

## Mini - AUTOMATIC POWER FACTOR CORRECTION ( APFC )PANELS

The best way to improve & fine tune P.F. of LV Distribution system.

( Non Compartmentalized with TDK -EPCOS COMPONENTS )

**APFC** or Automatic Power Factor Control Panels are mainly used for the improvement of Power Factor. Power Factor is defined as ratio of active power to apparent power and it is a key factor in measuring electrical consumption. Day by day cost of Electricity is increasing & hence it becomes utmost important to cut down on electrical consumption for reducing expenditure.

Use of these APFC panels becomes indispensable in those industries where electrical installations are meant to supply to inductive loads. A dip in Power Factor can attract operational losses and a penalty from electricity board, results in higher productions / running cost .

Due to exclusive use of **TDK-Epcos** make components like Capacitors , Contactors & APFC controller guarantees our **Mini APFC** panels safe & long life span , thanks to Epcos products . These micro APFC panels are available without detuned reactors for use in application with linear & low harmonic Loads . APFC with detuned reactors shall also be offered upon request .

There are two compact versions of Micro APFC panels - 25 to 50 KVAR & 55 to 100 KVAR .

**APPLICATIONS** : These micro APFC panels can be used in following applications :

HOTES , HOSPITALS , BANKS , INSTITUTES , INDUSTRIES , FABRICATION WORK SHOPS , SHOPPING MALLS , SHOWROOMS , SMALL WORK SHOPS , Bungalows/ Villas , Industries with Scattered loads etc..

### TECHNICAL DATA :

1] COMPACT Micro APFC Panel Type MPF - 1 25 to 50 KVAR & MF 2 – 55 to 100 KVAR

Space saving , Wall / Floor mounting micro APFC panels for Linear & Low harmonic Loads

NOMINAL VOLTAGE : 440 Volts , 50 Hz

Control Voltage : 230 Volts , 50 Hz

Rated Frequency : 50 Hz

Rated Out put : 25 to 100 KVAR

Configuration : Delta

No of steps : 4 – un equal

Protection	: IP 32
Cooling	: natural / Forced air
Branch Protection	: MCB
Controller	: 4 step Epcos
Capacitors	: EPCOS - Phi cap Resin Filled CONFIRMS TO IEC 60831 -1 & 2/96
Power loss	: capacitors - <0.2 watt / KVAR , System - <0.45 watt / KVAR
Switching Device	: Capacitor Duty contactors according to IEC 947-4-1 , IEC947 -5-1 EN 60947 -4-1 EN & 60947 -5-1

NOTE :

1] Micro APFC panels with De-tuned reactors & Thyristor switching are available upon request .

### **Features of APFC panel**

- \* The APFC relay uses intelligent switching algorithm to reduce the number of capacitor bank switching operations required to attain the required KVAR.
- \* The intelligent switching algorithm of the power factor control relay also uses the capacitor banks evenly[First In First Out FIFO ] thereby allowing uniform aging of the capacitors and switchgears .
- \* APFC relay gives the facility to operate the panel in manual mode in case of special circumstances.
- \* The APFC panel is very compact in size . This allows for systematic placement of the components and easy maintenance in future. Panel is designed for indoor use with forced cooling.
- \* To prevent tampering with the setting of the APFC relay a secondary glass door with sealing knob is provided to cover the relay.
- \* A system is as good as components used inside as we use only branded & high quality components in this APFC panels. For example

**APFC relay** are from : TDK - **EPCOS**

Capacitor duty **contactors** [with inrush current limiting circuit] are from: **TDK-EPCOS**

Power factor correction **capacitors** are: **TDK-EPCOS**

- \* Thermal management: High temperature is detrimental to the performance and service life of the power factor correction capacitors. To protect the capacitors from high temperature they are

optimally placed at the bottom of the panel with optimum spacing between the banks. Also exhaust fan is provided in the capacitor bank section to throw out the heat.

\* Safety of the electrical equipment and of the maintenance staff have been given top priority while designing and building the APFC panel.

Capacitors used are **Explosion Proof** Capacitors .

## **Optional accessories**

\* Detuned capacitor banks [additional harmonic filter reactors] for loads with high harmonics

## **Benefits of APFC Panels :**

- **Help customers in maintaining near unity power factor in their establishments even under varying load conditions.**
- Investment in APFC panel is a very SMART decision with very high rate of return.
- APFC panel protects the customer from poor power factor and associated problems.

Poor power factor leads to following problems:

- Excessive kVA demand for a given kW load resulting in higher electricity bill penalty from the state electricity board
- high line currents resulting in high ohmic losses
- excessive voltage drops and voltage fluctuation harming the equipment and reducing their efficiency

It is true that a properly designed APFC panel pays back for itself in a very short time span.



**Capacitor**



**Relay-Power Factor Controller**



**Contactor**



**Schematic diagram of APFC Panel:**

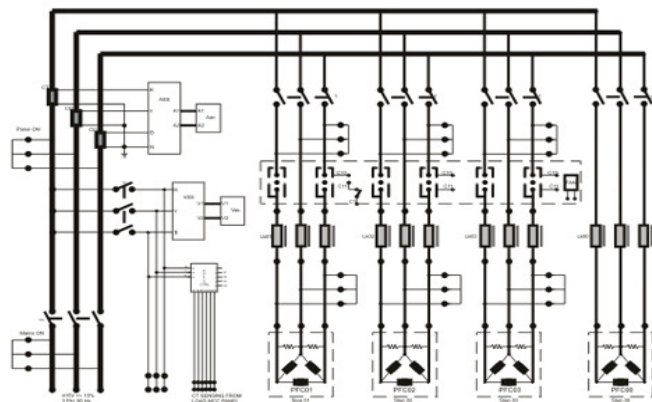


Fig.1 Typical view of APFC Panel upto 50 KVAR

Mfd & Marketed by :



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