

APFC Panels

APFC Panels



Reasons Why APFC Panels Are Needed

In industry most of the load is inductive in nature which results in lagging power factor that is why there is loss and wastage of energy which results in high power bills and heavy penalties from electricity boards. If the load is uneven it is very difficult to maintain unity power factor. To overcome this difficulty APFC panel is used which maintains unity P.F.

Features And Applications

High speed power factor correcting system are designed to compensate the reactive power of any load or equipment requiring P.F. correction within a one cycle of operating frequency or time delay of 30 sec to 5 min after command signal from APFC controller. Renders the distribution network more stable since there is no contactor switching causing high voltage transients, spikes, harmonics and other disturbances by applying zero cross over voltage switching ON and zero current switch OFF of the capacitors. Prevents voltage drop and flickering reduces failures in highly sophisticated electronic equipments like PLCs, computers and other control systems. Helps in reducing maximum demand and RKVAH consumption hence substantial reduction in monthly electricity triff. It is highly suitable for spot welding applications where the reactive energy is to be compensated for a short period of 200 msec or less and for a number of times in a second. Accurate power factor control even in the presence of harmonics.

Applications

Textile Machineries | Printing Industry | Pharmaceutical Industry | CNC Machine | Hospitals | Film Industry | Food Processing industry | Resorts / Hostels / farm house | Engineering Plant | Automobile Industry | IT industry.

S Type Specification

Capacity	: kVAR
Phase	: Delta connection
Input voltage range	: 380/415/440volt , 3phase , 50/60Hz
System	: Balanced/Unbalanced
Switching Type	: S-type (SCR switching)
Construction	: Indoor, floor mounting powder coated
Control. Range setting for PF	: - 0.8 Inductive (lag to +0.8 capacitive (lead)- 0.8 Capacitive
Insulation	: Class "B"
Humidity	: Upto 95% Rh
Operating temperature	: -0.5 to 45degree C
PROTECTION:	
Input MCB/MCCB	: For incoming APFC panel
Input MCB/MCCB	: For PF CAP of each step/bank
Untuned line choke	: For PF CAP of each step/bank of 4% line voltage
Thermal protection	: Excess heating of heatsink at 70 degree C
Cooling fan	: Current sensing for cubicle and each heatsink Mains on ----- control on ----- APFC panel on
INDICATIONS	: Cooling fan on ---- Step MCB on -----Static switch on APFC panel input voltmeter with selector switch
INSTRUMENTATION	: AC Current meter with selector switch and CT Power manager (optional)
SWITCHING TYPE	: Static switch / firing modules for each step

APFC CONTROLLER

Indications

- ✦ Auto
- ✦ Manual
- ✦ Current
- ✦ THD(total harmonic distortion)
- ✦ Set Cos ϕ
- ✦ C/K
- ✦ Sensitivity
- ✦ Recon Time
- ✦ Switch Program
- ✦ THD (total harmonic distortion) Limit
- ✦ Three digit numeric display
- ✦ Capacitive And Inductive .(leading and lagging)
- ✦ Step ON Indicator
- ✦ Up Button
- ✦ Mode / Scroll Button
- ✦ Down Button
- ✦ Program Button
- ✦ Rated Steps

Alarm assign for one of given parameters – current THD, current <3% rated value , current >110% rated value , voltage <85% rated value , voltage>110% rated value`, low PF when all cap. connected, Hi PF when no cap. connected, auto c/k step measurement error (manual setting required) , auto CT polarity error.

TECHNICAL DATA

1) AUXILLARY SUPPLY

: Supply voltage: 220VAC /415VAC -15% / +10%
: 50/60Hz consumption – 10VA max.

2) CURRENT INPUT

: Rated current In : 5A operating limits : 0.15A -6.5A
: 50/60Hz

3) RELAY OUTPUT

: Number of output : 6/8/12/14
: (PFR60/PFR80/PFR120/PFR140)

Rated capacity-5A 250VAC Contacts: NO TYPE

Max current for common terminals: 12A continuous

4) CONTROL RANGE:

