Laser Diode Price Trends



Overview

For most of our customers building industrial fiber lasers or direct diode systems, the most important trend is not a new wavelength or record power level.

Key Takeaways

Laser diode prices vary widely, from under $1 for basic consumer diodes to tens of thousands of dollars for high-power or specialized devices.

Price Range and Factors

The cost of a laser diode depends on several key factors: Wavelength: Common consumer wavelengths, such as red diodes (630–670 nm) for pointers or optical devices, are inexpensive due to high-volume production, often costing less than a dollar per unit. Specialty wavelengths, such as 375–488 nm for biomedical imaging or narrow-linewidth lasers, can be significantly more expensive, sometimes reaching thousands of dollars. Output Power: Higher power diodes generally cost more.

Low-power diodes (10 W) used in industrial or research applications can cost several thousand dollars. Spectral Properties: Devices with narrow linewidths, single-mode operation, or specific spectral characteristics command higher prices due to precision manufacturing requirements. Package Type and Technology: Fiber-coupled modules, copper bar mounts, or specialized packaging increase cost compared to standard diode packages.

Quantity: Bulk purchases reduce the per-unit cost, while single-unit orders are more expensive. Typical Price ExamplesConsumer-grade diodes: Red or near-infrared diodes for pointers, optical mice, or levelers: $0. 50–$10 per unit.

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Specialty research diodes: Narrow-linewidth or single-mode diodes for spectroscopy or biomedical applications: $100–$5,000. High-power industrial diodes: 10 W–1 kW diodes for fiber laser pumping, materials processing, or medical applications: $1,000–$20,000+ depending on wavelength and packaging.

Where to Buy

Laser diodes are available from authorized distributors and specialized suppliers: Mouser Electronics: Offers a wide selection of diodes from manufacturers like ams Osram, KYOCERA AVX, and ROHM Semiconductor, with pricing based on quantity and shipping location.

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Key: Stocks a variety of laser diodes and modules with same-day shipping options. Laser Diode Source / Laser Lab Source: Provides high-power and specialty diodes, including pre-configured systems for R&D applications. Roithner Laser: Offers a detailed price list for UV, violet, blue, green, and red laser diodes.

Summary

Laser diode prices are highly variable, influenced by wavelength, power, spectral quality, packaging, and order quantity. For basic consumer applications, diodes can cost less than a dollar, while high-power or specialized research diodes can reach tens of thousands of dollars. Choosing the right supplier and understanding your application requirements are essential for obtaining the best price and performance.

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