Heaven's Light is Our Guide

Rajshahi University of Engineering & Technology

Department of Electrical & Computer Engineering

Lab Report

Experiment No: 05
Name of the experiment: Three phase sequence test using bulbs.

Course Code	ECE 1201
Course Title	Circuit & Systems II Sessoinal
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Experiment No: 05

1. Name of The Experiment: Three phase sequence test using bulbs.

2. Objectives: Three phase sequence test using bulb

3. Theory:

This method involves using three identical bulbs connected across each phase. By observing the brightness of the bulbs, we can determine the phase sequence. When the supply is correctly connected in sequence (ABC), all the bulbs will glow equally. If the sequence is reversed (ACB), there will be a difference in brightness due to the phase differences in voltages.

4. Required Apparatus:

i. Source
ii. VARIAC
iii. Two bulbs.
iv. Connecting wires
v. A capacitor

5. Circuit Diagram:

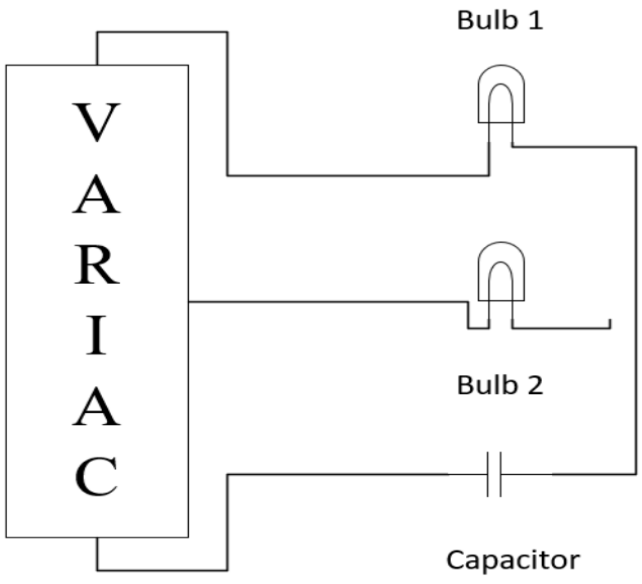

Figure: Circuit diagram for phase sequence of bulbs

6. Result: When the phase is changed the bulbs interchange their state of illumination. The bulb 'b' illuminates less. If the sequence is 'abc' then its clockwise current otherwise its 'acb' and the direction of the current is anti-clockwise.

7. Discussion:

It was shown by the experiment that the phase sequence was altered, which changed the motor's direction of rotation. Clockwise rotation was caused by a forward sequence (abc), while counterclockwise rotation was resulted from a reverse sequence (cba). The critical role of phase sequence in motor control was confirmed, as undesired motor behavior or even damage could have been caused by incorrect sequencing. The importance of verifying the correct phase sequence in three-phase systems was demonstrated by the response of the six-phase motor to ensure proper operation in industrial applications.

8. Precautions:

i. All connection should be perfectly connected.

ii. Been cautious of the power rating of the instruments to avoid overheating

iii. Capacitor should be chosen correctly to get proper illumination.

9. Reference:

(i) Charles K. Alexandar and Matthew N. O. Sadiku, "Fundamentals of Electric Circuit", 5th Edition, 1221 Avenue of the Americas, New York