

Electronic Sensors eLearning | Proximity Sensor, Reed Sensor

Electronic Sensor Applications - WX11142-XA02UEN-E1

Objective 5: Describe the Operation of a Photoelectric Sensor and Give an Application

Photoelectric Sensor Construction

A typical photoelectric sensor, shown in the diagram, has three components:

- Light Source (Transmitter)
- Photoelectric Sensor (Receiver)
- Electrical Switch Contacts

The diagram illustrates the internal components of a photoelectric sensor. On the left, a black cylindrical housing contains a 'Light Source'. A beam of light is shown traveling from the source to a 'Photo Diode' on the receiver side. The receiver is connected to a 'Power Supply' (positive and negative terminals) and a 'Switch Circuit'. The switch circuit includes a 'Photoelectric Sensor' and 'Electrical Switch Contacts', which are further divided into 'N.O. Contact' (Normally Open) and 'N.C. Contact' (Normally Closed).

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eLearning Course: MB837

Amatrol's Electronic Sensor training course covers the basic construction and operation of inductive and capacitive proximity sensors, basic constructions and operation of magnetic reed switches, Hall-Effect Sensors, and more and applications in an online eLearning setting. These hands-on workplace skills are important because electronic sensors provide reliable low-cost input and monitoring for electrical control systems, and are used in almost every industry around the world. Amatrol's world-class online curriculum will prepare students for a successful career using equipment they will use on the job.

Teach Hands-On Skills

What are the Advantages and Disadvantages of Electronic Sensors?

Electrical control systems use electronic sensors as input devices to sense the presence of an object. Electronic sensors perform the same function as mechanical limit switches, but they use electrical principles to sense the presence of an object.

An electronic sensor has many advantages over limit switches:

- Higher operating speed
- No physical contact with the sensed part
- Lower maintenance cost
- Longer life
- Can sense position, material type, and color

However electronic sensors are not always the best solution for sensing. There are two distinct disadvantages to electronic sensors:

- Electronic sensors often require a more complex control system than a simple switch.
- Electronic sensors have a relatively low power handling capability

Flexibility to Combine with Other Hydraulic Learning Systems

Electro-hydraulics is a flexible training system that can be used with a wide-range of products featuring Amatrol's Basic Hydraulics ([85-BH](#)). Options for utilizing the 85-EH include: Controls Technology - Basic Hydraulics ([850-H1](#)), Basic Fluid Power ([850-C1](#)) for both hydraulic and pneumatic training, or one of our double-sided trainers for maximized use of space. This line of products features Controls Technology - Basic Hydraulic ([850-HD1](#)) and two combination systems: Basic Fluid Power with two hydraulic manifolds ([850-CD1](#)) or one ([850-CD2](#)). The electro-hydraulics training system can also be used to with Amatrol's Intermediate Hydraulics ([85-IH](#)), which can also be added to the previously listed products.

Multimedia Course

Electronic Sensor Training Features Engaging Online Multimedia

Amatrol's extensive, thorough [multimedia](#) covers electrical basics such as electronic sensors. Interactive screens paired with instructive graphics teach an array of electronic sensors topics from inductive sensors to sensor applications. With the optional hardware, learners can then apply this theoretical knowledge to immediate hands-on skills. For example, learners study capacitive sensors and then manually measure and analyze the performance of a capacitive proximity sensor for deeper understanding. This combination of theory and practice ingrains concepts in a learner's mind and makes more advanced topics easier to comprehend. (References [85-SN1](#))

Additional Info

- 24 VDC Power Supply (16019)
- [Basic Hydraulics \(850-H1\)](#) OR [Basic Fluid Power \(850-C1\)](#) OR [Basic Hydraulics - Double Sided \(850-HD1\)](#) OR [Basic Fluid Power - Double Sided \(850-CD1\)](#) OR [Basic Fluid Power - Double Sided \(850-CD2\)](#)

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