Heaven's Light is Our Guide
Rajshahi University of Engineering and Technology

Course Code
ECE 3200

Course Title
Electrical Services Design

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Lab Report 5:
Implementation of Parametric & Full Units PLC: Insertion, Editing, &
Modification.

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Drawing Line Diagrams in AutoCAD Electrical.

Introduction

A Programmable Logic Controller (PLC) is an industrial computer used to control automated processes, managing inputs and outputs based on pre-programmed instructions [1]. PLCs are valued for their reliability, scalability, and real-time processing.
A Parametric PLC allows dynamic configuration of system parameters like timers, counters, and I/O addresses, making it adaptable to various needs [2]. This flexibility is useful for applications requiring frequent adjustments.
A Full Units PLC integrates all essential modules, including CPU, I/O, power supply, and communication interfaces, for comprehensive automation solutions [3].
Working with a Parametric PLC involves:

- Inserting: Integrating the PLC into a project with defined configurations.

- Editing: Adjusting parameters to optimize performance.

- Modifying: Changing program structures and logic flow as needed.

Mastering these processes enables engineers to design efficient and customizable automation systems.

Required Equipment/Software

- AutoCAD Electrical

- LaTeX for report writing

Procedure

1. **Inserting Parametric & Full Units PLC**

   (a) Create a new project in the PLC software.

   (b) Select the PLC model and configuration.

   (c) Insert the Parametric PLC module.

   (d) Define I/O addresses and set parameters.

   (e) Compile and upload the configuration.

2. **Editing & Modifying Parametric PLC**

   (a) Open the existing project file.

   (b) Modify parameters like timers and counters.

   (c) Adjust I/O mapping if needed.

   (d) Simulate changes before deployment.

   (e) Save and download the modified program.

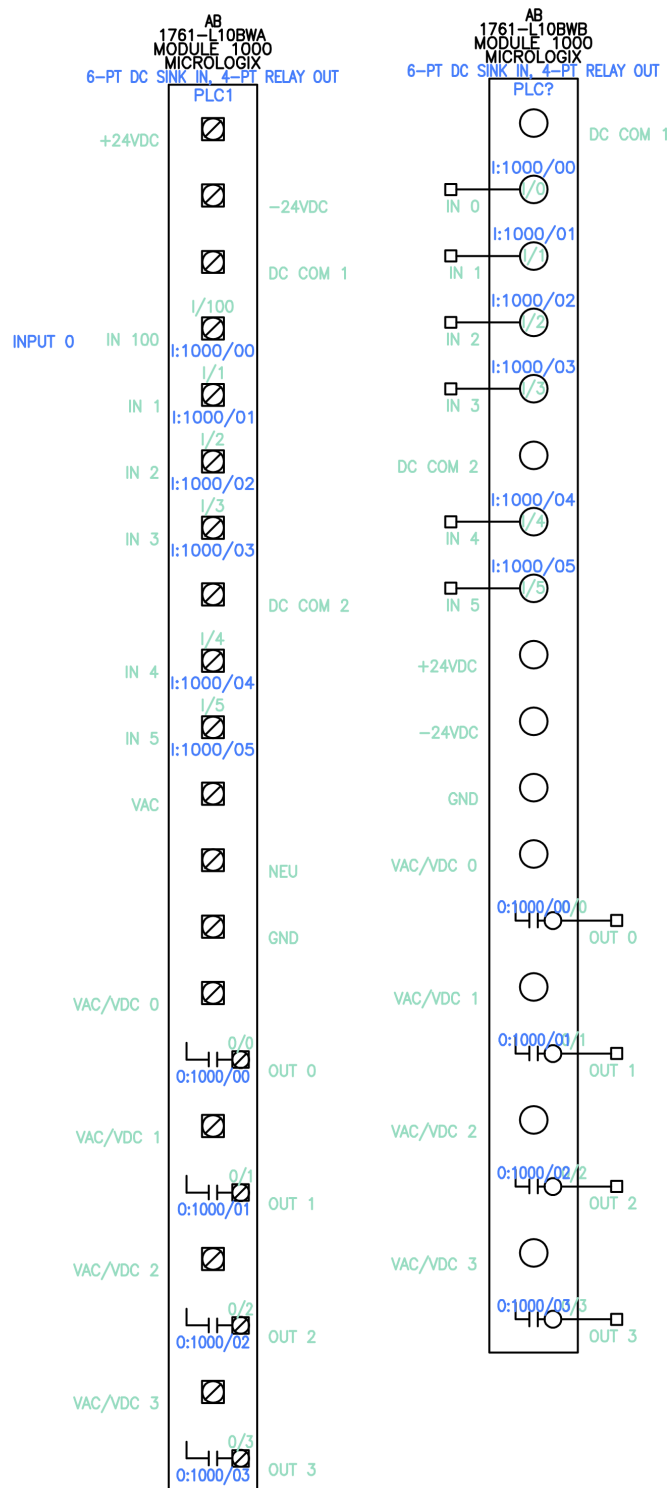   (f) Monitor performance using debugging tools.

