SINGLE PHASE AC-AC MATRIX CONVERTER FOR CONTROLLING INDUCTION MOTOR

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ABSTRACT

This project illustrates the use of Power System Block Set (PSB) within MATLab / Simulink. The Power System Block provides the ability to model and simulate electrical power system and drives within Simulink Environment. The Single Phase Matrix Converter (SPMC) as a direct frequency changer were used in this work using single-phase induction motor as a load. The SPMC circuit composed from four ideal power switches used as a frequency converter. The desired output voltage will be synthesized using Sinusoidal Pulse Width Modulation (SPWM) technique.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Power System Blockset contains a set of tool for modelling and simulating electrical power system within the Simulink environment. PSB also provides a standard electrical symbol. It also delivers highly accurate simulation of power system model using variable step integrator which present in Simulink. In this project includes two models that is matrix converter and induction motor model. Both models has been developed using Power System Blockset within the Matlab/Simulink and the simulation has been done using variable step solver includes in Simulink.

1.2 Objectives

The main objective of this project is to control a single-phase induction motor using single-phase matrix converter as direct frequency changer. The simulation will be focused on observation to the speed of induction motor when fed from variable frequency.