

# Level 1: Fundamentals

## PLC—Sensors I

As manufacturing and industry becomes increasingly automated, the understanding of sensors is critical. Sensors are eyes, ears, touch, and feel of automated systems. They relay signals to the “brain” of the system in order for the system to react accordingly. This course will introduce the participant to various sensors common in the industrial automation field. Hands-on experience plays a central role in teaching the fundamentals of sensors. Examples are used to demonstrate the general operational principles of different sensors. Special attention is paid to the selection of the right sensor, its connection, the correct setting and functional checking.

### Course Topics

- Configuration, function and coefficients of the sensors used
- Basic principles of connection and circuit technology
- Influence of shape, material, surface and color of the object on the switching characteristics of sensors
- Terms which describe coefficients and functional behavior
- Configuration of logic circuits
- Selecting appropriate sensors by taking into account certain parameters

### Core Competencies

- Understand and explain fundamentals of sensor technology
- Recognize sensor functionality and select the appropriate sensor for various industrial applications
- Interpret the language, symbology, and protocols commonly used in the sensor field
- Explain how the various types of sensors work and function
- Make electrical connections and test the sensor for proper operation
- Troubleshoot, repair/replace a faulty sensor

### Equipment

#### Sensor Training Package

- Can easily be integrated into the Fluid Power Training Systems bench and Worksurface.
- Delivered with a marked tray system for easy part identification and inventory
- Test sensors with included varied object set
- Determine sensing range/accuracy with easily movable mounting system
- Sensors with Analog and Binary output signals
- Magnetic proximity sensors
- Inductive proximity sensors
- Optical proximity sensors
- Capacitive proximity sensors
- Inductive sensors (analogue)



This package integrates with and utilizes the workbench system for Fluid Power.

