

ABSTRACT

Tri Rizki Prasetya

NIM: 1505700

In the industrial world, most of them use electric motors that have an influence on the electricity of PLN as a whole because electric motors have a power factor of less than one. Then we need a tool to improve the value of the power factor that is less than one, then the device is a bank capacitor. Likewise in a power electricity laboratory that has a lot of electric motors that need to be repaired its power factor value. In the design of the capacitor, the author's bank is only focused on controlling the improvement of the power factor so that the capacitor of the bank can work automatically. The design of the bank capacitor that is made needs to be analyzed using data collection methods and the design techniques of bank capacitors. The working method of the tool is that the device is provided with a 380 volt voltage source that flows through the com, P0 and P2 on the *MH MSC-12 power factor controller* so that it can function. After that the control can be *set* according to the desired needs. Some *settings* found on the *MH MSC-12 power factor controller* are *delay*, *step*, *power factor* and others. From the results of trials and measurements it can be concluded that the *MH MSC-12 power factor controller* can work in accordance with what has been *set*. When *set* to correct $\cos \phi$ the electric motor with a current of 3.6A which initially has a $\cos \phi$ value of 0.60 to be 0.85 in accordance with what is desired, the regulator works well and can correct $\cos \phi$ in accordance with the *settings*. So the $\cos \phi$ motor turns to 0.86. When *setting* to correct $\cos \phi$ electric motor which has a current of 4.8 A which is $\cos \phi$ initially 0.71 so that it becomes 0.95 according to what is desired, the regulator works well and can correct $\cos \phi$ according to the *setting*, so $\cos \phi$ the motor changes to 0.95. With this tool it will reduce the occurrence of *voltage drop*, minimize the occurrence of electricity network losses, prevent PLN fines due to reactive power.

Keywords: Power Capacitor, Power Factor, *MH MSC-12 Power Factor Controller*.