

SPEED CONTROL OF 3-ph INDUCTION MOTOR WITH TWO STAGE IPFC USING 1-ph SUPPLY

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ABSTRACT

Today in industries, 3-ph IM are being used on very wide scale. So, its speed control according to the specific requirement is very important. Also many times, 3-ph IM are to be operated with easily available 1-ph supply. For this, proposed mechanism of speed control here is very efficient and reliable. At input terminal, high performance Two stage Interleaved power factor correction technique (IPFC) with boost topology operating with discontinuous current conduction is used. With this circuit, 3rd order harmonics can be eliminated upto 99.99%. Also it will help to achieve almost UNITY pf with rated power supply. With this type of 3-ph supply provided to the IM, Reactive power generation can be minimised which leads to efficient control over the wastage of Reactive power and use the Reactive power compensation techniques. So the overall cost of operating 3-ph IM can be minimised.

KEYWORDS: Two Stage Boost Topology, Discontinuous Current Conduction, IPFC, Sine-Wave PWM, 3-Ph Bridge Inverter