

# Ultra Low Noise Laser Diode Modules

## Ultra Low Noise over Time, Temperature, and Life

Ultra Low Noise (ULN) diode laser modules are designed for applications that require particularly low noise or mode-hop, noise-free operation. Sophisticated drive electronics are used to ensure low noise output. Typical RMS noise is 0.06% or better for detector bandwidth from 10 Hz to 10 MHz, with practically no warm-up time.

ULN Series of laser diode modules feature an alternative solution to the mode-hop problem. Rather than regulate temperature, a special modulation is used to force the laser into a multi-longitudinal mode.

While a normal laser will operate in a single-mode longitudinal or oscillate between two strong modes, the modulation creates several modes of lower intensity. As the laser temperature increases, these modes move like a caterpillar across the wavelength spectrum. The movement does not allow abrupt changes, so the system operates as if there were no mode-hops.

The result is low RMS noise (~0.06%), which is stable over changes in temperature and the life of the diode laser module.

### FEATURES & BENEFITS

- Ultra Low Noise (ULN)
- RMS noise <0.06% for bandwidths of 10 Hz to 10 MHz
- Circular beam
- No mode-hop noise
- No warm-up period
- Wavelength 635 nm with 5 mW
- Long lifetime

### APPLICATIONS

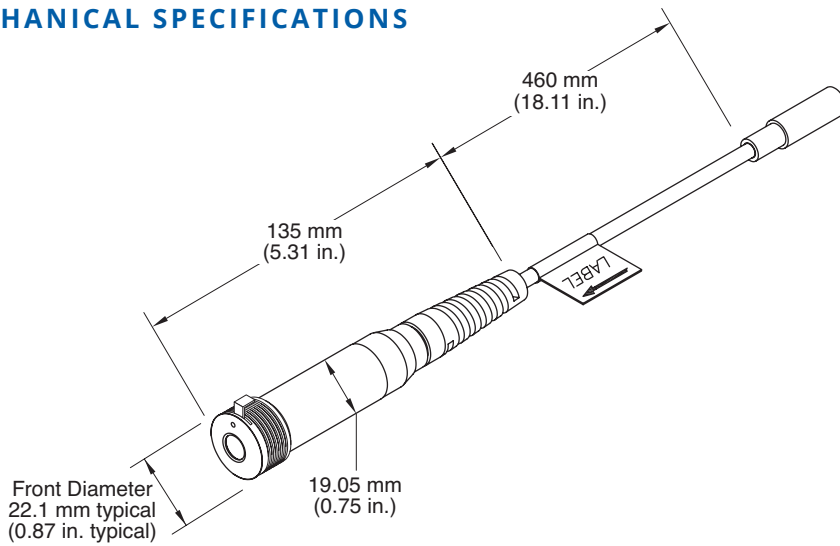
- Genomics
  - Particle Counting
- Flow Cytometry
- Confocal Microscopy
- Spectroscopy



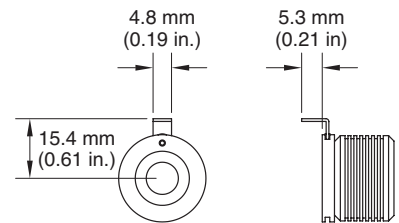
SPECIFICATIONS	ULN 635 nm 5 mW
Wavelength (nm)	635 +7/-2
Power (mW)	5
CDRH Class	Class IIIb, Non-Conforming
IEC 60825-1	3b
Spot Size (mm)	1
Divergence (mrad)	1
Laser Drive	Ultra-Low Noise (ULN)
Power Supply	Included (dual voltage)
Connector	5-pin DIN
Part Number	31-0144-000

## MECHANICAL SPECIFICATIONS

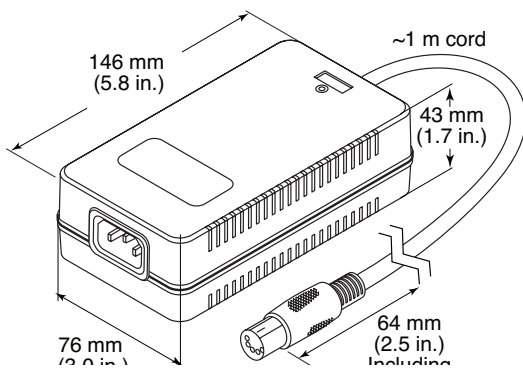
### ULN



### Safety Shutter



### ULN Power Supply



**Variable Angle Diode Laser Mount**

0221-449-00 Mount, Ultra Low Noide Laser Diode Module

Variable Angle, 1/4-20 inch Base, 19mm Bore

**Variable Angle Diode Laser Mount**

**FEATURES**

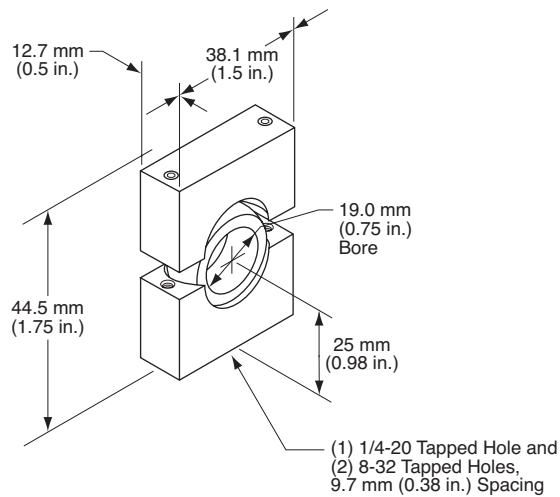
- Simple tip/tilt and lock in place mechanism
- Adjustable angle through about  $\pm 15$  degrees

This simple mount acts as combined heat sink, electrical insulator and variable angle mount for 19.0 mm ULN lasers. The lasers are held firmly in a spherical-surface brass ring by two small set screws. This ring is clamped between two insulating blocks forming a "ball and socket" arrangement. Two socket-head screws can be loosened to allow easy angular adjustment of the module ( $\pm 15^\circ$  range) and quick, rigid locking in position.



**MECHANICAL SPECIFICATIONS**

**ULN Variable Angle Mount**



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Ultra Low Noise Diode Laser Modules. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-XXX-20-0M1020 Copyright ©2020 Coherent, Inc.

