Industrial Automation Factory Automation Series
Fundamentals of Programmable Controllers
Module 721

The fundamentals of Programmable Controllers Course, is designed to acquaint you with a basic understanding of the functionality of the programmable controller. Operations personnel need not be electrical or control system experts to be competent observers (troubleshooters) of their plant's electro-mechanical control system. This course will provide the fundamental understanding of how your plant electrical and control systems work. The two systems work together to control your facilities machinery. The goal of this course is to provide you the background necessary to become a competent observer of your plant's normal operating characteristics. To identify plant malfunctions, estimate the most probable causes of these malfunctions, call in the best repair resources, and provide valuable observation details to that repair person. The course will define the major components of the programmable controller, what they do, and how they work together to solve control problems. Course length is one (1) day.

COURSE OBJECTIVES

- Provide a brief history of the programmable controller with an appreciation for the problems that provided incentive to the development of the first modular digital controller.
- Discuss in general terms, where programmable controllers are used, and what major benefits accrue from their use.
- Build a model of the programmable controller, and its basic components, how they are interconnected, and communicate with each other.
- Define the programmable controller as a series of modular components that are interconnected through a hardware and software configuration.
- Define system addressing as it relates to system hardware, software, and real world devices.
- Review the types of Input/Output devices and their functions.
- Define system diagnostic indicators and Input/Output status indicators.
- Define the various communication interfaces, including the programming interface, host computer, operator's panels, video display panels, printers, etc.
- Develop a control problem; demonstrate the steps involved in implementing this control strategy.
- Create a hypothetical factory with several control centers; discuss the various layers of control within the factory; and discuss communication strategies within the factory.
- Demonstrate the ability of the programming panel to monitor system functions in the programmable controller.
- Demonstrate appropriate safety. Is "OFF" really "OFF"?