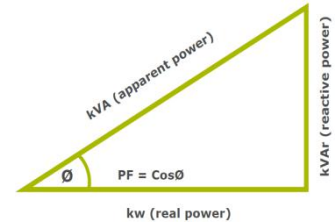


OVERVIEW

One contributing element to power quality is power factor. Power Factor Correction (PFC) aims to improve power factor, utilising capacitors to offset usually inductive loads, for example motors. PFC systems increase efficiency of power supply, delivering immediate cost savings on electricity. Power Factor is a measure of how effectively incoming power is used in your electrical system and is defined as the ratio of Real to Apparent power where:

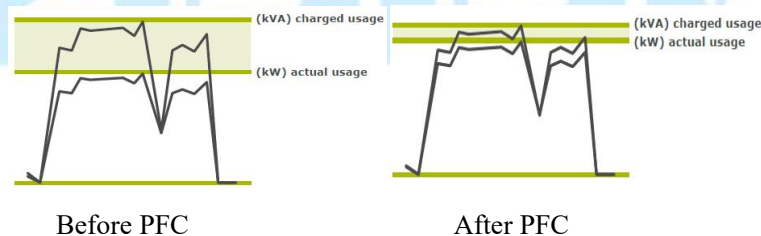
- ◆ Real Power(P) is the power that actually powers the equipment and performs useful, productive work.
- ◆ Reactive Power(Q) is required by some equipment (e.g. transformers motors and relays) to produce a magnetic field for operation; however it does not perform any real work.
- ◆ Apparent Power(S) is the vector sum of Real and Reactive Power and corresponds to the total power required to produce the equivalent amount of real power for the load.



$$\vec{S} = \vec{P} + \vec{Q} = \sqrt{(P)^2 + (Q)^2}$$

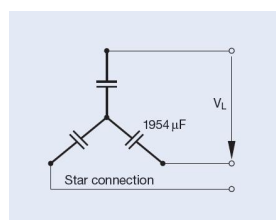
Power Factor Correction may be required where a system has a power factor of less than 90% (or 0.9). A poor power factor can contribute to equipment instability and failure, as well as significantly higher than necessary energy costs since it means that more current is required to perform the same amount of work. By optimizing and improving the power factor, the demand on the electricity distribution system is reduced.

Power Factor Correction equipment achieves a decrease in the total amount of electrical demand by using a bank of capacitors to offset an inductive load (or reactors if the load is capacitive).

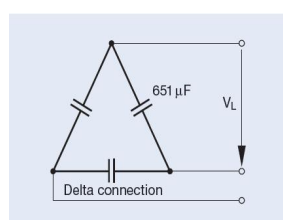


WORKING PRINCIPLE

Automatic Power Factor Correction Panel offer feature fully intelligent and automatic operation support and helps in achieving required PF under fluctuating loads. The use of latest technology based components and high fabrication standards also make these panels flawlessly maintain the need of delivering high PF. Further, Switch (Contactor,Thyristor,Compound Switch) also ensures real-time correction of PF. The reactors can filter harmonics and improve power quality.



Star Connection



Delta Connection

KEY COMPONENTS

- ◆ Capacitors
- ◆ Switching devices
 - Contactors
 - Compound Switch
 - Thyristor
- ◆ Reactors (filter)
- ◆ Power factor controller



FEATURES AND BENEFITS

- ◆ **Fast return on investment through lower power costs**

Power factor correction reduces the reactive power in a system.
Power consumption and thus power costs drop in proportion.
- ◆ **Effective use of installation**

An improved power factor means that an electrical installation operates more economically (higher effective power for the same apparent power).
- ◆ **Improved voltage quality**
- ◆ **Reduced voltage drops**
- ◆ **Optimum cable design**

Cable cross-sections can be reduced with improvement of power factor (less current). In existing installations for instance, extra or higher power can be transmitted.
- ◆ **Reduced transmission losses**

The transmission and switching devices carry less current, i.e. only the effective power, meaning that the ohmic losses in the leads are reduced.



APFC :CONTACTOR		3kv 6.3kv 10kv 35kv
Model	ZD-GWJ	
Rated Voltage	10KV	
Connection type	Three-phase 3 wire, Three phase 4 wire	
Rated Frequency	50/60HZ	
Response time	100ms	
Step capacity	100,200,300kVAr	
Rated Capacity/panel	1200kVAr	
Power Factor	0.9	
Switch	Contactor	
Capacitance Tolerance	-5%, +10%	
Reactance ratio	6% 12%	
Switching	Automatic switching	
Storage temperature	-40~85 °C	
Working temperature	-25~55 °C	
Humidity	≤95%,non-condensate	
Dimension (mm)	800*800*2200	
Installation	Indoor,free standing	
Altitude	<1500m without de-rating	
Certification	CCC,Type Test Report	

