NECPL NAAC ENERGY CONTROLS PVT LIMITED

PF Compensator

Powernac Series

Background

Why install a Power Factor Correction System?
Benefit to Utility Companies & Consumers

It is a well-known fact that electricity users rely on alternating currents for running their loads. With the exception of heating elements, most of the other loads absorb from the network not only the active energy which they convert into mechanical work, light or heat etc. but also an inductive reactive energy
whose main function is to activate the magnetic fields necessary for the functioning of these electric machines.

Among the measures that enable electricity use to be optimized, improving the power factor of electrical systems is undoubtedly one of the most important.

If we quantify this aspect from the utility company's point of view, raising the average operating power factor of the network from 0.7 to 0.99 means :

- Cutting costs due to ohmic losses in the network by 50% due to reduced current
- Increasing the potential of production and distribution plants by 40%

From Consumer's point of view :

- Reduction in current means reduced I2R / copper losses translating into saving of KWH
- Enhanced capacity usage of existing transformer
- Reduction in energy consumption in KVAH (apparent energy). Direct savings benefit incase energy billing is in KVAH units
- Availing of incentive in terms of discount on KWH charges offered by various electricity boards on maintaining P.F. 0.95

These figures speak for themselves: it means saving tons of fuel and making several power plants and hundreds of transformer rooms available.

So utility companies offer an incentive to consumers in form of a discount on KWH charges or less unit rates if billing is done in KVAH instead of KWH. Higher the Power Factor lower the demand in KVA thus less apparent units consumed (KVAH).

P.F. Compensator Powernac Series
The Compensator series has been designed by keeping in view load characteristics of small and medium industries. These industries have a combination of both single phase and three phase loads in their network. Normal Automatic Power Factor Correction Systems do not offer optimized power factor control for these kind of networks resulting in either over compensating or under compensating the network.

In this process problems such as voltage fluctuation and poor control are created resulting in higher PF losses in terms of billing.The system losses of KVAH such Systems are also higher because of APFC improper switching of capacitor banks.

Intelligent Powernac PF Compensator been designed to overcome all these problems and limitations of other locally designed systems by offering most optimized PF Control under all load conditions.

The controller has a front optical port for downloading of data, operation, control and monitoring through the mobile application and many more options. These advanced applications helps in monitoring and controlling power factor and power quality in the network.

Additional systems can be easily added in to the same network using master-slave configuration of Controllers.

Standard P.F. Compensator, 440V, 50Hz — POWERNAC Series

Rating (KVAR)	Banking Configuration (KVAR)										Dimensions W x D x H (mm)
WALL MOUNTED											
25 KVAR	2	3	5	5	10						900 x 300 x 750
30 KVAR	2	3	5	10	10						900 x 300 x 750
40 KVAR	2	3	5	10	20						900 x 300 x 750
50 KVAR	2	3	5	10	10	20					900 x 300 x 750
60 KVAR	2	3	5	10	20	20					900 x 300 x 750
TYPE-I FLOOR MOUNTED											
75 KVAR	5	5	15	25	25						800 x 350 x 1350
100 KVAR	5	5	15	25	25	25					800 x 350 x 1350
120 KVAR	5	5	15	25	25	25	25				800 x 350 x 1350
TYPE-II FLOOR MOUNTED											
150 KVAR	5	5	15	25	25	25	50				1150 x 450 x 2125
200 KVAR	5	5	15	25	25	25	50	50			1150 x 450 x 2125
250 KVAR	12.5	12.5	25	50	50	50	50				1150 x 450 x 2125
300 KVAR	12.5	12.5	25	50	50	50	50	50			1150 x 450 x 2125
325 KVAR	12.5	12.5	25	50	50	50	50	75			1150 x 450 x 2125
350 KVAR	12.5	12.5	25	50	50	50	75	75			1150 x 450 x 2125
400 KVAR	12.5	12.5	25	50	75	75	75	75			1150 x 450 x 2125
TYPE-II FLOOR MOUNTED											
450 KVAR	25	50	75	75	75	75	75				1350 x 650 x 2125
500 KVAR	25	50	50	75	75	75	75	75			1450 x 850 x 2125
600 KVAR	25	25	50	50	75	75	75	75	75	75	1450 x 850 x 2125
700 KVAR	25	25	50	75	75	75	75	75	75	75	1450 x 850 x 2125
800 KVAR	25	25	50	75	75	75	75	100	100	100	1450 x 850 x 2125
900 KVAR	25	25	50	50	50	100	100	100	100	100	2250 x 1050 x 2125
1000 KVAR	25	50	75	75	75	100	100	100	100	100	2250 x 1050 x 2125

Specifications

Design	: Type-I - Standard Enclosure with separate compartment for Capacitor Banks & Switchgears : Type-II - Modular bolted structure with separate compartments for outgoing HRC and Contactor for each Capacitor Bank. Capacitor Banks are in separate compartment.
Enclosure Finish	: Type-I - Epoxy polyester powder coated Deep Orange and Deep Blue structure finish Type-II - Epoxy polyester powder coated RAL 7035 and Deep orange structure finish
Internal parts	: Epoxy polyester powder coated
Rated Voltage	: 415V-440V
Frequency	: 50 Hz
Output Rating	: As per table
Controller	: G8 or equivalent
Capacitors	: Heavy Duty Cylindrical Powder Capacitors rated at 440V, 50 Hz
Contactors	: Capacitor Duty Contactors with early make contacts
Incoming / Outgoing	: MCCB 25kA as Incomer and HRC Fuses for backup protection of Capacitor Banks (other combinations on request)
Auto Manual	: On-Off Push Buttons with 'On' indication Lamps, Selector Switch for Auto / Manual mode (optional)
Cooling Arrangement	: Axial Flow Fan with Louver and Thermostat
Protection Class	: IP 40

*Specifications are subject to change without notification.

NECPL

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