

How to connect optical sensor modules in series and parallel



AI Overview

Optical sensors can be connected in series for AND logic or in parallel for OR logic, but careful attention to voltage drops, current limits, and sensor type is essential.

Series Connection (AND Logic)

In a series connection, the sensors are wired so that the load is activated only when all sensors detect the target condition. This is commonly used for safety or redundancy purposes . Wiring Steps:

- For PNP sensors (sourcing type):
 - Connect the positive terminal of the power supply to the positive input of the first sensor.
 - Connect the output of the first sensor to the positive input of the second sensor, and so on.
 - Connect the output of the last sensor to the positive terminal of the load.
 - Connect all negative terminals (sensors, load, power supply) together.
- For NPN sensors (sinking type):
 - Connect the negative terminal of the power supply to the negative input of the first sensor.
 - Connect the output of the first sensor to the negative input of the second sensor, and so on.
 - Connect the output of the last sensor to the negative terminal of the load.
 - Connect all positive terminals together. Considerations:...

Article Content

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Optical Sensor Types, Working Operation, Application

Optical sensors are useful in detecting and measuring light for a wide range of applications. This guide explores their working principles, common

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Series vs. Parallel | Renogy US

Learn about series, parallel, and series-parallel connections in solar panel systems. Understand why each connection type is used and how to set up your system

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Optical sensor and arduino code

Hello experts! I am trying to get an optical sensor to work, I'll use them as limit switches but for now am just trying to get them to work properly. I understand they have 3 connections - 5 V,

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Connection of sensors in series and parallel

Sensors can be connected in series with a load. For proper operation, the load voltage must be less than or equal to the minimum supply voltage minus the voltage drops across the series connected

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Understanding the series and parallel connection of

Unlike the series connection, solar panels connected in parallel operate independently of one another, making them ideal in applications with

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What is the best way to connect multiple sensors in parallel? I have multiple IMU sensors and I want to connect all of

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How to Wire LEDs in Series & Parallel the Right Way

Understanding the different ways to connect LEDs—whether in series, parallel, or a combination of both in series-parallel circuits—is key to designing a circuit that best fits your project's

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How to Use Optical Sensor: Examples, Pinouts, and Specs

Learn how to use the Optical Sensor with detailed documentation, including pinouts, usage guides, and example projects. Perfect for

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Parallel connection (OR) / Series connection (AND)

Parallel connection (OR) and series connection (AND) are possible. Click here for details. The “off-state current” of APS4-12S-E is less than 0.1mA. Theoretically, $4.5 / 0.1 = 45$ units can be

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How to connect solar panels together: Series, parallel, combo

Wondering how to connect solar panels together or even how to connect multiple solar panels together? In this guide,

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How to Wire Proximity Sensors in Series for Improved

Learn how to wire proximity sensors in series for efficient and accurate detection. Find step-by-step

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Series and Parallel Sensor Connections Guide

Learn about series/parallel sensor connections, wiring diagrams, and electrical considerations for NPN, PNP, and AC sensors. Technical guide for engineering students and professionals.

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Connection of sensors in series and parallel

Sensors can be connected in series with a load. For proper operation, the load voltage must be less than or equal to the minimum

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Wiring LEDs Correctly Series Vs Parallel Connection: In this instructable we're talking about LED - Light Emitting Diodes and how we

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How to Use Optical Encoder Sensor Module: Pinouts,

Learn how to use the Optical Encoder Sensor Module with detailed documentation, including pinouts,

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Wiring in series and/or parallel

Learn the key differences between series and parallel wiring in lighting circuits, with a simple guide to battery setups and basic

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Connecting Solar Panels in Series or in Parallel?

Connecting Solar Panels in Series vs. Parallel. What Is the Difference? In most modern solar panel arrays, the physical act of wiring multiple solar panels together is as simple as plugging in

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How to Connect Photoelectric Sensor Signal Wires: A Practical Guide

Learn how to connect photoelectric sensor signal wires to PLC inputs, relays, and other devices. This guide covers

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OpticalSensor Learning Wiring

Transmissive optical sensor without aperture Vishay TCST1000/TCST2000 by Diana Fernandez Demonstrates how to use a

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Parallel connection (OR) / Series connection (AND)

Parallel connection (OR) and series connection (AND) are possible. Click here for details. The “off-state current” of

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Your Practical Proximity Sensor Wiring Diagram Guide

A proximity sensor wiring diagram is just that—a simple illustration showing you exactly how to hook up the sensor to a power source and a control device like a PLC.

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Parallel Connection of Two Photoelectric Sensors in Industrial

Learn how to connect two photoelectric sensors in parallel for industrial automation. This guide covers electrical

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How to Connect Solar Panels in Series and Parallel

Connecting solar panels in series and parallel are two common methods for increasing the voltage and current of a solar panel array. When you connect solar panels in series, you connect the

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How to Connect Photoelectric Sensor Signal Wires: A Practical Guide

Learn how to connect photoelectric sensor signal wires to PLC inputs, relays, and other devices. This guide covers NPN vs PNP sensors, wiring configurations, and troubleshooting tips for

Aug 06, 2025

Series & Parallel Connection for NPN & PNP sensors

Series & Parallel Connection for NPN & PNP sensors. POB 1778 Greer, SC 29652 414 West Poinsett Street Greer, SC 29650 mike@traskinst Ph: 864-848-3993 :

Dec 10, 2025

What is the best way to connect multiple sensors in parallel

What is the best way to connect multiple sensors in parallel? I have multiple IMU sensors and I want to connect all of them in parallel with esp32 via SPI (but not using a breadboard). I want to

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FAQ00311 of Proximity Sensors FAQ

Question What series and parallel connections are possible with Proximity Sensors?

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Proximity Sensor Wiring: Series vs Parallel Connections Explained

Two primary wiring configurations dominate practical applications: series connections and parallel connections. The choice between them is not arbitrary but is dictated by the sensor type, the

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Series Vs Parallel Solar Panels: Wiring Guide & MPPT Tips | SolarTech

Series vs parallel solar panels explained with wiring diagrams, MPPT/PWM, shading performance, and inverter tips. Compare setups and choose the right configuration—read the 2025

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How to Use Optical Sensor: Examples, Pinouts, and Specs

Learn how to use the Optical Sensor with detailed documentation, including pinouts, usage guides, and example projects. Perfect for students, hobbyists, and developers integrating the Optical Sensor into

Contact Us

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