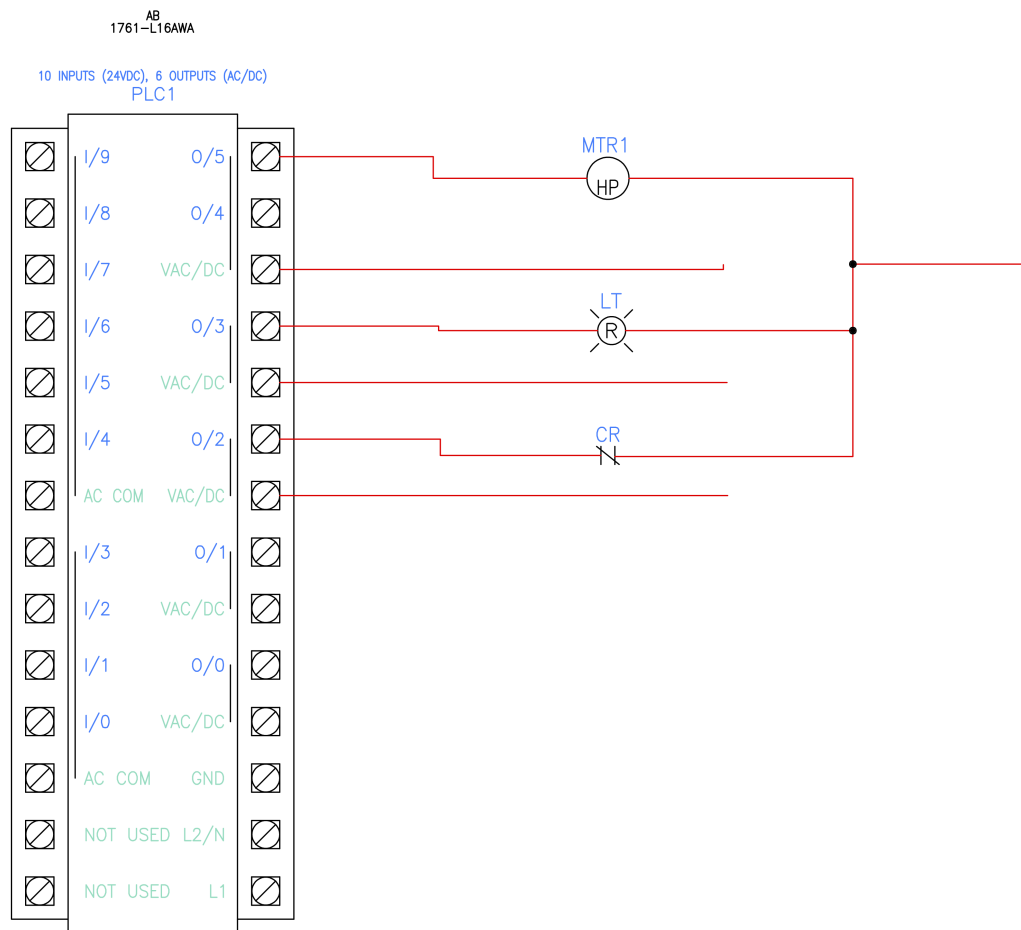Figure 1: Inserting Parametric & Full unit PLC

Figure 2: Editing & modification of parametric & full unit PLC

Discussion & Conclusion

This experiment outlined the process of inserting, editing, and modifying a Parametric PLC. By configuring parameters and optimizing logic, we achieved efficient automation control. The ability to adjust PLC parameters enhances flexibility in real-world applications. In conclusion, understanding parametric PLC configuration is crucial for effective industrial automation. This lab reinforced practical skills in PLC programming and troubleshooting.

The experiment is done following these video:
BD Cinema mode AutoCAD Electrical Bangla Tutorial Class - 14 How to Inserting Parametric & Full Units PLC (https://www.youtube.com/watch?v=u1Mym8yr64Y)
AutoCAD Electrical Bangla Tutorial Class - 15 How to Editing & Modifying Parametric PLC (https://www.youtube.com/watch?v=nM-mSN8yfnA)

References

[1] C. D. Johnson, *Introduction to Programmable Logic Controllers.* Prentice Hall, 2006.

[2] G. Clarke and D. Reynders, *Practical Modern SCADA Protocols: DNP3, 60870.5 and Related Systems.* Newnes, 2005.

[3] W. Bolton, *Programmable Logic Controllers.* Newnes, 2015.