteristic shaping and programmable droop controls
- ◆ Offers 2-quadrant or 4-quadrant operation
- ◆ Can provide Reactive and Real Power response
- ◆ Advanced Voltage Regulation, Power Factor control with Flicker and Harmonics mitigation capabilities
- ◆ Faster response time than a SVC, reactor banks, or load tap changers
- ◆ Standard software package and parameterized controls for applications
- ◆ Flexible SCADA communication using DNP3/Modbus TCP
- ◆ Interfacing with existing capacitor and reactor banks for improved feeder reactive power coverage
- ◆ Fast and easy, turnkey installation using fully integrated steel skid assemblies



# AN ONGOING PARTNERSHIP

*MEPPI is committed to the success of your project.*

## On time, every time

We'll work with your team to select from a range of high-quality components to meet your design requirements and all delivery and installation deadlines.

## Comprehensive training programs

We make sure your team has the necessary skills to operate the skids effectively.

## Rigorous testing and commissioning

We ensure the skids operate at peak performance and maximum efficiency.

## Full-warranty wrap and long-term support

After installation, our dedicated support team will provide ongoing monitoring, warranty coverage, and exceptional after-sales service.



**Up to four of the following inverters can be integrated onto one skid assembly.**

Output Side (AC)	Rated Power @ 40°C, 1000m	1044kVar
	Rated Voltage	480V (+10%) / 3Ø3W, derating applies below rated AC voltage down to -12%
	Rated Current	1206 Arms @ 1000kVA
	Rated Frequency	60Hz
	Power Factor	0.8...1 leading/lagging (full 4-quadrant operation), with kVar capability determined by DC and AC Voltage
	PF Operating Range	+/- (0-1)
DC Bus Voltage Max		1150 Vdc
Max Efficiency		98.60%
Ambient Temp Range/Max Temp		-20°C to +50°C/+50°C: Derate 1.7% for °C above +40°C
Standards Compliance		UL1741SA/SB and CSA
Enclosure Protection Rating (Outdoor)		NEMA3R

## MEPPI PQC Offering

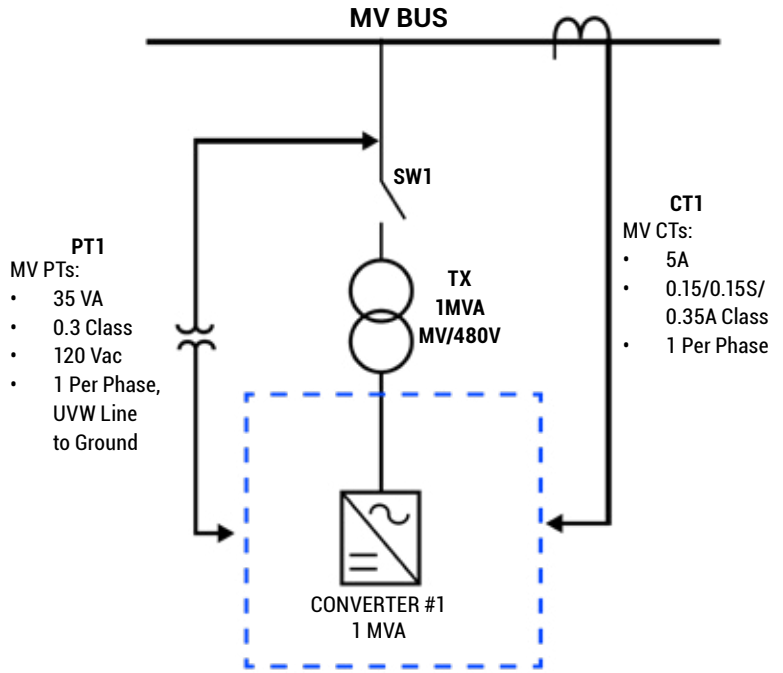
- ◆ Dynamic and flexible operational modes
- ◆ High-speed data acquisition for premium performance
- ◆ Factory and power management software testing before site integration
- ◆ MV Transformer provides voltage scaling, impedance, and isolation
- ◆ Highly modular and scalable systems up to 32 MVar

## Options

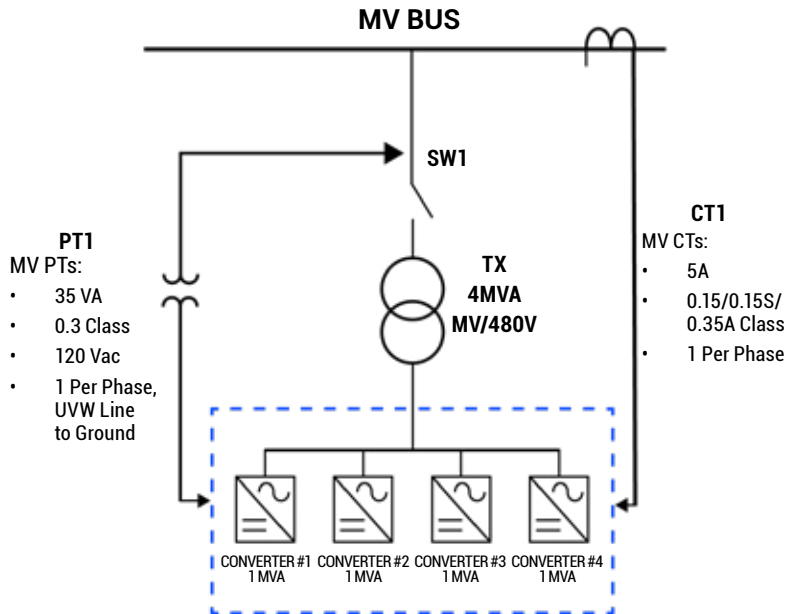
- ◆ Skid Mounted Recloser or VCB
- ◆ Skid Mounted PTs and Aux. Power Transformer
- ◆ Operator Control House that includes UPS, protection relays, and remote communications
- ◆ Extended warranty and long-term O+M agreements

# ELECTRICAL SYSTEM ONE LINES (1 - 4 MVAR ASSEMBLIES)

## 1MVAR PQC



## 4MVAR PQC



**MEPPI PQC SKIDS OFFER COMPREHENSIVE ONSITE SERVICE AND SEAMLESS INTEGRATION TO IMPROVE YOUR POWER QUALITY**

# MITIGATE YOUR POWER QUALITY PROBLEMS: DISCOVER THE POWER OF THE PQC

We're ready to work with you to create a custom configuration that fits your exact needs.

Visit [meppi.com/PQC](https://meppi.com/PQC) or scan the QR code below



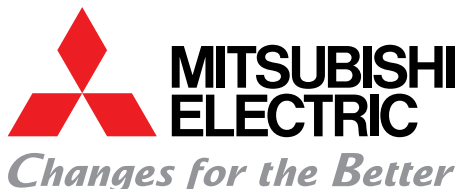
*Mitsubishi Electric Power Products, Inc.* serves the North American power systems, rail transportation, and large visual display markets with electrical and electronic products, systems and services. The products offered include gas circuit breakers, vacuum circuit breakers, power transformers, gas-insulated substations, power electronics and electricity transmission technologies including high voltage DC, battery energy storage systems, generator services, nuclear power plant control systems, uninterruptible power supplies, rail transportation equipment, and high-definition LED displays for sports, commercial and retail installations. For more information and to learn more, visit [www.MEPPi.com](http://www.MEPPi.com).

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