PLC BASED MOTOR PROTECTION AND DE RATING INDICATION FOR INDUSTRY MOTOR DRIVES

Abstract:

In present scenario in industry PLC is widely used for automation as well as data acquisition along with SCADA. Normally the application of PLC focus on logic control and efficiency improvement of process assuming the electrical devices like induction motor which is widely used in industry for working in normal condition. Standard protection relays are employed along with motor.

The paper describes how PLC can be associated for motor protection and de-rating indication and control apart from regular automation function so as to have overall control of process and keeping healthy condition to reduce breakdown time.

Induction motors are complex electro-mechanical devices utilized in most industrial application for the conversion of power from electrical to mechanical form. Induction motors are used worldwide as the workhorse in industrial applications. Such motors are robust machines used not only for general purposes, but also in hazardous locations and severe environments.

General purpose applications of induction motors include pumps, conveyors, machine tools, centrifugal machines, presses, elevators, and packaging equipment. On the other hand, applications in hazardous locations include petrochemical and natural gas plants, while severe environment applications for induction motors include grain elevators.
shredders, and equipment for coal plants. Additionally, induction motors are highly reliable, require low maintenance, and have relatively high efficiency. Moreover, the wide range of power of induction motors, which is from hundreds of watts to megawatts, satisfies the production needs of most industrial processes. However, induction motors are susceptible to many types of fault in industrial applications. A motor failure that is not identified in an initial stage may become catastrophic and the induction motor may suffer severe damage. Thus, undetected motor faults may cascade into motor failure, which in turn may cause

**Block Diagram:-**