

DEVELOPMENT OF A LABORATORY MODEL THREE PHASE STATIC VAR COMPENSATOR

Thesis is presented to fulfill the requirements of Advanced Diploma In Electrical
Engineering Of Mara Institute Of Technology

ROSLI BIN AHMAD @ AWANG

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Department of Electrical Engineering
School of Engineering
MARA Institute of Technology
40450 Shah Alam
Selangor
MALAYSIA

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ROSLI BIN AHMAD @ AWANG

ABSTRACT

This project is to develop a laboratory model three-phase fixed capacitors, thyristor controlled reactors (FC-TCR) static var compensator (SVC). It is capable of performing dynamic power factor correction and terminal voltage stabilization at the receiving end of a model radial transmission line. It is a computer based compensator unit driven by software written in Q-basic language. The control circuit detect the zero-crossing of each individual line-to-line voltage waveform and upon receiving voltage signal from digital to analog converter(DAC), generate the controlled gating pulses for the triggering hardware. The conduction angles of all of the thyristors are the same and varies accordingly with the serial command signal from the computer. Conducting thyristor controlled reactors generate a desirable variable susceptances require for compensating.

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1.0 INTRODUCTION

Developing reliable computer controlled laboratory models for the machinery and power systems laboratories utilising the resources available at the institution enable upgrading of facilities and modernization works to be done economically. The availability of such facilities enable teaching of the subjects to be done more effectively since relevant experiments to demonstrate its actual operations and functions can be performed. This enable the students to understand the subject matters better and to some extent, stimulate and enhance their interest toward power engineering or its related subjects.

The design of the laboratory model three-phase static var compensator is divided into two sections :

- a) Compensator Circuit
- b) Control Circuit