: C/K setting : 0.03 – 1.20 / atc switching sensitivity : 5-
: 600 s/steps

Reconnection time for same step : 5-240s THD

threshold : 0.20-3.0(20%-300%)/off

Switching program : automatic/automatic

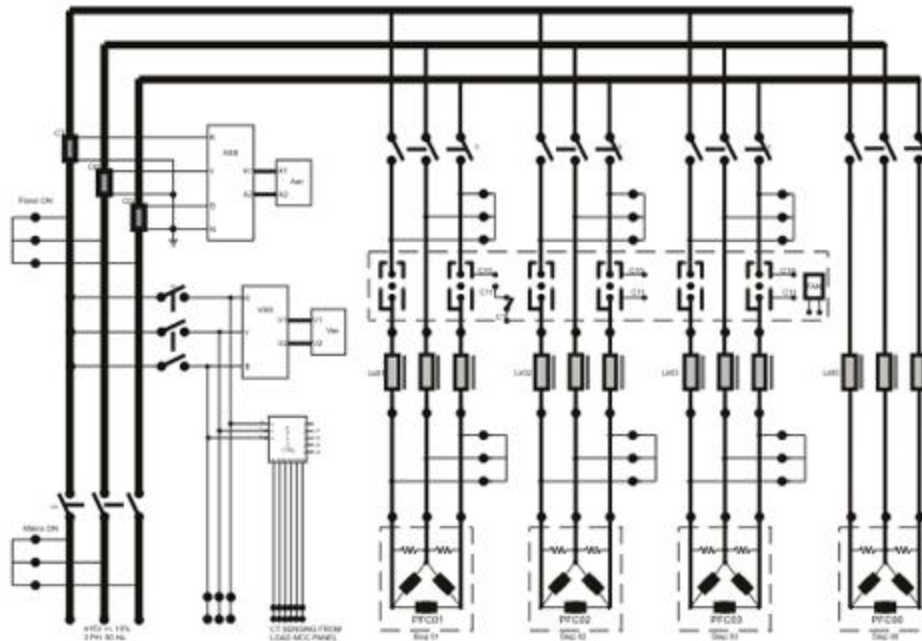
rotate/manual/four quadrant

5) MECHANICAL

Rated step coefficient :0/1/2/3/4/5/6/8/12/16

Mounting: panel mounting dimension (H x W x D) 144
x 144 x 91 wt.: 1kg

Schematic diagram of APFC Panel:



K Type Specification

APFC PANEL

: **K TYPE**

Capacity

: kVAR

Phase

: Delta connection

Input voltage range

: 380/415/440volt, 3phase, 50/60Hz

System

: Balanced/unbalanced

Switching Type

: K-type (contactor switching)

Construction

: Indoor, floor mounting powder coated

Control Range setting for PF

: 0.8 Inductive – 0.8 Capacitive

Insulation

: Class "B"

Humidity : Upto 95% Rh
Operating temperature : -0.5 to 45degree C

PROTECTION :

Input MCB/MCCB : For incoming APFC panel
Mains on ----- control on ----- APFC panel

INDICATIONS : on
Cooling fan on --- Step MCB on
APFC panel input voltmeter with selector switch

INSTRUMENTATION : AC Ammeter with selector switch and CT
Power manager (optional)

SWITCHING TYPE : Contactor

APFC CONTROLLER

- ❖ Indications
- ❖ Manual
- ❖ Current
- ❖ Thd (total harmonic distortion)
- ❖ Set Cos ϕ Power Factor
- ❖ C/K
- ❖ Sensitivity
- ❖ Recon Time
- ❖ 3 digit numeric display
- ❖ Capacitive and Inductive. (Leading and lagging)
- ❖ Step ON Indicator
- ❖ Up Button
- ❖ Mode / Scroll Button
- ❖ Down Button
- ❖ Program Button
- ❖ Rated Steps

Switch Program

Thd (total harmonic distortion) Limit

Alarm assign for one of given parameters – current thd, current <3% rated value, current >110% rated value, voltage <85% rated value, voltage>110% rated value`, low pf when all cap. connected, hi pf when no cap. connected, auto c/k step measurement error (manual setting required), auto CT polarity error.

TECHNICAL DATA

1) AUXILLARY SUPPLY

: Supply voltage: 220VAC/415VAC -15% / +10% ,
: 50/60 Hz consumption – 10VA max

2) CURRENT INPUT

: Rated current In: 5A operating limits: 0.15A -6.5A
: 50/60Hz

3) RELAY OUTPUT

: Number of output: 6/8/12/14
: (PFR60/PFR80/PFR120/PFR140)

Rated capacity-5A 250VAC Contacts: NO TYPE

Max current for comman terminals: 12A continuous

4) CONTROL RANGE:

: C/K setting : 0.03 – 1.20 / atc switching sensitivity : 5-
: 600 s/steps

Reconnection time for same step : 5-240s thd threshold

: 0.20-3.0(20%-300%)/off

Switching program : automatic/automatic

rotate/manual/four quadrant

Rated step coefficient : 0/1/2/3/4/5/6/8/12/16

5) MECHANICAL

: Mounting: panel mounting dimension (H x W x D) 144
: x 144 x 91 wt.: 1kg