POWER FACTOR CORRECTION AND/OR FILTER QUOTATION INFORMATION

Listed below you will find the information required to make a network power factor correction and/or filter quotation. Based on the information provided and customer’s goal, ABB shall do an analysis and provide a recommendation. (At no charge)

A.) IF THE GOAL IS ONLY TO PROVIDE NETWORK POWER FACTOR CORRECTION FOR A NEW FACILITY:
The minimum data required is:
1.) Feeding transformer kVA rating, % impedance, secondary voltage.
2.) Desired power factor.
3.) HP, kW or FLA rating of each linear (non-harmonic generating) load. (i.e. across line starters, reduced voltage starters, etc.)
4.) HP, kW or FLA rating of each non-linear (harmonic generating) load. Type of non-linear load (i.e. AC VFDrive, DC Drive, Soft Starter, UPS system, welder, Arc furnace, SCRs etc.)
5.) Are any non-linear loads to be added to the network in the future? 
   If yes, please provide an estimate of future load (ie AC VFDrive, 100HP).

B.) IF THE GOAL IS TO MEET IEEE STD. 519-1992 RECOMMENDED PRACTICES FOR LIMITING HARMONIC DISTORTION:
1.) Three phase short circuit current available from the utility (line side of feeding transformer). This is obtainable from the utility company.
2.) Feeding transformer kVA rating, % impedance, primary voltage, and secondary voltage.
3.) Harmonic snapshot measurements taken during normal full load conditions. The load current snapshot measurement should be taken on the low voltage side of the feeding transformer and should measure the total transformer load current at each phase.
   I1 (fundamental 60Hz load current)
   I2nd (120Hz), I3rd, I4th, I5th, I6th, I7th...I21st
The voltage-snapshot measurement should be taken at the low voltage bus
Vthd (total harmonic voltage distortion).
The power snapshot should include the active power (kW) OR apparent power (kVA) and PF (Power Factor).
4.) Trend data - recommended to determine the maximum reactive power (kVAr) requirements, the maximum harmonic distortion and if any unusual harmonic distortion (ie even harmonic distortion) situations exist. Minimum of twenty-four hour trend data recommended which would include the following: Min/Avg/Max kW (date, time of meas.) OR Min/Avg./Max kVA (date, time of meas.), Min/Avg./Max kVAR (date, time of meas.) and the Min/Max Vthd (date, time of meas.). It is very important to obtain the Maximum Measured harmonic currents (amps not %): I2nd, I3rd, I4th, I5th.......I35th.
5.) Are there any existing capacitors connected to the network? If yes, provide total kVAR and voltage rating. Are capacitors presently operating at their rated power?
6.) Are any non-linear loads to be added to the network in the future? If yes, please provide an estimate of future load (ie AC VFDrive, 100HP).

C.) IF THE GOAL IS ONLY TO PROVIDE NETWORK POWER FACTOR CORRECTION IN A HARMONIC ENVIRONMENT:
1.) Feeding transformer kVA rating, % impedance, secondary voltage.
2.) Minimum of six months of utility bills, which include kW demand and existing power factor.
3.) Desired power factor.
4.) HP, kW or FLA rating of each non-linear (harmonic generating) load.
5.) Type of non-linear load (i.e. AC VFD, DC drive, Soft Starter, UPS system, welder, Arc furnace, SCR etc.)

6.) Are there any existing capacitors connected to the network? If yes, provide total kVAR and voltage rating. Are capacitors presently operating at their rated power?

**D.) IF THE GOAL IS TO SIZE A FILTER FOR AN INDIVIDUAL NON LINEAR LOAD:**

1.) Type of non-linear load (AC VFD, DC drive, PWM drive, UPS system, etc.)?

2.) P, kW, kVA or FLA rating of non-linear load? PF rating of non-linear load if available?

3.) Does the non-linear load have an input line reactor? If yes, what is the % impedance of the input line reactor?

4.) If available the magnitude (amps) of the harmonic currents measured at the non-linear load (I2nd, I3rd, I4th, I5th......I35th)?

5.) Feeding transformer kVA rating, % impedance, secondary voltage?