

What are the components of an optocoupler in a PLC



AI Overview

An optocoupler in a PLC isolates the input signal from the controller's logic using light, allowing safe signal transfer from high-voltage sensors to low-voltage PLC circuits.

Basic Principle

An optocoupler, also called an opto-isolator, consists of a Light-Emitting Diode (LED) on the input side and a photodetector (usually a phototransistor) on the output side. When a sensor or input device applies voltage to the LED, it emits infrared light. This light is detected by the phototransistor, which then conducts current in the PLC's low-voltage logic circuit, effectively acting as a switch without any direct electrical connection between the input and output circuits. This isolation protects the PLC from voltage spikes, electrical noise, and high-voltage transients.

Role in PLC Input Circuits

In PLCs, optocouplers are commonly used to interface high-voltage sensors (like 24V DC or AC devices) with the PLC's low-voltage digital inputs. They allow the PLC to safely detect the state of external devices while maintaining electrical isolation. The optocoupler ensures that any voltage fluctuations or noise from the sensor side do not affect the PLC's internal microcontroller or logic circuits.

SINK and SOURCE Configurations...

Article Content

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Optoisolators: What They Are and How They Work | Electrical4U

Optoisolators are also known as optocouplers or optical isolators. An optoisolator consists of three main parts: a light

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Optocoupler | Explore Our Workshop | Jameco Electronics

Understand what an optocoupler is and how it works at our electronics workshop at Jameco Electronics. Explore tutorials on how

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Optocouplers Guide: Understanding Types, Applications, and ...

Learn how optocouplers ensure electrical isolation and signal transfer in circuits. This guide covers their components,

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opto isolator

Figure 1. The PLC input can be connected directly to ground in the case of a current-sourcing type or directly to positive supply in the

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How to Use an Optocoupler to Pass Signals Between Controllers at ...

How to Use an Optocoupler to Pass Signals Between Controllers at Different Voltages: This tutorial makes use of the 4N25

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What Is An Optocoupler And How Does It Work?

Learn what an optocoupler is, how it works, and why it's essential for isolating electronic signals in industrial and

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Optocoupler Working Principle: Types, CTR Formula and Industrial ...

It contains two semiconductor devices sealed in a single package with a transparent optical medium between them:

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Optocouplers 101: A Comprehensive Guide for PCB

Adding a simple phototransistor optocoupler between the sensor and MCU eliminated the

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What Is Optocoupler and Its Application with Examples

An optocoupler is a semiconductor device that transmits an electrical signal between two isolated circuits using light.

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Using Opto Couplers

After studying this section, you should be able to: Describe basic applications of optocouplers: Understand the design of optocoupler

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Optocoupler Tutorial and Optocoupler Application

Make Your Own Optocoupler Simple home made opto-couplers can be constructed by using individual components.

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Using an optocoupler to tap into digital PLC signals

How can i design a circuit for tapping digital DC signals from PLCs? I desire to create a circuit with a MCU which can be attached to

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What is an Optocoupler and How does it Works?

Optocoupler Optocouplers also known by photocoupler are made of LEDs, photodiodes or phototransistors linking

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How can I control an input of a Siemens PLC with a 4N25 optocoupler?

I need to turn on/off an input of a Siemens PLC controlled by an external output of another machine. I used an

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Opto-isolator

An opto-isolator (also called an optocoupler, photocoupler, or optical isolator) is an electronic component that transfers electrical

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What is Photocoupler | Optocoupler | Optoisolator

What is an Optocoupler (Optoisolator / Photocoupler)? An Optocoupler (Optoisolator / Photocoupler) is an electronic

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Everything You Need to Know About Optocouplers in

This is where the optocoupler comes in handy and isolates both networks. The

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Introduction to Optocouplers. principle, Application

What are Optocouplers? Optoisolator or better known as an optocoupler is an electric photo switch consisting of a

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Optocoupler Tutorial and Optocoupler Application

Then an optocoupler or opto-isolator consists of a light emitter, the LED, and a photosensitive receiver which can be a

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Optocoupler Tutorial for Beginners

An optocoupler uses light to transfer signals from one circuit over to another. This guide shows you how they work

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What are Optocouplers? Definition, construction and working of ...

Definition: An optocoupler or optoelectronic coupler is an electronic component that basically acts as an interface between the two

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Optoelectronics: Optocouplers

Assembling these two components into an integrated circuit (IC) package gives us a basic optocoupler. Before

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Optocoupler modules in interface electronics

Optocoupler modules connect high-voltage and low-voltage circuits: Industrial controllers can sustain damage if they're fed input

May 07, 2026

What is an Optocoupler? Working, Block Diagram & Applications

An optocoupler is a solid state electronic device, which includes a light emitter, light path and a light detector

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Optocouplers Guide: Understanding Types, Applications, and ...

An optocoupler consists of two main parts: a light-emitting diode (LED) and a light-sensitive receiver, such as a

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Opto-isolator

Schematic diagram of an opto-isolator showing source of light (LED) on the left, dielectric barrier in the center, and sensor

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Understanding Optocouplers: Principles, Types and Applications

Introduction An optocoupler, also known as an opto-isolator, is a crucial electronic component that transfers electrical

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What Is an Optocoupler | ODG

An optocoupler prevents dangerous voltages reaching your control components. It helps

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Optocoupler: Its Types and Various Application in DC/AC Circuits

Opto-coupler is an electronic component that transfers electrical signals between two isolated circuits. Optocoupler

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Optocouplers / Opto-isolators; Optical Coupling and Isolation

Optocouplers, which can be assembled using traditional semiconductor packages, contains both a light emitting diode (LED) and a

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What is an Optocoupler A.K.A Opto-isolator or Photocoupler?

What is Optocoupler? An Optocoupler or an Opto-isolator (also known as photocoupler and optical isolator) is an electronic

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What is Photocoupler | Optocoupler | Optoisolator

An optocoupler (also known as an optoisolator or Photocoupler) consists of two core components housed within a

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PLC Digital Input and Digital Output Modules | PLC

PLC Digital Input and Digital Output Modules : PLC input modules receive a signal from the

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Optocouplers in Electrical Isolation and Signal Transmission

Optocouplers are essential components in electronic design, offering a reliable signal isolation and transmission

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What is Optocoupler and How it works?

They use light to pass signals between circuits. What is Optocoupler and How It Works As we have already learnt

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Optocoupler in PLC: A Comprehensive Guide to Choosing the Right ...

The optocoupler is a critical component in PLC (Programmable Logic Controller) systems, designed to provide electrical isolation

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What Is An Optocoupler And How Does It Work?

One is a light-emitting element – the LED emitter – and its partner is a light-sensitive component – the photodetector

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Optocouplers Selection Guide: Types, Features, Applications

Optocouplers are electronic components which use light waves to provide electrical isolation while transferring an electrical signal.

Contact Us

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