
PRACTICAL 9 STUDY OF ENERGY CONSUMPTION

Structure

- 9.1 Introduction
 - 9.1.1 Objectives
- 9.2 Experiment
 - 9.2.1 Apparatus Required
 - 9.2.2 Procedure
 - 9.2.3 Circuit Diagram
 - 9.2.4 Observations
 - 9.2.5 Results
- 9.3 Precautions

9.1 INTRODUCTION

In any electrical system energy transfer is due to the flow of current due to the applied voltage. Typically loads can be categorised as Resistive (R), Inductive (L) or Capacitive (C). Voltage is measured by employing voltmeters and current by employing Ammeters. This experiment tells us how to measure the energy consumed.

9.1.1 Objectives

- i) Study the working of an energy meter.
- ii) Calculate Energy Consumed

9.2 EXPERIMENT

9.2.1 Apparatus Required

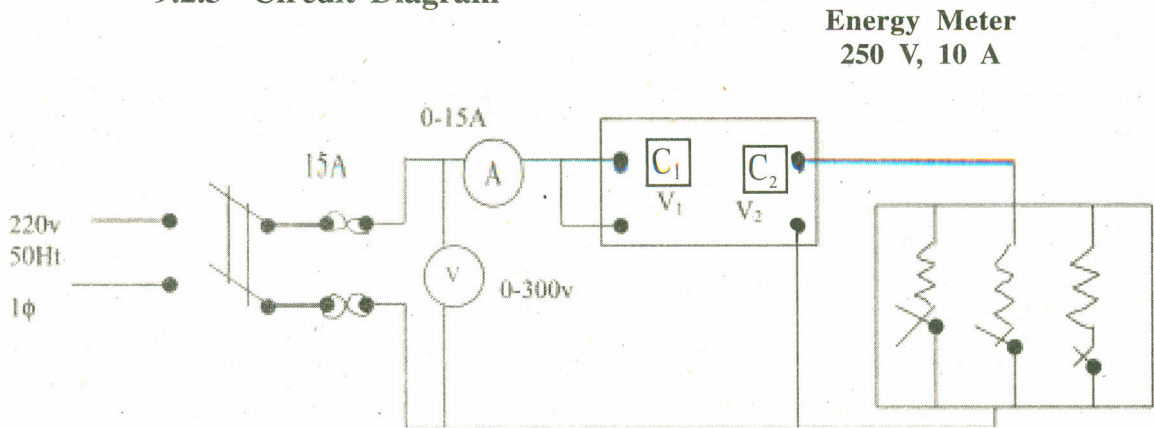
Loading Rheostat	-	2Kw, 220 V
Voltmeter	-	MI – 0 to 300 V – 1 No.
Ammeter	-	MI – 0 to 15A – 1 No.
Energy Meter	-	250V, 20A, 1000 revolution/ Kw hr
Stopwatch	-	1
Fuse wires	-	15 A

9.2.2 Procedure

- i) Connect the circuit as shown in the circuit diagram.
- ii) Start loading the circuit in steps of 0.5 Kw simultaneously start the stop watch
- iii) At each step start counting number of revolutions the disk makes for 30 minutes.
- iv) Record voltage, current, and number of revolutions for 15 minutes in the observation table
- v) Increase the load by 0.5 Kw

- vi) Repeat steps (iv) and (v)
- vii) Compute the energy Consumed

9.2.3 Circuit Diagram



9.2.4 Observations

Observation Table

Sl.No.	Load Kw	Current A (A)	Voltage V(V)	Power P (A×V)	Energy Kwh $\frac{P \times 0.05}{1000}$	Number of revolution $\frac{n}{1000 Kwh}$	Energy meter reading
1	0.5						
2	1.0						
3	1.5						
4	2.0						

9.2.5 Results

Compute energy consumed and compare with energy meter reading.

9.3 PRECAUTIONS

- Do not close the circuit without the permission of the Instructor.
- Use Thick conductors for series circuit
- Use Thin conductors for Voltmeters
- Do not exceed the range of any instrument.