Heaven's Light is Our Guide

Rajshahi University of Engineering &Technology

Department of Electrical &Computer Engineering

Lab Report-2

Experiment name: Study the relationship between phase and line current of delta connected 3 phase balanced system.

Course Title: Circuit &System-II (Sessional)
Course Code: ECE-1205
Date of experiment: 14-5-2024
Date of Submission: 2-09-2024

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Experiment no:2

Experiment name: Study the relationship between phase and line current of delta connected 3-phase balanced system.

Theory: In a delta connected 3 phase balanced system, the phase winding are connected in a closed loop, forming a triangle -like configuration. The relationship between the phase current (I_{ph}) and the line current (I_{line}) in a delta connection is

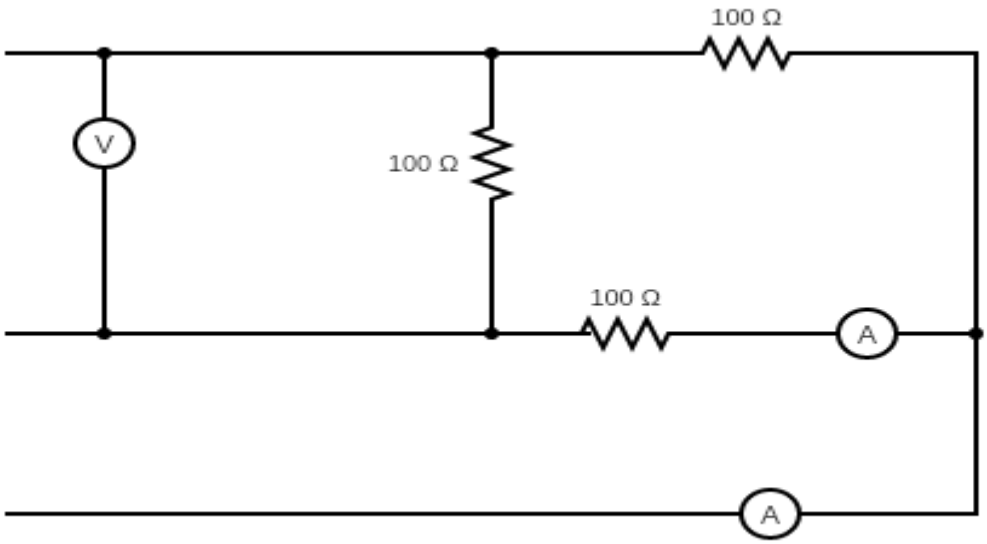
$I_{line}=\sqrt{3}I_{ph}$

This relationship arises because each line current is the vector sum of the current in two phase connected to that line.

Required Apparatus

- Voltmeter
- Ammeter
- Multimeter
- Source
- Connecting wires
- Resister

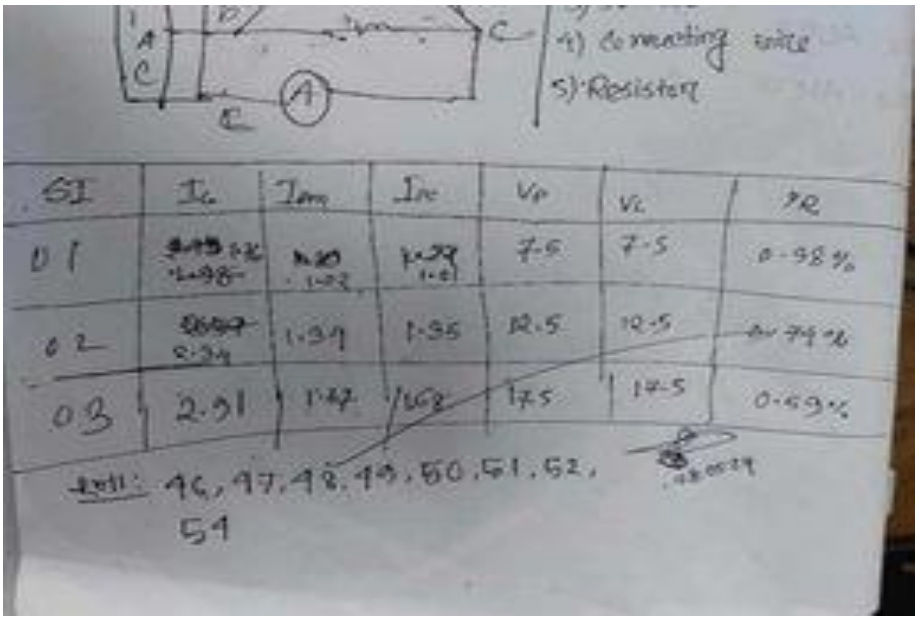
Circuit Diagram:



Data Table:

SI No	I_L	I_{ph}	$I_{p(cal)}$	V_L	V_p	Error (%)
1	1.76	1.02	1.01	7.5	7.5	0.98%
2	2.34	1.34	1.35	12.5	12.5	0.74%
3	2.91	1.67	1.68	17.5	17.5	0.59%

Picture:



Discussion:

This experiment successfully define the relationship between phase and line current in a delta -connected 3 -phase system. The measured line currents closely matched the theoretical values, validating the relationship

Precautions:

- All connection should be tight
- Before connecting the check their zero reading
- The terminal of the resistance should be properly connected

Reference:

Fundamental of Electric Circuits .