

Industrial Ethernet Dedicated Red Light Source Selection



AI Overview

For industrial Ethernet applications, a dedicated red light source should be selected based on intensity, control compatibility, wavelength, and mounting type to optimize machine vision or sensing performance.

Key Considerations for Selection

- Light Type and Illumination Method** Choose the type of illumination based on the inspection task and target surface:
 - Coaxial illumination:** Ideal for flat, reflective surfaces where direct reflection enhances contrast.
 - Ring or bar lights:** Provide uniform illumination for cylindrical or irregular objects.
 - Backlighting:** Useful for detecting edges, holes, or silhouettes of objects.
- Wavelength and Color** Red LEDs are commonly used for high-contrast imaging on certain materials, especially when monochrome cameras are employed. The wavelength should match the target material to maximize contrast and minimize interference from background colors.
- Intensity and Control** Ethernet-controlled lights, such as Advanced Illumination High Intensity In-Line Lights, offer precise control over brightness, pulsing, and gating. These systems can deliver up to 33,000 Lux at 100 mm working distance and support continuous, pulsed, or gated operation. Overdriving in short pulses is possible without damaging the LED using advanced control systems.
- Integration with Ethernet or IO-Link Systems**
 - Ethernet-controlled lights:** Can be managed via GUI or web browser, allowing remote adjustment and synchronization with vision systems.
 - IO-Link sensors with red LEDs:** Provide real-time diagnostics, automatic device configuration, and process data integration with EtherNet/IP or other industrial networks, enhancing reliability and reducing downtime.
- Mounting and Compatibility** Ensure the light source is compatible with your optical system. Many Ethernet-controlled lights are designed for 8 mm ports on telecentric lenses or backlight illuminators. Consider IP-rated housin...

Article Content

A Practical Guide to Machine Vision Lighting

Attempt to match your sensor's peak sensitivity with your lighting source's peak wavelength to take the fullest advantage of its output. Narrow

5 Steps to Selecting the Right Industrial Ethernet Cable

Industrial Ethernet Cable Selection: Jacket Options Again, depending on your application, selecting the right jacket material for your cable will ensure

How to Select the Right Industrial Ethernet Standard:

This is the third installment of "How to select the right industrial Ethernet standard," a blog series for designers who have decided to leverage industrial Ethernet in their systems. This series is covering

Special considerations for lighting selections in industrial ...

Learn about light fixture selection for heavy-duty/rugged environments. Lighting insights After reading this article, facility

Ethernet LED Indicators

Ethernet LED Indicators. The following table lists the Ethernet LED indicators. Table 14. Ethernet LED Indicators. Was this information helpful? The following table lists the Ethernet LED

Cisco IE 1000 Industrial Ethernet Switch Hardware

The Cisco IE 1000 Series Switches complement the current industrial Ethernet portfolio of related Cisco industrial switches, such as the Cisco IE 2000,

Industrial Ethernet Switches Selection Guide

This se-dustrial Ethernet Switch Selection Guide is lection guide highlights key issues, such designed to help organizations make in- as: formed choices when selecting industrial How best to evaluate both

Industrial Ethernet Switch Selection and Network Design

Industrial Ethernet Switch Selection and Network Design This guide provides a practical, standards-based approach to selecting managed industrial Ethernet switches and designing robust

How to select the right industrial Ethernet standard: Ethernet

In this series, I'm covering several common industrial Ethernet communication protocols to help you select the right standard for your application. In my previous posts, I discussed EtherCAT, Sercos III,

Products and Resources: Ethernet Routers/Switches

ISA's Flagship Publications January/February 2017 Focus on Ethernet Routers/Switches Focus on Ethernet Routers/Switches Products Summary

How to choose the color of machine vision light source?

The machine vision system consists of industrial lenses, industrial cameras, visual light sources, software systems, etc. The function of the light source is to clearly distinguish the measured

Industrial Ethernet Cable: The Ultimate Guide to Selection ...

Home - Blog - Industrial Ethernet Cable: The Ultimate Guide to Selection, Installation, and Applications Industrial Ethernet Cable: The Ultimate Guide to Selection, Installation, and Applications In today's

Illuminating Insights: A Practical Guide to Machine Vision Lighting

Discover the benefits of different machine vision lighting techniques, including backlighting, front lighting, darkfield, ring,

Programmable logic controller

A programmable logic controller (PLC) or programmable controller is an industrial computer that has been ruggedized and adapted for the control of manufacturing processes, such as assembly lines,

Machine Vision Lighting Selection Guide | KEYENCE America

Learn how to select the right lighting for machine vision inspection, including techniques to enhance contrast and improve detection accuracy.

unsupervised_topic_modeling/topics/en/17/100/100/topics at ...

Contribute to annontopicmodel/unsupervised_topic_modeling development by creating an account on GitHub.

Allen-Bradley Products | Allen-Bradley

Allen Bradley industrial automation components, integrated control and information solutions from Rockwell Automation make you as productive as possible.

Industrial Ethernet Switches: Features, Types, and Selection Guide

Industrial Ethernet switches are essential in modern automation and networking systems, connecting devices across various industries under challenging environmental conditions.

Industrial Ethernet Switches: The Backbone of Reliable Automation ...

Comprehensive guide to industrial Ethernet switches: managed vs unmanaged, PoE, redundancy (MRP, RSTP), VLANs, QoS, and environmental hardening. Optimize your OT network

Industrial Ethernet Switch Selection: Choosing Among

Selecting the right Ethernet switch for your industrial network depends on several key factors, including application requirements, distance,

The Machine Vision Lighting Guide for Engineers | Elementary

Achieve high uniformity using large solid angle light sources such as dome lights, ring lights, or integrating spheres,

Light Colors Used in Machine Vision: Choosing the

Learn about different light colors used in machine vision and their impact on image quality and accuracy. Explore how selecting the right lighting can enhance

Machine Vision Lighting Key Techniques and Source Selection Guide

This paper provides an in-depth analysis of illumination techniques in machine vision, covering electromagnetic radiation fundamentals, light-matter interaction, spectral utilization,

A Practical Guide to Machine Vision Lighting

Fig. 7 shows the advantages and disadvantages of Xenon, fluorescent, quartz halogen, and LED lighting sources, in accordance with relevant selection criteria, as applied to machine vision.

Vision System Lighting: Finding the Right Illumination | Basler AG

Without the right light source, reflections and dark or overexposed areas will occur. Therefore, pay close attention to lighting technology that suits both the intended use and the overall system.

Contact Us

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